Can Design Catalyse the Great Transition?

Papers from the Transition Design Symposium 2016

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Robin Murray

This publication is dedicated to the memory of Robin Murray, our dear friend who passed away on the 29th May 2017. Robin dedicated his life to advocating and implementing new social and economic forms in his quest for a more equitable world in harmony with the ecological processes we experience in nature. He was a strong supporter of Transition Design and was an inspirational discussant at the Transition Design Symposium at Dartington in June 2016, contributing a paper on Design and the Political Economy of Transition for this collection. We are hugely grateful for his unique contribution, his pioneering spirit and his warmth, humour and wisdom.

Introduction:
Opening up the Conversation:
The 2016 Transition Design Symposium

The concept of 'transition', towards a more sustainable, equitable and convivial society, has become something of a meme in recent years, with the emergence and rapid spread of several networks and groups, such as the Transition Town Network and the Great Transition Initiative. Such projects not only share the common goal of 'transition' but also a consensus about what, broadly speaking, needs to be done to bring about this transition: rapid decarbonisation and development of circular economies; decentralisation of economic and political structures; development of new kinds of systems through which needs are met (food, energy, transport, monetary, health, education) and the recovery of community and restoration of ecosystems.

Transition Design belongs to this family of transition networks and groups. It is an area of design research, theory and practice that aims to catalyze systems level change, and, in the long term, to transform lifestyles. It has begun to influence the work of designers and design students interested in sustainability, as well as what designer Ezio Manzini would call 'non-expert' designers, (Manzini, 2015) people without formal design training who are nevertheless, devising "courses of action aimed changing existing conditions into preferred ones" to use Herbert Simon's definition of design. (Simon, 1996)

The concept of Transition Design was first proposed at the inception of the Transition Town movement in Kinsale, Ireland, in 2006. In recent years it has been incorporated into the design curriculum at Carnegie Mellon University, Pittsburgh. A Transition Design Framework (fig.1) that consists of four mutually influencing areas —mindset and posture, theories of change, visions and new ways of designing —was developed at Carnegie Mellon as a means of situating the various interrelated discourses on which transition design draws. These discourses include future studies, worldview theory, transitions management, human scale economics, social psychology and social practice theory. The transition design framework is being used as a basis for developing an approach to help transdisciplinary teams frame and address 'wicked problems' such as regional access to clean water, healthy food, affordable housing and transportation.

The event at Dartington was held in June 2016 and was the second Transition Design Symposium. The first was held at Carnegie Mellon University in 2015, and a third, entitled 'Southern Perspectives on Transition Design' was organised by Eina University (partners in the Transition Design network) in Barcelona, in June 2017. Each symposium has had a distinct flavour: the Carnegie Mellon Symposium involved many academics and practicing designers from the USA and Europe whilst the Eina symposium involved local, Barcelonan activists and researchers in, for example, energy and communication systems.

Dartington was a fitting venue for the second symposium, both with respect to its traditions of rural regeneration and progressive education, and because Transition Towns, now a worldwide network, was launched in nearby Totnes in 2006. The Dartington symposium aimed to begin a transdisciplinary conversation between designers and specialists/activists from other fields, including economics, psychology and theatre. There were four panels — Rethinking Design, Political Economy of Transition, Transition Values and Learning to Design and Implement Transitions. Each panelist submitted a paper and also synopsized a paper by another panelist which was followed by discussion between the panel and audience. The papers in this booklet are grouped according to the panel in which they were presented. The papers presented here are reflections on Transition Design at a critical point in its development from a range of disciplinary perspectives, they stretch, challenge and interrogate Transition Design providing interesting new perspectives and opening up new space for transdisciplinary dialogues.

We hope that Dartington Symposium helped to open up a conversation between design and other fields that share a mutual desire for rapid transition to a more sustainable society. This conversation will be taken further at the next Transition Design symposium which will be held, again at Dartington, June 21st-23rd 2018. We hope that you will be able to join us there.

References:

Manzini, E. (2015). *Design When Everybody Designs: An Introduction to Design for Social Innovation.* Cambridge: MIT Press

Simon, H. (1996) *The Sciences of the Artificial*, Cambridge: MIT Press p. 111

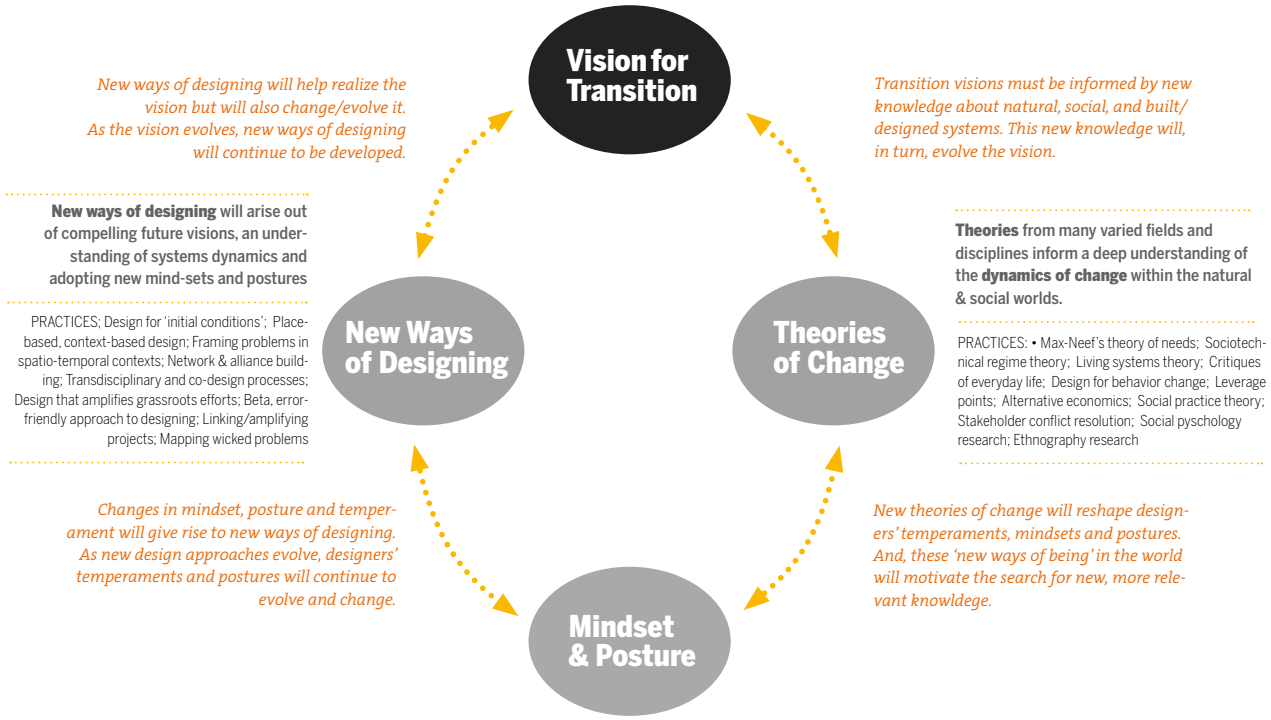
Figure 1

TRANSITION DESIGN FRAMEWORK:

Four mutually reinforcing and co-evolving areas of knowledge, action and self-reflection

Vison: Backcasting from co-created, long-term visions of sustainable futures creates 'transition pathways' from the present to the desired future. The vision informs projects in the present, which act as 'steps' along the transition pathway toward desired futures.

PRACTICES: Foresighting; Critical/speculative design; Backcasting; The three horizons; Experiental futures; Future scenarios; Developing; future narratives; Cosmopolitan localism; Everyday life and lifestyles; Domains of everyday life



New ways of designing will help realize the vision but will also change/evolve it. As the vision evolves, new ways of designing will continue to be developed.

Transition visions must be informed by new knowledge about natural, social, and built/ designed systems. This new knowledge will, in turn, evolve the vision.

New ways of designing will arise out of compelling future visions, an understanding of systems dynamics and adopting new mind-sets and postures

PRACTICES; Design for 'initial conditions'; Place-based, context-based design; Framing problems in spatio-temporal contexts; Network & alliance building; Transdisciplinary and co-design processes; Design that amplifies grassroots efforts; Beta, error-friendly approach to designing; Linking/amplifying projects; Mapping wicked problems

Theories from many varied fields and disciplines inform a deep understanding of the **dynamics of change** within the natural & social worlds.

PRACTICES: • Max-Neef's theory of needs; Sociotechnical regime theory; Living systems theory; Critiques of everyday life; Design for behavior change; Leverage points; Alternative economics; Social practice theory; Stakeholder conflict resolution; Social pyschology research; Ethnography research

Changes in mindset, posture and temperament will give rise to new ways of designing. As new design approaches evolve, designers' temperaments and postures will continue to evolve and change.

New theories of change will reshape designers' temperaments, mindsets and postures. And, these 'new ways of being' in the world will motivate the search for new, more relevant knowldege.

Living in & thru transitional times requires a **mindset and posture** of openess, mindfulness, self-reflection, a willingness to collaborate, and 'optimistic grumpiness'

PRACTICES: Shifting values: cooperation over competition, self-sufficiency, deep respect and advocacy for 'other' (cultures, species, etc.); Indigenous, place-based knowledge; Understanding/ embracing transdisciplinarity; Comfort with uncertainty, ambiguity, chaos and contradiction; Stakeholder conflict resolution; Radical collaboration; Understanding of worldviews

Transition Framework: Irwin, Tonkinwise & Kossoff

Background to the Transition Design Symposium 2016

We deliberately set out to bring together a diverse group of transition 'experts' for the Transition Design Symposium 2016 to discuss the topic of Transition Design and identify ways in which it can contribute to and help connect the myriad global transition efforts under way for greater impact and leverage. We provided invited panellists with several of the key ideas behind Transition Design and posed several questions related to each.

The questions we asked panellists were:

1. Respond to, expand upon or challenge these premises and principles of Transition Design.

2. Explore Transition Design or one of its principles through the lens of your own expertise, such as economics, policy, etc. How might it be used as a tool or approach within your own field?

3. Discuss how one or more of these principles and ideas might relate to projects and initiatives you are currently engaged in or have been in the past. For instance, how might the result have been different if they were incorporated or would the trajectory and outcome have changed?

4. Reflect upon the importance (or irrelevance) of one of the four areas of the frame work (vision, theories of change, mindset/posture, new ways of designing) or the interrelationship between any of these areas.

We also invited panellists to directly address one of the following questions, or propose an alternative paper relative to the theme of Transition Design:

1. What are the new knowledge and skill sets necessary to design solutions that must exist at multiple levels of scale over long horizons?

2. What can we learn from past examples of rapid societal transformation, and how far ahead can we 'design' for transitions?

3. What are the obstacles to global transformation, and how can Transition Design help to overcome them?

4. Whom do Transition Designers need to work with to create compelling visions of the future?

5. What can Transition Design learn from communities on the frontline of change, particularly in the global south?

6. Can Transition Design catalyse societal tipping points for transition?

We then grouped the papers into four panels, which are presented here in the order they were presented at the Symposium.

Because of the way in which we asked the questions, and the range of disciplines represented here the referencing is not consistent. They present a vibrant transdisciplinary conversation about the role and future of Transition Design, and the conversation continues to reverberate as Transiton Design grows.

Paper summaries

Rethinking Design: A Critical Perspective to Embrace Societal Challenges

Ingrid Mulder and Derk Loorbach

Ingrid Mulder and Derk Loorbach are thought leaders at the frontiers of systemic design and transition management, a field which has been developing in Northern Europe in recent years, and has now been integrated into Transition Design. This discourse focusses on the process and dynamics of transition of large-scale socio-technical systems (infrastructures, technologies, systems of consumption and production and related institutions) over long periods of time.

Ingrid and Derk argue that we need to completely reinvent our socio-technical systems if we are to meet the challenge of moving towards more socially and ecologically sustainable futures. This presents "a collective societal design challenge...processes of societal experimentation, iteration, prototyping, and scaling ...guided by visions and future images [we need to] rethink design thinking and the design profession". They discuss the Multi-Level Perspective, a tool for analysing how socio-technical regimes (such as energy, transport and food systems) come under pressure from 'landscape' events beyond their control, but can be penetrated and ultimately transformed by 'niche' experiments. This is a long-term, non-linear process that calls for a new, expanded way of designing that is orientated by future images and backcasting, and that looks to cultivate niches that may eventually develop to challenge regimes. This analysis is applied to design itself: niches need to be developed within the design regime, so that it undergoes "a transition toward a field of transition design". In the context of the transition of socio-technical systems, the developing practice of participatory city making is discussed. This brings together transdisciplinary groups of "professional designers, academics, policy makers and citizens" to "combine top-down management with bottom up social innovation" who can collectively explore and develop radical, experimental, niche alternatives. It is clear from this paper that there are vital connections to be made between the realms of academic and professional design and the scholars and researchers within the Transitions Management field.

Reframing Economics as a Design Challenge

Tony Greenham

Transition Design has argued that one of the great challenges design faces is its embededdness in the dominant economic paradigm. Conversely, economist Tony Greenham argues that since market rules and institutions (such as property rights and judicial systems) have been socially constructed, that is, designed, economics "should be reframed as a design challenge". By contrast conventional economics (derived from outdated but allegedly 'scientific' assumptions about humans and complex systems) allows leaders to present economics as a natural, undesigned, phenomenon that cannot be challenged. Tony draws on Herbert Simon's definition of design as "devising a course of action aimed at changing existing situations into preferred ones", arguing that a design mentality within economics would ask "what changes to the current set of institutions and rules might lead to a better outcome?" He proposes that several design principles and practices, such as iteration, co-design and prototyping, are necessary to redesigning the economy. In short transition designers and transition economists need to work together if we are to move to more sustainable and desirable future lifestyles.

Transition Lenses: Perspectives on Futures, Models and Agency

Dan Lockton

Dan Lockton argues that design has a particular responsibility in relation to transition to more sustainable futures since it "to some extent creates the future it predicts". The futuring process, therefore, must be a nuanced and exploratory one that opens up discussion and critical imagination: singular, linear and deterministic vision is likely to be constraining, homogenizing and inadequate to the task. Rather, design needs to emphasize complexity and plurality, to focus on the freeing of human agency and instead of simply presenting desirable futures extrapolated from innovatory contemporary practices, it should aim to create "critical complicated pleasures". Dan proposes experimentation with "iteratively refined, living examples" — 'living labs' and 'prototype districts' — where new everyday social practices and new social and political forms that may help us transition, can be explored. All this places

'mindset and posture' at the center of the Transition Design process, since designers cannot hope to espouse new models of humanity without changing the way they think about the world and themselves.

Values in Transition Design

Tom Crompton

Tom Crompton outlines an approach to understanding human values ("higher order motivations that organize ... attitudes and behaviours") and the relationships between values, according to whether they are compatible or oppositional. Such relationships have been found to be universal: emphasizing and encouraging a given value will tend to lead to the engagement of related values and the suppression of opposing values. For example, encouraging people to value social justice is found to encourage "adjacent" values such as environmental protection, whereas promoting social status tends to diminish the value placed on both of these.

Addressing systemic sustainability issues, which require long-term, cohesive and sustained responses, we need "to identify the constellation of human values that motivate people's support for positive change", such as creativity, beauty and friendship. Correspondingly, appeals to opposing values such as wealth or social status – exemplified by the approaches of putting a financial value on the natural world, or appealing to social status in promoting new green technologies – are likely to be counter-productive.

Similarly, visions of alternative lifestyles need to invoke and develop clarity around what people value in their everyday lives, rather than getting caught up in the details of how such societies would work. This article demonstrates that the 'mindset and posture' area of the Transition Design Framework is vital. It is not simply that mindset and posture influence how wicked problems are understood and addressed. Rather, mindset and posture, it can at least be argued, need to become the generative force behind addressing such problems.

Encountering Theories of Change in Economics for Transition

Julie Richardson

Julie Richardson writes from the perspective of transition economics, exploring in particular the relationship between two areas of the Transition Design Framework — Theories of Change and Mindset & Posture. She shows how transition economics is convergent with transition design, and the similarity of the tools and mindset necessary to both.

Contrary to conventional economics, which ignores the inner world, Julie argues that "economic relationships stem from our beliefs, values, and world views informed by our levels of awareness as we strive to satisfy our own wants, needs and desires". It is not, therefore, sufficient to challenge the system solely by prototyping alternative economies. Accordingly, Julie draws on Ken Wilber's Integral Theory to explore how the inner and outer world co-arise in our everyday experience, and as a framework for the use of storytelling and various reflexive practices. Secondly, she describes how she employs Otto Scharmer's 'Theory U' to attune and sensitise transition economists to possible emergent futures, to that which is "trying to come to life". Finally, it is argued that that theories of change must incorporate an ecological (complexity) worldview (mindset). The two areas of Transition Design/Transition Economics are therefore inextricable.

Dramaturgy of Transition

Lucy Neal

Lucy Neal argues that the transition process, and therefore Transition Design, cannot afford to neglect the imagination as a means for transforming the narratives we live by and as an agent of change. She argues for a dramaturgy of transition — the invention and enactment of myth, metaphor and story in community and everyday life contexts. This, she says, would be a "great reimagining of a liveable world" and would "help us glimpse other ways of seeing and feeling... [from these]...different futures can emerge".

Lucy reminds us that the various areas of the Transition Design Framework are entangled, and that "re-enfranchising" the imagination is not only necessary to visioning and shifting world views but also to theories of change. There is, after all, a limit to how far the social practices and socio-technical systems that are explored within this area can shift without a corresponding shift in underlying imaginaries.

Testing Rapid Transition in Historical Perspective

Andrew Simms and Ruth Potts

Informed by the historical precedents of large-scale social and socio-technical transitions in Great Britain before WW2 and post-cold war Cuba, Andrew Simms and Ruth Potts make the case for a rapid and far-reaching designed transition in the 21st century.

In Great Britain rapid transition was achieved in various ways such as addressing inequity, rationing, taxation on luxury goods and emphasizing cultural, instead of material, production. This was often localised and led by popular initiative of ordinary people rather than the authorities. In Cuba, the collapse of the Soviet Union meant the end of cheap oil and fertilisers, devastating the economy and creating food shortages. But prior to the collapse many locally based urban and rural niche experiments in organic farming had been underway, and they were now able to initiate "a revolution from below only later supported and extended by action from the national government". State institutions and collectivist traditions meant that this initiative was relatively easy to build on and expand, and there resulted a top-down/bottom up partnership through which a rapid transition to a sustainable and self-reliant economy could occur.

Both examples show how grassroots, local initiative combined with collectively coordinated action can lead to rapid transition, and how limited resources can be targeted to help this process. Ruth and Andrew demonstrate that an understanding of historical transitions is a crucial element of Transition Design and that rapid transitions are likely to be designed from below but cannot get very far without widespread nationally networked coordination and collaboration.

Preparing for Enlightenment

Hilary Cottam

Transition Design has emphasized the need for the transition of large-scale societal systems in an effort to address the enormity of the systemic problems we face. But Hilary Cottam, who also argues for a systems approach that connects elements of complex, non-linear wicked problems, emphasizes that transition is personal as well as societal: we need to "go up a level" but also to "go down", to keep the person, the wider community and the system in view at the same time. Hilary illustrates this approach with her work with the ageing in the Circle project, the purpose of which is build relationships between people and to connect "people with mutual or complimentary interests, needs and abilities [making] incursions into the systems which surround it and of which it is part". Hilary argues that if this process is supported by technology, it could promote the development of robust social networks embedded in people's everyday lives, and reorient the welfare state, so that it becomes more about developing core capabilities than managing crises. In short, navigating the relationship between the personal and the systemic is a core skill for any designer, or social activist who hopes to reweave the fabric of our everyday lives.

Design and the Political Economy of Transition

Robin Murray

Transition Design aspires to catalyse transitions in entire socio-technical systems. In this paper Robin Murray, who was an economist, discusses a project in which he was involved in the 1990s, to transition the UK's waste management system. The project was conceived as part of a new kind of distributed, neighbourhood based "social economy", the primary purposes of which were social and environmental, not profit. It had rapid initial success, spawning many municipally backed community recycling schemes, bringing "waste out of the shadows" and encouraging household participation. But the project could not "scale" or be sustained because of the dominance of the traditional waste industry and the market economy, because of the recyclers lack of access to finance, research and communication tools, and because of inadequate "interface" with the local state. Robin suggests that were the scheme to be attempted today, it would have the great advantage of digital platforms which would enable "citizen to

citizen relationships to an extent undreamt by the community recyclers", and can potentially reduce waste by changing the way products are "designed, produced, used and redistributed." From a Transition Design point of view this is a fascinating case study in the challenges of transitioning entire socio-technical systems which have multiple interrelated and mutually influencing elements: successful transition requires that all such elements (economic, social, technical, political etc.) are taken into account.

Implementing Transition Design: It Takes a Village to Raise a Child

Clare Brass and Julia Lohman

Clare Brass and Julia Lohmann relate the four areas of the Transition Design Framework (Vision, Theories of Change, Mindset & Posture and New Ways of Designing) to a specific problem — the question of how transition-related business ideas generated by design students can develop into businesses once studies have concluded. As a case study they draw on a proposal to make insects part of our everyday diet. This begins with a vision of insects as a staple food, an idea alien to current norms, but because of its inherent logic, an idea that may act as a 'magnet' towards a different kind of future; in asking what are the obstacles to the realisation of this vision the proposal works with theories of change; in asking how students can maintain a 'transition mindset' that can drive such projects the proposal works with mindset and posture; and in arguing that the academic system needs to be reformed so that it can support design projects from conception to implementation (which may take decades) and that this occurs "from the creation of a thing to the implementation of a system", they are arguing for a 'new way of designing'. To support this, Clare and Julia propose a 'Transition PhD', that fosters partnership between education and practice and would give institutional and networked support to such projects until they mature. This discussion anticipates an emerging Transition Design approach which takes complex (wicked) problems and uses Vision, Theories of Change and Mindset & Posture to fashion a New Way of Designing that is appropriate to long-term, systemic transition problems.]

Transitioning Organisational Practices Through Design Thinking

Lucy Kimbell and Beatrice Andrews

Lucy Kimbell and Beatrice Andrews note the spread of design based approaches ("managing iterative processes, making mock-ups of new concepts, and focussing on people's experiences of processes and strategies ... materialising and synthesising possibilities to explore the future in the present") into the realm of public service and policy making, and the introduction of design based approaches to people from other fields. In this connection they discuss their experiences of teaching service design to management students. Many within this sector are engaging in the kind of complex challenges that transition design hopes to address by working within organizations to implement large scale change. Conversely, in addressing complex problems transition design will need to engage with this sector. She argues that for Transition Design to take hold it needs to understand these organizational structures, capabilities and practices and how these may be shifted. Transition will be, after all, strongly dependent on the ability and willingness of such organizations to implement systems level change.

Design Education for Wicked Problems

Sevra Davis

Sevra Davis argues that the promotion of good design has been an important part of the RSA agenda since its founding in 1754, and that as design is being increasingly broadly applied, it is becoming an important element of all levels of education. Currently the RSA offers workshops and seminars on design thinking and is working with others to promote design education in schools. It holds annual Student Design Awards which ask students to work with 'wicked problems', defining, researching and addressing these within their wider social, economic and environmental contexts. But, Sevra argues, although design thinking and service design in particular are becoming ubiquitous, they are generally being employed to make us do the same things better, rather than "jolting us into different ways of doing things". Rather, design has the potential to become a powerful force for social transformation and for developing collaborative solutions to address wicked problems. In so doing it can unleash social creativity and "empower

people to become change makers." The challenge for both the RSA and Transition Design in general, is to resist the kind of appropriation that will undermine this radical potential.

Eco-literacy in Transition

Emma Dewberry

Emma Dewberry argues that if designers are not 'ecoliterate', their efforts at sustainability are likely to fail. It is probable that such designs will continue to feed current patterns of globalised production and consumption and to perpetuate the problems caused by these. Ecoliteracy means that all design should be informed by its ecological and social context. It requires that we find new solutions to meeting human needs with a long horizon of time in mind. These processes and solutions need to embody new kinds of stories –Ð about resource use and flow; people and place; technology and innovation. In order to generate these new stories, designers need to engage with the 'ecology' of any given design. This not only includes traditional ecological relationships connected to resource origins, habitats and harvesting but also current cultural practices, technologies, policies and infrastructure that influence a design at multiple scales. Emma argues that the creation of the Fairphone is a new product story that begins to communicate its own design ecology.

Panel 1.
The Rethinking Design Panel

The three papers presented here ask us to rethink design as a field that engages in the transition of meta-structures (cities, economies, socio-technical systems) and participates in transdisciplinary efforts to reinvent these over long horizons of time. Ingrid Mulder and Derk Loorbach discuss this from the perspective of 'transition management' which analyzes how socio-technical 'regimes' (such as energy and food systems) fracture as they come under pressure from 'landscape' events beyond their control. This in turn allows 'niche' interventions to take hold and initiate socio-technical transitions. Both Ingrid and Derk and Dan Lockton make the case for the importance of futuring in relation to transition. Dan argues that the futuring process should be nuanced, pluralistic and critical and that it should be fostered by experimentation with new social practices and with new social and political forms. Tony Greenham argues that the economic system is a designed system. Therefore economics should be reframed as a design challenge, using design principles and practices and there should be strong collaboration between transition economists and transition designers.

Rethinking Design: a critical perspective to embrace societal challenges

Ingrid Mulder and Derk Loorbach

Introduction

Across modern, developed economies we are confronted with the need to completely reinvent our economies and its associated systems of consumption and production. Whether we look at our energy, mobility, water management, or construction systems, or at our labour market, education, and health care systems, they are all increasingly under pressure. The way our modern society has been developing along parameters of economic and demographic growth, specialisation and optimisation, efficiency and planned innovation no longer produces the kind of social innovation, sustainability, and quality of life we aspire. In other words, we can no longer rely on optimising existing systems, infrastructures, and technologies as well as knowledge infrastructures to deliver the kind of radical alternatives that we need to come towards a zero emission built environment, completely renewable energy systems, electric and shared mobility, inclusive economies, sustainable food production and consumption as well as affordable and human-based health care.

In the current work, we frame these challenges to reinvent our modern welfare society, its institutions and economy, as a collective societal design challenge. We will draw from the research field of sustainability transitions and transition management to formulate how design thinking is a critical part of moving away from unsustainable, locked-in regimes through processes of societal experimentation, iteration, prototyping, and scaling guided by inspiring visions and future images. We will link this multi-level perspective approach to the emerging debate around 'Transition Design'. Rather than to building upon the existing dominant regimes in the world of design research and practice by broadening its scope and methods, we take a critical perspective and argue that we need to rethink how design thinking and the profession of designers could be of value in societal transitions. This, consequently, implies a transition in the design regime

itself. We conclude by formulating a number of (radical) design principles enabling Transition Design to cope with the challenges of a transforming society.

Transitions

Transitions are understood as long-term, complex, and non-linear processes of systemic change. They usually take decades to mature and become visible at the societal level – think about the current energy transitions, which roots can be traced back as far as the 1970's – and are only fully recognisable in hindsight. This also implies that transitions are highly unstructured, uncertain, and ambiguous: they cannot be predicted or planned in linear or top-down ways. In transitions research, they are defined as structural changes of societal regimes: i.e., dominant cultures, structures, and practices in a societal subsystem. Differently phrased, regimes are the general term referring to the dominant way in which a societal function is organized, including dominant values, technologies, institutions, routines, and practices. Taking the energy transition as an example, we can argue that the historical energy transition has led to a dominant regime of centralized, efficient energy production based upon fossil fuels in which consumers have been disconnected from production, and professionals organize the system.

Such regimes are highly dynamic: there is continuous innovation and change to adapt to changing contexts (new technologies, economic and political changes, changing consumer demands etcetera). However, such regimes also develop path-dependently building upon established cultures, structures, and practices. A transition occurs when such regimes are confronted with increasing pressures from their context (landscape), are increasingly unable to adapt to these changes by incremental improvement, and are confronted with radical alternatives that become competitive. This pattern then leads to internal crises within the regime, creating more space for alternatives until a tipping point (or multiple) are reached after which the system shifts towards a new regime. In practice, this often implies turbulent processes in which incumbent actors seek to prolong their existence, trying to delay transitions by for example trying to fight off alternatives and increasing tensions and conflicts between the old and new. In the energy system we clearly see this pattern in which by now consensus about the need and desirability of a shift to a sustainable energy system is there (landscape), there are multiple crises facing the fossil energy regime (resistance, divestments, low oil prices, bankruptcies, diverging interests) and competing alternatives (zero energy buildings, electric cars, renewables etcetera).

From historical research, we learn that regimes including existing institutions and government policies and regulations, are by themselves unable to proactively guide and manage transitions. It are individuals within such regime organisations combined with outsiders, that over time develop new ways of thinking, organizing, and working that eventually might evolve into a new dominant regime through the described process of transitions. The approach of transition governance is based upon this idea that specific actors have the ability, capacity, and desire to reflect upon the path-dependent development of a particular regime, and develop alternative ideas and practices. By bringing these together in transition arenas, processes of societal design are facilitated: going through a process of reframing and problem structuring (understanding a societal challenge in terms of reinventing a regime), developing guiding principles and future images, formulating back-casting scenarios and pathways, and ultimately developing and implementing transition experiments. Such processes are designed as social learning processes in which the objective is to inspire, motivate, and connect change agents in society so that they act more strategically and reflexively to become influential in the transition context they operate in. The developed future images, scenarios, or experiments in themselves are much less relevant: it is about how the actual actors and organisations take decisions in their everyday practices.

What does it mean for design as a discipline?

Within the design discipline, there has been a growing attention for the role of design in addressing societal issues. Once started as a discipline focusing on products and objects, later much more attention was given to services, processes, and networks, and the attention is currently shifting even more broadly to sustainability and the future. The concept of DesignX (2014) is exemplary of this gradual shift. Even more noteworthy is the discussion on the PhD-Design mailing list that the corresponding DesignX article by Norman and Stappers (2016) evoked; see for example reactions as: 'observations from PlanetX' and 'education for big stuff' that illustrate design as being a regime. With DesignX Norman and Stappers (2016) suggest that "designers cannot stop at the design stage: they must play an active role in implementation" (p. 83) and wonder "how design could address the complex issues that he world current faces" (p. 84). Moreover, they stress that "designers must develop new ways of dealing with these complex systems" (p.91). In short, the stance is on expanding the design discipline. DesignX as a future path for design is in fact a further step along the path-dependent optimisation of a design regime in which the designer is the central figure, the quality of the design is assessed by peers rather than its societal relevance, and it is about how to better supply designs

and design expertise to society. These changes, adaptations of the regime, are a response to societal changes in which the design discipline is criticized for not delivering enough value, is forced to engage more with society to gain legitimacy and support from society. From this perspective, DesignX is not so much different from enhanced participatory policymaking or even a highly efficient coal-fired power plant: they are further optimisations of a regime of which we can ask ourselves whether it is sustainable on the long run as a whole.

If we look more broadly to the role of design in the context of societal challenges, we do see a large number of niches: initiatives, experiments, and places in which design thinking, design expertise, or designers are working in a completely different way: outside in, reflexively, facilitating social innovation. These niches are still too often not taken too seriously by the regime, and oftentimes ridiculed or dismissed. In the current work, we turn to these niches as the weak signals that might provide us the contours of a transition perspective for the design discipline, aiming to enable a better framing of Transition Design. In other words, the question is whether the current design regime is sustainable for the future, or whether more systematically and strategically experiments with new ways of thinking, organizing, and working in and with design should be welcomed. In our view, Transition Design should accept the latter challenge: a transition toward a field of Transition Design.

Participatory City Making as a niche experiment

One of our current niche experiments is conducted within the project called Participatory City Making (Mulder, Loorbach, & van Waart, 2015), which is briefly introduced below.

Societal challenges ask for a new paradigm in city making, which combines top-down public management with bottom up social innovation (e.g., Bria, 2015; Mulder, 2014; Loorbach, 2014). Not only are new strategies, ideas, and ways of organisation needed to cope with societal challenges, but also co-creative partnerships demonstrating a sustainable relationship to make a transforming society happen. It is not about who drives, but finding a mutual drive (Mulder, 2014). The biggest challenge is to embrace a new collaborative attitude, a participatory approach, and have a proper infrastructure that supports this social fabric.

This new city making process is not only about bringing various disciplines together that address urban developments, but foremost to establish a collaborative effort of defining

a new way of working between professional designers, academics, policy makers, and citizens. Differently put, a shift from 'city management' to 'participatory city making'.

In the Participatory City Making project we enable the different city makers to collaboratively explore alternatives and to articulate their different viewpoints. Contemporary city making asks to go beyond disciplines, leveraging spatial, technical, and social disciplines through a trans-disciplinary approach, anticipating the unpredictable and rapidly changing futures and dealing with societal challenging. In this, the role of the objects (prototypes) moves from the object of design (elements of the hard city, such as buildings) towards facilitating values-oriented trans-disciplinary and participatory city making. The object of design is, consequently not the main focus anymore, the collaborative framing through participatory prototyping of what (object) to design has all eyes focused upon to develop more complete and integral viewpoints enabling designing for resilience.

The Participatory City Making approach connects current top-down initiatives with bottom up social innovation and uses a human-centred design perspective to guide the entire design process. Participatory city making processes seek to envision desirable futures, experiment with radical alternatives and work towards a process of collaborative experimentation, testing, redesign, and improvement related to sustainable urban environments. We address societal challenges and the corresponding complexity on three levels: the level of society itself, the level of the problems facing our society, and the level of dealing with these problems (Loorbach, 2010).

Such a participatory city making process envisioning liveable and sustainable urban environments goes far beyond simple, or even complex, product-service design; it has political, organizational, and even cultural implications. Next to that, solutions only work when they fit in with and arise from the everyday settings people live in. Therefore, the citizen's need is taken at the heart of the city making process, which is studied by using real-life context and the actual stakeholders involved.

Consequently, to emphasise the human scale, a Quadruple helix approach emphasising a human-centred focus is vital for engaging stakeholders from public sector, industry, education and research as well as citizens in a shared process of knowledge production in which they collaboratively envision desired future cities (Brodersen, Dindler, & Iversen, 2008; Carayannis & Campbell, 2012; van Waart, Mulder & de Bont, 2016).

Participatory City Making has its roots in participatory design and transition management, and uses best of both worlds to deal with the complexity of engaging all stakeholders and beneficiaries representing the quadruple helix are engaged throughout the city making process in co-creative practices, avoiding the dominant stake of todays' top-down service providers (e.g., government, large ICT companies). Interestingly, participatory design and transition management have many things in common; both disciplines are future-oriented, address people and institutions, and increasingly deal with uncertainty, fuzziness, complexity, as well as cultural issues. Moreover, participatory design and transition management negotiate the needs of different stakeholders, aiming at developing more complete and integral viewpoints. These disciplines however, act on a different (urban) scale.

Design principles for Transition Design

Elaborating upon these 'niche'- experiences and taking a transition perspective, we have come to formulate a number of (radical) design principles for a design transition towards a field of Transition Design. Of course, we cannot see such a transition of the design regime isolated from other societal changes. For example, the participatory turn and the maker movement have contributed largely to fact that 'everybody is a designer', as is the current debate on 21th century skills.

Below, we list a variety of design principles that need further action to transition 'Transition Design' as a field that embraces societal challenges. These, are, however, strongly related and intertwined and meant to contribute to the current debate, not to be exclusive:

- Everybody is a designer;
- and if not yet, everybody needs to have design skills.
- Rethinking design expertise.
- Design expertise need to address reflexivity and sensitivity as increasing important values
- Rethinking the object of design.
- The object of design is becoming less relevant and moves to the background, instead societal impact is key.

- Actions speak louder than words. It is no longer ‘what design can do’, but the value of design, as an evidence-based approach, needs to be evidenced by its impact.
- Objects are increasingly used as ‘boundary objects enabling collaborative framing.
- Rethinking design processes. Doing design as a collaborative process.
- Embracing societal challenges and corresponding complexity rather than ‘dealing with them’
- This complexity needs to be embraced on three levels: the level of society itself, the level of the problems facing our society, and the level of dealing with these problems.
- Societal challenges are ‘wicked problems’ and ask for multiple perspectives and trans-disciplinary approaches.
- Rethinking the design field
- Rather than expanding the design discipline along the path, design should be embedded in other disciplines.
- Rethinking the role of designers
- The designer is no longer the sole change agent.
- Designers are increasingly facilitators of social innovation.
- Designers are orchestrators of the multiple stakeholders and disciplines involved, as well as the relationships between people, products, services, and infrastructures.
- A shift from human-centred to citizen empowerment
- Citizens need to be in the heart of change: in order to drive social changes, empowerment is crucial; without willingness and personal commitment, challenges cannot be met.
- Design for resilience needs the development of more complete and integral viewpoints
- Different disciplinary (non-)designers need to team up as co-creative partnerships
- Co-creative partnerships demonstrating a sustainable relationship can make a transforming society happen.

- Collaboratively envisioning desirable futures, experiment with radical alternatives and work towards a process of collaborative experimentation, testing, redesign, and improvement related to sustainable urban environments.
- Rethink collaboration and ownership. Transitions are understood as long-term, complex, and non-linear processes of systemic change. Thus, designers need to handover the project and process.
- New forms of collective action (instead of design-driven).
- Societal challenges ask for a new design paradigm, which combines top-down management with bottom up social innovation.
- The biggest challenge is to embrace a new collaborative attitude, a participatory approach.
- It is not about who drives, but finding a mutual drive.
- Establish a collaborative effort of defining a new way of working between professional designers, academics, policy makers, and citizens.
- Design for the ripple effect: societal impact, systemic change, self-sustaining, and self-organisation.

In Conclusion

In this paper, we have elaborated upon transition management and used the multi-level perspective as a lens to illustrate the current design regime. Next, we introduced the research through design project Participatory City Making as a niche experiment that challenges current regimes. With the proposed approach of research through design and the design principles that we presented, we aim to contribute to the field of Transition Design both to make the different levels and Transition Design activities more explicit, but more importantly, to enhance the dialogue and discourse in Transition Design.
A better framing process, in combination with more systematically and strategically experimenting with new ways of thinking, organizing, and working in and with design, is an essential next step in addressing societal issues in the context of a sustainable future and the design of a resilient society.

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Transition Lenses: Perspectives on futures, models and agency

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It's a curious phenomenon of linguistic ambiguity—of which I'm not knowledgeable enough to know the correct name—that phrases such as Transition Design can be interpreted in multiple different senses. Among others, it could be 'the design of transition', 'designing for transition' (DiSalvo, 2015, p.54), or it could be an imperative: 'you had better transition (the subject of) design (or else)!'; verbing weirds language, as they say (Watterson, 1993). But, actually, this last sense is quite useful; if I understand the emerging mission of Transition design (Irwin *et al.,* 2015), it is also about transitioning 'design' itself to something different, through educating a new generation of designers with different assumptions and mindsets, with the abilities, motivation, and vision to "facilitat[e] social change toward[s] more sustainable futures" (Tonkinwise, 2015, p.85).

What would it mean to transition (as a verb) design (as a noun)? One approach could be to teach, and present, the practice of design as being less about solving assumed static problems, and more about understanding complexity, understanding what agency is possible within the systems we are in, and speculating in an informed way about how things could be different. It would recognise that design which adopts a singular, linear vision of 'the future', and future human behaviour, does not deal adequately with the complexities of humanity, culture and society, let alone our place within the ecological systems of the planet.

Thus, design needs to tackle 'the future' in a more nuanced and exploratory way, not the conventional approach of "trying to pin the future down" in Dunne & Raby's words (2013, p.2), but adopting the mantle of offering at once both propositions and statements, 'This?' and 'This!' as Dilnot (2015) puts it. Design could be treated as "a conversation for action... [about] what to conserve and what to change, a conversation about what we value" (Dubberly & Pangaro, 2015, p.74). This would be a plural field, a flowering of alternatives which opens up discussion of, and provides examples—and potentially even 'patterns' for—different futures, with different voices, humble in its certainty, but confident in its challenge to existing paradigms.

Both design and sustainability are about futures—bringing into being a world where humanity and other forms of life will "flourish on the planet forever" (Ehrenfeld, 2008, p.6) or where we can 'go about our daily affairs... [knowing] that our activities as civilised beings are expanding our future options and improving our current situation' (Sterling, 2005, p44). Design might be one of the mechanisms by which much of our current predicament has come about (Papanek, 1971), but perhaps 'the future with a future for "us" can only be reached by design' (Fry, 2015, p8).

There are lots of trite things one can say about futures, and 'the future'. But some which, if true, are fairly fundamental, and yet somehow easy to forget, are the notions that:

- there is no 'future', as if it were a destination at which we arrive collectively, any more than the same 'tomorrow' exists when the clock strikes midnight;
- even if we think about 'future' as 'a state we are continuously transitioning towards', this is again something that is an ongoing, perpetual (but not smooth) process in which that 'next state' is itself changing, rather than something fixed to arrive at;
- even taking the concept of 'future-as-a-state-we-are-continuously-transitioning-towards' as useful, there is no more one future for all of us, than there is, experientially, one present, or one past.

And yet, the power of imagined future(s), the imagined state(s)-that-we-are-transitioning-to, is immense. They motivate, inspire, horrify, provoke action, set people on political careers and secure venture capital funding. They may be presented as desirable futures, undesirable warnings, somewhere in between, or not given an explicit intended valence by their authors. They may become self-fulfilling, or worm their way into our collective minds to become staple, if not stable, tropes in our culture. The act of presenting, or proposing, one future of the infinite that could have been proposed immediately makes it into an object, a thing to address. Many of these imagined futures have (traditionally) come from literature, and, in the last century, film, rather than design; as Dunne & Raby (2013, p.189) point out, as the field has developed, speculative design proposals are often "closer to literature than social science".

One tension here, then, is perhaps also a fairly basic one: should Transition Design, in aiming to produce "more compelling future-oriented visions... to inform and inspire projects in the present" (Irwin *et al.,* 2015, p.8), be only about creating 'desirable' visions, 'preferred situations' (Simon, 1969)? Or should it also aim to provide critical "complicated pleasure" in Dunne & Raby's (2013, p.189) term, "highlight[ing] dilemmas and trade-offs

between imperfect alternatives", or explicitly provoking agonism or revealing hegemony (DiSalvo, 2012), instead of only suggesting ways to transition to more sustainable states of being, for society and the planet? Should Transition Design be "about doing politics, attempting to give voice to the powerless and celebrating the notion that there are different social productions of nature that are possible?" (White, 2015, p.43); should the "compelling future-oriented visions" extrapolate from current examples of novel (I hesitate to say 'best', because that misses the point) practice at a community level, locally situated and emergent, but globally relevant, such as the initiatives of the Transition movement?

We can perhaps see experiments in the present—whether framed as speculative design, provocations, or practical, local, social innovation projects—as pragmatic thought experiments for Transition design, in the sense of "contemporary society [being] seen as a huge future-building laboratory" (Manzini, 2015, p.58). These "alternatives in the present" (DiSalvo, 2015, p.51) can be, in a sense, experiential futures, not just presented as visions, but perhaps even possible to inhabit. The idea of 'living labs' (e.g. Keyson *et al.,* 2016) not primarily as venues for testing new technologies, but for studying changes in social practice in everyday life (Scott *et al.,* 2012) or even through enacting new political or social structures, is a tantalising one for Transition Design. 'Prototype districts', perhaps enabled at a city scale (e.g. Mexico City's Laboratorio para la Ciudad (Gómez¬Mont, 2016), in Eindhoven (Jain, 2015), or many Finnish examples described by Hill (2012)) could act as iteratively refined, liveable examples for a future 'pattern language' for transition, recognising the specifics of local contexts and needs (Doordan, 2015).

Plural visions, behavioural models and mindsets

> 'An interventionist is a man struggling to make his model of man come true.'
>
> (Argyris and Schön, 1974, p.28)

Practically, it may be that, as Hardin (1985) put it, "you cannot do only one thing". Any kind of proposal or narrative put into the world changes it, whether the designer or author intended it to be a vision of a preferred future or not (compare "1984 was not supposed to be an instruction manual!" (e.g. Reddit, 2015)). By reifying certain ideas, embodying certain assumptions and not giving a voice to others, design becomes a form of prediction about the future which can be self-fulfilling: design to some extent 'creates' the future which it predicts (whether it claims to do so or not). A system designed around

a presupposition of a singular, linear vision or narrative of the future perhaps ends up bringing it into being: if we design for a presumed economic or political model, we probably end up thinking within the constraints of that model: as Kossoff (2015, p,25) considers, "[o]ur hopes and politics are largely the result of a given framework".

This suggests that to avoid this, Transition Design needs to emphasise complexity rather than shy away from it, to make it very clear that what is proposed are possibilities, and—perhaps—we may then benefit from the very same effect, by enabling multiple ways of doing things to flourish. Just as we now have both William Gibson's 'unevenly distributed' pockets of 'the future' (NPR, 1999) alongside—and interacting with—pockets of 'the past', it is likely that next year, or in fifty years, we will also have an unevenly distributed, complex reality for humanity. We must abandon the concept of a singular 'now', devoid of history and histories, and the same for everyone, which means that the popular device of the 'futures cone' (e.g. Bland & Westlake, 2013), while useful for opening up our vision, is politically and socially reductive, and potentially obscures important issues about the 'present', and what has come before, even as it seeks to provoke plurality in future thinking.

Many visions of sustainable futures assume large-scale changes in human behaviour and social practices, and design will be part of this: as Tonkinwise (2015, p.86) puts it, "[t]he ways in which designs influence how people act, making certain activities and their associated product ecologies inertial, are central to explaining how our societies are so unsustainable—just as they are crucial to shifting our societies out of current crises".

However, the current field of design for behaviour change, behavioural design, and design for sustainable behaviour—in which I have been working now for the last decade (Lockton *et al.,* 2010; 2013)—is arguably bound up with assumptions and determinism (Lockton, 2012), often embodying, even if not consciously, a singular vision for future human behaviour (Brynjarsdóttir *et al*, 2012), predicated on a normative vision of 'streamlined' people as engineered entities acting in predictable, specified ways. People are essentially considered to be components in a system, with known properties, which, if made legible (Scott, 1999) to the system's controller, whether algorithmic or human (Dutson *et al*, 2015), can be treated as 'solved'. We are seeing this reductiveness applied in visions of our everyday domestic life (Fantini van Ditmar & Lockton, 2016), our health (Whitson, 2015), 'smart' cities (Galik, 2016) and in the workplace (Moore & Robinson, 2015)—which can all be read as attempts at aligning the behaviour of populations with a particular model of 'best practice', both biopolitical and ideological. As Ranner *et al.* (2016,

p.1) put it, "in drafting a normal, everything else is treated as defective." But as reflective, thoughtful, engaged designers, we must challenge this, and open up more pluralistic approaches.

This is recognised within Transition Design—Irwin *et al.* (2015, p.8) criticise the "modernist pitfall of the imposition of static images of a rigid future"—but from the point of view of educating designers to think differently, an important aspect of engaging with the issue is to be consciously reflective on, and critical of, the models of human behaviour and human nature which are being employed (Lockton *et al.,* 2012; Tonkinwise, 2015): assumptions about people, how they (will) live, how they (will) make decisions, and what (will) motivate and persuade them to do things differently. All design is modelling (Alexander, 1964; Dubberly & Pangaro, 2007); every technology embodies a hypothesis about human behaviour (Greenfield, 2013); and designers cannot escape having a model of humans (Froehlich *et al.,* 2010). But approaches which enable a pluralistic treatment of futures, in combination with being explicit about the assumptions being made, can help to open up, and explore variety and complexity in human behaviour and potentially unanticipated side-effects (Ranner *et al.,* 2016).

The idea of mindset, as a core area of Transition Design (Irwin *et al.,* 2015), is related, since changing the way designers think about the future, themselves, their agency, their role, is interwoven with changing the models of humanity which are espoused. There are, as Willis (2015, p.70) puts it "heavy investments, not least psychological, in keeping things as they are", and those psychological investments need something quite persuasive to break them, perhaps "induct[ion] into understanding theories of power, social structure and social change, and the like" (Willis, 2015, p.73).

Equally though, design which can change the way that the public (recognised as diverse) thinks about and imagines futures. Whether Dunne & Raby's "social dreaming" or something more explicitly about (exploring and) changing mental models (Gutman, 1993), and facilitating recognition of agency within those changed understandings of futures, setting this as a goal could have great value as part of Transition Design. After all, the power of the Transition movement, in many ways, has been to enable, through living demonstration, changed mindsets about the possibilities of the future and the agency that groups of people working together locally can have.

Agency for transition

Agency is important, both the agency that designers believe they have to change things, and the agency which design can enable in others: "the basis for action in the world—to assist the process of transition to a sustainable society" (Kossoff, 2015, p.26). Design affects both what people do, and what people perceive they can do. It also, over time, affects how we think, and how we understand the world that we are part of, both individually and together as a society. White (2015, p.44) asks whether Transition Design can be "about unleashing human agency to facilitate a different and political (not natural) making of nature?"

I have written elsewhere (Lockton, 2015) how 'designing agency', as part of Transition Design or otherwise, could be the end stage in a sequence of design research and practice, progressing (transitioning?) from understanding to action.

The first stage may involve using design tools to understand the world as it is (for example, ethnography or contextual enquiry, or how systems are operating in everyday life); the second involves understanding people's understanding of the world (exploring mental models, imaginaries and mindsets); the third, using design to help people understand the world differently, perhaps through making systems, power structures, and relationships legible (Moles, 1986) and comprehensible in new ways; the fourth, using design to help people understand their agency in the world, might respond to Transition Design's "need [for] a strategy for politicizing people" (Willis, 2015. p.73); while the final stage, of helping people use their agency, is about design for behaviour change, but from the other way around—helping people to change the behaviour of the systems we are in. That might include designed interventions focused on "re-designing patterns of ownership and control" (White, 2015, p.49), or other practical ways in which people can intervene in, and change, the ways that the world operates. Within a Transition Design context which recognises the diversity of contexts, different techniques would be effective at different stages. Some design work would be investigatory research, some practical, some speculative or critical. Some would give us tools for understanding and learning, some tools for doing, some provocations for reflection.

However, transition designers need not just humility about their ability to enact change within a complex world, but recognition that their decisions, of what to model, what to measure, and what possibilities are considered, are themselves being influenced by their positions within the system and the history of their previous actions. There are no detached observers: what a designer seeks to 'control' inevitably ends up controlling

his or her actions, in turn, just as a thermostat 'controlling' the temperature of a room is in turn controlled by the room temperature it leads to (Glanville, 1995). In this sense, perceived agency is perhaps valuable in itself, as a way of "facilitating social change toward[s] more sustainable futures" (Tonkinwise, 2015, p.85), since so much of what we do is bound up with what we believe is possible—which is why the power of imagined futures, the imagined states-that-we-are-transitioning-to, can be so important for Transition Design.

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Reframing economics as a design challenge

Tony Greenham, RSA

Introduction

Definitions of economics vary but tend towards the same basic themes: the study of how to allocate resources to meet human needs and aspirations. The economy is a system of institutions and rules for achieving such an allocation of resources. Following this logic, we should be able to judge the effectiveness of the system on its outcomes and, if we feel that we have fallen short of the best outcomes possible, iteratively adjust the system in an attempt to improve its outcomes.

On the face of it, this is what happens, with policymakers continuously changing regulations and politicians regularly presenting fresh economic policies to the electorate. In reality, policy choices offered to the electorate are highly constrained within a narrow set of parameters – for example, differences in the speed of cuts in public services, or minor adjustments to tax rates.

There is almost no debate about what the desired outcomes of the economy actually are, let alone the extent to which the economic system is delivering them. Instead the effectiveness of the system is judged on a small set of intermediate variables: economic growth as measured by GDP (Gross Domestic Product), consumer price inflation and unemployment, with GDP the undisputed master of all.

Why is the political debate so constrained? And might a reframing of economics as a design challenge change the nature of the debate and ultimately the effectiveness of the economic system in delivering desired societal outcomes? We consider these questions, and the implications for how the emerging practice of transition design relates to economics conceived as a design process aiming to support transition to a more sustainable society.

Science, neo-classical economics and the free market myth

The keys to the first question lie first in the evolution of economics as an academic discipline, and second in the dominance of the contemporary political narrative of the 'free market'.

Economics has always comprised different schools of thought. Ha-Joon Chang outlines nine in 'Economics: A User Guide' and one could easily describe more. However, for the past few decades, and arguably the past century, the school of neo-classical economics has dominated university economics departments, business schools, government institutions, financial services and industry bodies.

Neo-classical economics more than any other school aims to mimic the rigour of physics and mathematics, leading to an increasingly complex edifice of elegant and internally consistent mathematical models. Such models require simplifying and often outdated or contested assumptions about the nature of human behaviour and markets. Critics of new-classical economics question the relevance of its diagnoses and prescriptions for economic policy because its core assumptions of individualism, instrumentalism and equilibrium simply add up to an inaccurate description of human society and complex social systems. However, the ability to build compelling models on the foundations of these assumptions is precisely what makes neo-classical economics so powerful. It holds out that economics can separate science (positive economics) from politics (normative economics), and that the science can tell us how the economy works with a degree of certainty akin to physics.

Hence the evolution of economics as a shadow of the natural sciences underpins the framing of the economic system itself as being something that emerges naturally and follows certain 'laws'. For example, the way that the 'laws of supply and demand' are presented holds them out as analogous to the 'laws of thermodynamics'. The market, and key features such as money, are seen to emerge naturally out of the interactions of individuals just as properties of natural systems emerge from the interactions of particles. Such a presentation reinforces a view of there being a natural state of a 'free' market from which every instance of market interference, especially by the state, but also by any other agent powerful enough to distort the market, drives us further away from the ideal and natural state of affairs. Ergo a fundamental yardstick of economic policy is to minimise interference in the market, and to place as much economic activity as possible within the market.

The presentation of economics as a science combined with the framing of the 'free market' as a natural state of affairs allows politicians to present their favoured policy prescription as the 'right answer' to which 'there is no alternative', and to dismiss any challenge as 'economically illiterate'.

Bjorkman (2016) describes this free market story as a myth, not in the sense of a widely held but false belief, but in the sense of a myth as cultural narrative that enables us to make sense of natural or social phenomena. This myth is powerful but wrong. The economy is not a natural phenomenon and there is no aspect of the economy that is not socially constructed.

For example, markets can only function with clearly defined and enforceable property rights, requiring conventions over creating and allocating such rights and judicial systems to uphold them. It is therefore logically impossible to have a market that is 'free' of state regulation or other socially constructed conventions, and so the only question is how we should design the rules and institutions that govern market transactions. There is always an alternative.

Hence I argue that economics – the study of how resources can be allocated to meet human needs and aspirations – should be reframed as a design question, not a science. What might economic policymaking look like if its purpose was understood to be "devising a course of action aimed at changing existing situations into preferred ones" (Simon 1969)?

Such a transformation in economic policymaking is of pressing and salient concern to transition designers for a number of reasons. First, policies made at national or transnational level can set the system boundaries for design innovation. This is most obviously the case with industrial strategy, where significantly different paths might be chosen according to the prevailing political and economic ideology. For example, moves towards a more circular economy including policies that encourage the greater reuse and recycling of materials, energy conservation and penalise waste will tilt markets in favour of designers with the capability to create lean products and services, and to support innovation in business models from purchase-own-dispose models to owns based on leasing and maintenance, requiring obsolescence to be designed out rather than designed in.

Second, there has been increased convergence of design thinking and policy design, with initiatives such as the UK's Policy Lab explicitly adopting design-led approach to creating

more effective policy solutions to social problems. This suggests that transition designers will increasingly find their skills in demand in policymaking as well as the commercial domain and public service reform.

Finally, we can hypothesise that greater citizen participation in economic policymaking, will reveal citizen long-term preferences for a more inclusive and sustainable economy in contrast with markets, which tend to be driven by short-term consumer preferences. This can open up opportunities for entrepreneurial transition designers to create products and services that appeal to our 'citizen-selves' as well as our 'consumer-selves'.

Democratising economic policymaking

The change in mindset and practice that results from this reframing is potentially profound. To define what our preferred situations are for the economy requires a radical democratisation of economic policymaking, recasting it from being a technical discipline that is the preserve of those with specialist knowledge to being a matter on which every citizen can have a valid opinion. But this idea of a split between technical economic questions and political social questions runs deep. As Matthew Taylor, CEO of the RSA, put it "I have in the past apologised for not being an economist. Have you ever heard anyone with opinions about society apologise for not being a sociologist?"

We can find examples of economic questions being dealt with democratically. Participatory budgeting – a democratic process in which community members directly decide how to spend part of a public budget – in particular has grown from origins in Porto Alegre, Brazil9 in 1989 to over 1500 processes around the world. The city of Melbourne has taking this further by creating a citizens jury, or Peoples' Panel, to help create the city government's first 10 year financial plan.

The RSA is also exploring citizen engagement in economic policy through a two-year project called the Citizens Economic Council, in which around 50 UK citizens drawn from diverse backgrounds will decide on their priority economic goals and debate policies to achieve them.

Many more such experiments will be required to build a body of evidence about good practice in democratic participation in economic policymaking. This points to a second order question of how to design the process of designing economic policies.

A starting point is to define a set of design principles for economic policymaking. Effectively these are a set of broad but adaptable assumptions about how an effective economic system works. The economy is a complex system embedded in larger complex social and ecological systems. In the face of complexity and volatility, individual policies can fail immediately or lose their effectiveness as conditions change. Design principles should be a longer term consistent framework within which to generate ever changing policy responses to ever changing conditions.

An important implication is that policy architects should be allowed to fail. To punish any and all failures of policy to achieve the desired outcomes would quash innovation and experimentation. But at the same time results matter, and we need to incentivise and replicate success – so how can we square this circle?

Design principles for economic policymaking

First, we could take a much more iterative approach to policy implementation, conducting small scale trials before implementing them nationally. Creating space for policy experimentation is a good argument for devolution of powers to regional and city authorities. Allowing different economic outcomes to be specified by different populations, devolution also allows many more different and diverse policy approaches to flourish, with successful ones being adopted and adapted across other regions.

Second, we should hold policy architects accountable for whether they follow good process in designing policies. To help sketch out what a good process might constitute for economic policymaking, the RSA has proposed the following five design principles:

1. clarity of mission and purpose
2. efficient and sustainable in its use of assets
3. effective and strategic in the application of key policy instruments
4. empower individual citizens as economic actors
5. participative and democratic in its economic institutions

We explore the first before briefly describing the remaining four. As argued earlier, economic success is judged by intermediate variables such as GDP, and a design approach requires that we replace this with an ongoing societal debate about, and reporting

against, desired real world outcomes. We need greater clarity about the ultimate goals of economic policy, and in particular we need to move beyond GDP.

Criticisms of using GDP as a measure of social progress are as old as the measure itself, given that one of the main architects of it, Simon Kuznets, delivered it with an explicit health warning that "The welfare of a nation can ... scarcely be inferred from a measurement of national income". Senator Robert Kennedy repeated this warning in a searing and eloquent speech in which he said that Gross National Product "measures everything, in short, except that which makes life worthwhile."

A rich body of literature detailing the shortcomings of GDP and proposing alternatives has grown up without really dislodging the primacy of GDP as a policy goal and measure of national success. However, there are signs that searches for alternative, or at least complementary measures of progress, are becoming more established in mainstream economic and political institutions and discourse. The Stiglitz-Sen-Fitoussi Commission in France was one notable example, as was David Cameron's speeches on wellbeing when leader of the opposition. The UK's ONS has developed more comprehensive measures of personal well-being. Perhaps most telling is the recent front cover and editorial of the Economist magazine which argued that it was time to replace GDP with more comprehensive measures including changes in assets and liabilities, including environmental degradation.

If not GDP growth, then what is the ultimate goal of the economy? The RSA's view is that the goal is to enable people, all people, to live what the philosopher and political economist Roberto Unger has called "the larger life... a life of greater depth, scope and intensity". This requires unpacking into a number of components that would support this ultimate goal. We consider three different categories of outcomes: economic security, meaning and creativity and a healthy planet.

Economic Security

We need a secure platform on which to build a fulfilling and purposeful life. People whose lives are dominated by a daily struggle to secure warmth, shelter and food do not have the autonomy to be authors of their own lives. Without the security of knowing that there will be support during periods of unemployment or ill health, life transitions such as parenthood, and in old age, we cannot flourish and fulfil our creative potential.

Drawing on three influential sources – President FD Roosevelt's 1944 speech outlining a new Economics Bill of Rights, the 1942 Beveridge Report and the 1948 UN Universal Declaration of Human Rights20 – we can define five building blocks of economic security. These are:

- decent work at fair pay
- decent housing
- universal education
- universal healthcare and
- financial support for ill fortune, ill health, disability, retirement and to enable caring for dependents.

This list of real world outcomes illustrates the difference in approaching the economy as a design problem. Once descriptors such as 'decent' are defined in specific terms, for example, in the case of housing, square feet of space per inhabitant, energy efficiency and security of tenure, they are objectively measurable. They are clearly central to the question of how to allocate resources to meet human needs and aspiration, yet they are mostly described as issues of social policy rather than measures of economic success (or lack thereof). The free market myth allows the argument to persist that the reason why London is experiencing a housing crisis is because public authorities have interfered too much in the workings of the market. A design mentality would simply say 'what changes to the current set of institutions and rules might lead to a better outcome'? It would prototype some innovations and judge them on their objectively measured impacts in real world outcomes.

Meaning and creativity

Economic security is a necessary but not sufficient condition for human flourishing. We need an enabling economy which supports the pursuit of meaning and creativity. This has four components:

- Creative Work: allowing everyone to be creative, autonomous and authentic in their working lives
- Economic Agency: democratic participation in economic institutions, and equality of power in markets

- Enterprise: encouraging and rewarding enterprise
- Arts, Science and Culture: supporting artistic and cultural pursuits for their intrinsic, rather than instrumental, value.

Healthy planet

An economy that has universal human welfare as its goal cannot be one that causes the destruction of eco-systems, wasteful depletion of natural resources or dangerous climate change because humanity is dependent on the planet's life support systems, and future generations will need its resources to meet their own needs and aspirations. Yet on all three counts the evidence is overwhelming that our current economic system fails this test. The Stockholm Resilience Centre's 2015 assessment of nine key planetary ecosystems show we have already crossed into danger on four, including climate change. Such measures of environmental health can be redefined as goals, with the thresholds and limits set with reference to the best available science as it develops. An economic system that fails to deliver these goals is a failing economic system in need of urgent redesign.

Other design principles

If the first design principle is about defining what we mean by human needs and aspirations, the second is about defining what we mean by resources. This means having a much clearer account of what our assets comprise and expanding the definition of economic assets accordingly. For example, education and skills are an important and contested dimension of human capital. Global surveys find that the UK is seen as attractive in large part because of its heritage and cultural assets. International comparisons show that trust in people and institutions is correlated with economic dynamism. We do not see high levels of political cynicism or low and falling levels of trust in strangers as economic factors; perhaps we should think again. And, of course, as discussed above we need comprehensive measures of natural assets and the environment to be integrated as core economic measures.

The third design principle is that policy instruments are effective in achieving the desired outcomes. This might seem obvious and uncontested, but the implication is that policy instruments should undergo more rigorous impact assessment after their implementation and that adjustment of policies to improve outcomes should be hard wired into the policy process.

The fourth principle is to empower individuals as economic actors. The importance of this principle is reinforced by key 21st century trends including the rise of the knowledge economy, the economic importance of innovation, the state's need for more creative, responsible citizens, the growing appetite of citizens for what the largest survey of world values calls 'self-expression'. Evidence suggests that the rise of self-employment is not simply a forced situation for those unable to find secure and permanent employment but an active choice in pursuit of greater autonomy, creativity and satisfaction from work.

Our final design principle turns from individuals to wider society and calls for existing and newly created economic institutions including private sector business, NGOs and public service organisations to have a democratic and participative dimension. This suggest much greater decentralisation of decision-making and enhanced autonomy of individuals to determine how to achieve their goals and collaborate with colleagues rather than merely implement instructions passed down a hierarchy. Authentic public participation in can mobilise collective intelligence, foster responsibility and trust.

How long a journey from here to there? Economics vs Design

To gain some sense of the extent of change in practice that would be required to reframe economics as a design challenge, we conclude with a brief assessment of how economic policymaking measures up against four elements of a design-led approach; empathy, systems thinking, prototyping and co-design (see box).

Empathy

Designers take a user-centered approach that starts with understanding other people's needs and situation.

Systems Thinking

Designers use divergent brainstorming, systems mapping, and convergent synthesis to uncover non-obvious, innovative ideas.

Prototyping

Designers think through making, using tangible prototyping to test concepts at a low-fidelity and quickly evaluate their effectiveness.

Co-Design

Designers work collaborative/continually with multiple constituencies in an iterative co-design process, evolving concepts through continual input from all stakeholders who will use, manage, produce, or market a product.

Empathy is not the first word that springs to mind as a prerequisite for success in economics. The needs and situation of individuals is not so much a matter for exploration in economics, as a given. Humans are taken to be rational actors motivated by the pursuit of their own satisfaction, or utility, which is further reduced to the proxy of their chosen consumption of goods and services. While it is true that economic models can and do explore the impact of relaxing these assumptions, for example with imperfect rationality or including some altruistic motivations, these abstractions are far from being a design-led approach of empathy, that starts with the citizen herself and asks her what a good economy would look like from her point of view. As discussed earlier, it would be a significant re-conception of economic policymaking to switch from the yardstick of GDP growth to using democratic processes to define desired societal outcomes.

Systems-thinking is a growing part of economics as an academic discipline, from the use of agent-based models to understanding feedback mechanisms to identifying system properties such as resilience. However, divergent thinking has not only been absent, but positively discouraged in recent times with research funding, academic journal publication and career advancement depending on conforming to the dominant school of neo-classical economics. This is being challenged from some quarters, most notably through demands by economics students themselves for more pluralist economic teaching.

Prototyping has had some place in economic policy, but it is not possible in all circumstances. For example, belief that a policy is only temporary may change citizens' behaviour and potentially undermine the validity of the results as a predictor of reaction to a permanent implementation. Implementing policy trials that increase economic benefits to participating citizens raise ethical questions about equal treatment.

Devolution of power might create more space for policy prototyping, while dealing with ethical dimensions of trials of economic policies can learn from medicine. It might be the case that theoretical modelling of economic policies will remain a key part of the design process in lieu of practical prototyping.

Finally, co-design is an emergent practice in public service delivery. Often referred to as 'co-production' there is evidence that involving recipients of services as partners in the design and delivery of those services improves outcomes. The growing use of participatory budgeting perhaps indicates that this approach can become much more widespread in the design and implementation of economic policy.

In conclusion

There is much to learn from reframing economics as a design challenge, although to do so arguably calls for a revolution in the mindsets of economists and economic policymakers. In arguing the case for applying design thinking in economic policy it is therefore important not to overstate the potential of design thinking, nor understate what the current practices of economics can offer. We argue that Transition Design be thought of as a bridge between design disciplines and new approaches to economic policy that explicitly target more inclusive and sustainable outcomes. The adoption of the rhetoric of 'Inclusive Growth' indicates increasing political willingness to embed social goals within economic policy, in stark contrast to the previous practice of keeping social and economic policy in siloes. Assuming that we can devise processes to democratically agree robust sets of desired social outcomes for the economy, we will need to set about the hard work of navigating the many trade-offs and conflicts between these goals, and between different stakeholders' priorities. We will also need to understand what drives market transactions and how different economic variables interrelate. Economics has the tools and conceptual frameworks to do much of this work, and so the call is not to abandon them, but to apply them in a different way that draws on what design thinking can offer.

Panel 2:
The Transition Values Panel

The need to shift 'mindset and posture' is an important area in Transition Design and the papers presented on this panel, on values and the inner life, can be understood in this context; the transition process, it is argued, needs to establish a dynamic relationship between inner and outer worlds, rather than focus strongly on the outer world, as is usually the case with sustainability projects. Tom Crompton argues that transition requires not so much labouring over the details of alternative lifestyles, but rather that we encourage positive change through identifying in everyday life constellations of mutually reinforcing values. Similarly, Julie Richardson argues that rather than simply prototyping alternative economies, transition economics needs to work with the interplay of inner and outer worlds in everyday experience. Lucy Neal argues for reenfranchisement of the imagination, through the recovery and enactment by communities of myth, metaphor and story.

The papers broadly concur that the task at hand is not so much to shift values in the population at large, but to reveal, activate and nourish values which in our society are often latent, suppressed, or carefully corralled, so as not to interfere with 'serious things' like economic growth, nor to undermine competitive, individualistic and materialistic norms.

Values in Transition Design

Tom Crompton, PhD
Director, Common Cause Foundation

This paper explores some of the elements of Transition Design from the perspective of an understanding of human values. It sets out to show that an understanding of human values underscores the importance of many of the principles of Transition Design. But this paper does not attempt to accord particular importance to social psychology. Transition Design is an inherently transdisciplinary approach, and these reflections are offered to compliment and extend a wide range of other important disciplinary perspectives.

The paper is structured around the "four mutually reinforcing and co-evolving areas of knowledge, action and self-reflection" identified by key proponents of Transition Design (Kossoff *et al.*, 2016: 7):

- Visions for transition
- Theories of change
- Posture and mindset
- New Ways of Designing

These four elements are considered in turn, and examined from the perspective of an understanding of human values: what it is that matters to people, and the factors that shape what it is that matters to people. The paper opens with a brief description of values and how these work.

1. Values and how they work

Values are the aspects of people's identities that reflect what they deem to be desirable, important, and worthy of striving for in their lives (Rokeach, 1973; Schwartz, 1992). Values are important in thinking systemically about sustainability, because they are understood to reflect higher-order motivations that organise the attitudes and behaviours which constitute many aspects of people's day-to-day lives (Emmons, 1989).

Research has found that some values tend to be 'compatible' with others—such that, if an individual holds one value to be important, certain other values are also likely to be held to be important. Thus, it is observed, as a statistical likelihood, that individuals who attach importance to 'social justice' will also attach importance to 'protecting the environment'. But a person attaching particular importance to either of these values is unlikely to attach particular importance to 'opposing' values of 'wealth' or 'social power'.

This value structure is found to be important in two ways.

First, while people may differ widely in the priority that they attach to different values, the relationships between these values—the patterns of compatibility and opposition—have been found to be remarkably consistent: they are found to be broadly replicated across surveys that have now been conducted in more than 70 countries. So, for example, irrespective of the importance that the citizens of a particular nation place, on average, upon 'wealth' or 'equality', the oppositional nature of these values is found to be largely preserved across national samples.

Second, the values structure is important for individuals in a dynamic way. It seems that most people—perhaps everyone—attaches some level of importance to each of these values. That is, while individuals seem to be disposed towards placing greater importance on some values than on others, it does not seem to be the case that some people are exclusively oriented toward one set of values. But the values held to be important by a person change over time: both temporarily (over the course of a day, for example), and in a more durable or 'dispositional' way (over the course of months or years). Such changes reflect, in dynamic fashion, the patterns outlined above. So, temporarily 'engaging' a particular value will tend to lead an individual to place increased importance on other 'compatible' values, and diminished importance on values that are 'opposed' to the engaged value. Strengthening a particular value in a more dispositional way will tend to lead an individual to place increased importance on values adjacent to this value, and diminished importance on values that are distant from it.

For example, drawing a person's attention (even very subtly) to broadmindedness has been found to strengthen concern about climate change (Chilton et al., 2012). From the perspective of values, this is explicable because 'broadmindedness' is compatible with values of 'protecting the environment' and 'social justice', which are in turn likely to directly motivate concern about climate change. The way in which engagement of one value can lead to the engagement of other compatible values is called the 'bleed-over' effect (Maio, 2009).

On the other hand, drawing a person's attention to money has the effect of tending to reduce social and environmental concern. This is explicable because the value 'wealth' is found to stand in opposition to values of 'protecting the environment' and 'social justice'. The way in which engagement of one value can lead to the suppression of other opposing values is called the 'see-saw' effect (Maio, 2009).

2. Visions for transition

The Transition Design framework draws attention to the importance of a 'vision' of a future. "Transition Design proposes that more compelling future-oriented visions are needed to inform and inspire projects in the present..." (Kossoff et al., 2016: 8). This is surely the case, but an understanding of values provides further insight.

2.1 Cast your vision wide

There has been an insistence within the environment movement for many years that one central reason why it is failing to galvanise widespread public demand for ambitious change is that it has failed to create an inspiring vision. Often, this vision has fallen victim to what Kossoff et al. (2016) call "the modernist pitfall of the imposition of static images of a rigid future" (p.8). Transition Design is right to be wary of such images. From a values perspective, what is important are the kinds of relationships and values that will create an alternative future – rather than the detail of what this will 'look like'. Indeed, the insistence of some that environmentalism is failing because it "can't paint a picture" of the future it envisions is wrong headed.

Environmentalists are right to be concerned to be "solutions-oriented". But, too often, those solutions are concretised as shiny electric cars, or smiling allotmenteers brandishing home-grown vegetables.

There is a rich and extensive pallet of intrinsic values that will motivate deeper concern about sustainability. Many people who are turned off by low-emissions vehicles or prize vegetables are nonetheless passionate about creativity, supportive friends or honesty, beauty in nature or the arts, or freedom of action or thought. Indeed, our research finds that most people in the UK hold intrinsic values such as these to be the most important (Common Cause Foundation, 2016).

The art of communicating sustainability is to invoke these values without inviting people to react against green stereotypes.

2.2 Be careful about the motivations to which you appeal

I've argued for reticence about "painting a picture" of what the future might look like in material terms, suggesting that it is better to create a canvas upon which people can begin to sketch those things that most inspire them. But I am also arguing for absolute clarity about the values upon which this future is predicated.

Attempts are too often made to present this future as connecting with a range of disparate and ultimately incompatible values. This is perhaps in the forlorn hope that wider concern about sustainability can be motivated by showing that people can make money from it, or make themselves more attractive through it. But, though these may be useful approaches to motivating the uptake of particular behaviours, these aren't effective ways to motivate concern for sustainability: they are ways of motivating concern for making money and looking good (and of simultaneously deepening commitment to other extrinsic values such as social power, and commanding the approval of others) (Crompton, 2013).

Expression of these extrinsic values may occasionally coincide with specific sustainable behaviours (that expensive electric sports car may indeed have a lower environmental footprint). But these are also values that undermine social and environmental concern at a systemic level (Crompton & Kasser, 2009).

Putting a financial value on nature in the forlorn hope of strengthening public concern for its protection is likely to have these iatrogenic effects. Here my point isn't that there are fundamental technical flaws in any attempt to put such a value on nature (though there may well be). Rather, it is that this is an attempt to sell a concern that arises because of widespread commitment to intrinsic values (connection to nature, concern for environmental protection, appreciation of a beautiful world) through appeal to an extrinsic value (wealth). This misguided strategy is set to undermine the intrinsic values upon which dependable environmental concern is predicated (Crompton *et al.*, 2015).

2.3 The vision is closer than you think

The vision, then, is one not of home zones and farmers' markets, bicycle lanes and charging points. Of course, these things may be part of a more sustainable future. But they are unlikely to inspire its creation. Its creation will be inspired by connecting with people's desire for community, creativity, self-direction, friendship, freedom of choice, broadmindedness, peace, beauty and compassion.

Listening to many people concerned about sustainability, you'd be forgiven for imagining that they have some special insight showing that these values are inaccessible for most people. They're not. On the contrary, surveys show that these are the values that matter most to most people (Common Cause Foundation, 2016).

The problem is that people don't, collectively, see this. And because they don't see this, many people misguidedly imagine that others will be best motivated by appealing to money or social status. This becomes vicious – we don't talk to one another as though these values are important, so we don't receive the social proof that they are important, so we assume that they are unimportant. This could be why four out of five Britons think that a typical compatriot holds extrinsic values to be more important, and extrinsic values to be less important than is actually the case (Common Cause Foundation, 2016).

3. Theories of Change

Transition Design is right to emphasise the importance of systemic change. Many approaches to sustainability identify particular target behaviours (for example, private car use) and then develop interventions targeted specifically at these behaviours. But it can now be seen that such approaches may prove counterproductive. It has been found, for example, that promoting participation in a car share scheme through appeal to the money that might be saved (through reduced car use) suppresses other pro-environmental behaviours (specifically, recycling) (Evans *et al.*, 2014).

This is illustrative of a problem besetting many approaches to motivating change. The necessary systemic changes seem too difficult and remote, so focus is ineluctably shifted to the short-term and seemingly tractable. Specific behaviours or practices are then

identified and isolated. At this point, change agents afford themselves the latitude to think more divergently, and begin to generate lists of the barriers that may currently frustrate a change in practice or behaviour, and of the diverse incentives that might help motivate such changes.

The problem is, of course, that these lists lead to diverse approaches to encouraging change – approaches which, as we have seen, may conflict with one another and prove counterproductive.

An alternative and more promising approach is to identify the constellation of human values that motivate people's support for positive change – particularly where this change is ambitious and therefore difficult.

It's important to reiterate that advocating change by invoking these values need not entail a lazy appeal to 'green lifestyles'. Rather, it can engage and strengthen a wider range of values that will underpin durable commitment to ambitious and systemic change.

4. Posture and mindset

Any application of an understanding of values to sustainability quickly raises questions about the values that shape the work of change agents themselves. These values inevitably influence both identification of the challenges that must be addressed, and strategies for addressing them.

Change agents who themselves attach particular importance to efficiency, social power and authority are less likely to foresee a role for public engagement in creating change. Here, focus is more likely to be directed towards opportunities for decision makers or experts in positions of authority to direct change, by driving through new policies, investment decisions or by the development of new technologies. Policies, investment flows and new technologies are all, of course, important tools. But it is also crucial to use these tools while remaining responsive to the wider social context in which they are wielded. Aside from their immediate material impacts, such tools can be used in ways that inadvertently undermine public commitment to systemic change.

Consider the untold damage that command-and-control approaches to windfarm development have wreaked on nascent community support for renewables – and, indeed, public opinion towards government responses to climate change more generally. A more participative approach, which strove to situate values of community participation and social justice at the heart of renewables programmes may have had very different impacts on wider public attitudes toward climate policy.

Transition Design is responsive to such concerns. Kossoff *et al.* (2016) write:

> *"Designers' mindsets and postures often go unnoticed and unacknowledged, but they profoundly influence what is identified as a problem and how it is framed and solved within a given context. Transition Design asks designers to examine their own value system and the role it plays in the design process and argues that solutions will be best conceived within a more holistic worldview that informs more collaborative and responsible postures for interaction."*

Common Cause Foundation advocates that organisations systematically review the values communicated through the way in which they engage their staff.

Consider the following examples:

- **How decisions are made**: Are these made in a top-down, hierarchical way, or are they made with extensive and meaningful staff participation?
- **How good performance is rewarded:** Are financial incentives used to encourage staff members to improve performance, or is good performance acknowledged through shared celebration, fostering a sense of collective achievement?
- **How the organisation cares for its staff**: Are staff extended a high level of trust? How does the organisation value the private lives of staff members, outside work – for example, through policy on parental leave, sick-leave, or flexi-working?

- **Values are engaged by the built environment**: Does the place of work convey values of power and wealth, or does it encourage community (for example, by creating spaces conducive to staff socialisation) and connection to nature (for example, through use of indoor plants and natural light).

5. New ways of designing

Viewed in this way, it can be seen that an understanding of values invites careful reflection on how specific projects contribute to wider transition. This is something which is also urged by proponents of Transition Design:

> *"Transition Designers learn to see and solve for wicked problems and view a single design or solution as a single step in a longer transition toward a future-based vision."*
>
> (Kossoff, 2016:10)

Certainly, there will be many occasions where there are tensions between, on the one hand, designing a project to optimise delivery on narrowly-defined outcomes and, on the other, contributing to systemic change. Too often, when faced with such trade-offs, opinion falls on the side of promoting the narrowly defined outcomes. An understanding of values can be of great help in identifying areas where such tensions emerge – and in building the case for adopting the broader viewpoint.

An understanding of values also points to the possibility for a wide range of organisations – including many with no formal role in promoting transition – to nonetheless engage their stakeholders in ways that are likely to strengthen those values associated with expression of social or environmental concern, and to weaken those values associated with reduced social or environmental concern.

As one example of such an approach, Common Cause Foundation is working with Manchester Museum – an internationally important museum in Manchester which draws some 450,000 visitors each year. Cultural organisations of this kind can work

in ways that engage people's desire for community, creativity, self-direction. It is to be anticipated that engaging these values will help to strengthen visitors' commitment to these values, and to provide social proof of the importance of these values to others. Because of the 'bleed-over' effects described above (see Section 1 above) it is to be anticipated that this, in turn, will strengthen visitors' support for behaviours and policies that help alleviate social and environmental problems. Our surveys find that visitors who leave the Museum feeling that their visit has encouraged values of helpfulness and loyalty are significantly more likely to support action on climate change, voice greater commitment to community involvement, and report higher wellbeing. It is of course important not to overstate the significance of a result of this nature, which contributes no experimental support to the thesis laid out in this chapter. But results such as this are nonetheless consistent with the view that, by engaging values of this nature more strongly, visitors' support for pro-social and pro-environmental policies and behaviours will be enhanced.

These insights have diverse implications for staff in the Museum. For example, they have led the Museum to:

- Encourage its large body of volunteers to initiate conversations with visitors about why they give their time freely to the Museum, and the rewards that they derive from this. Posters introduced in the Museum encourage visitors, on the other hand, to explore these questions with volunteers.

- Devise activities at open-days to bring together visitors who do not know one another, to participate in lightly-facilitated conversation exploring what matters to them most in life. Figure 1 presents a visual record of many such conversations, run as a relay over the full duration of an open day.

- Script interpretative material in the exhibition spaces to engage visitors' feelings of curiosity and wonder, and appreciation of the aesthetic beauty of many items in the collection.

In sum, an understanding of values should prompt careful reflection on the design of current strategies to promote transition. It should also highlight extensive opportunities for a wide range of organisations with no formal remit to communicate directly on social or environmental issues to nonetheless work in ways that are likely to deepen public support for transition.

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Encountering Theories of Change in Economics for Transition

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Personal Encounters with Theories of Change

Most of my adult life I have been working in the field of transition towards more sustainable futures. Over the years this has led me to question the effectiveness of my own work and interventions and to continuously seek more powerful and effective ways to intervene in the complex global economy. This exploration has been iterative and experiential and in hind-set might generously be described as a journey of action – reflection. This journey has taken me from international development, to academic teaching and research, to policy making, to corporate social responsibility, to social enterprise incubation and finally to my current role in transformative education for sustainable living – with a focus on economics for transition, right livelihood and transition east and west. This professional career trajectory has meant working in different sectors across multiple scales and has been underpinned by a personal and spiritual journey towards finding meaning and purpose, greater self-awareness, embodied practice and leadership.

To bring this journey to life, I would like to share 3 personal encounters with theories of change that have informed my current understanding and practice in my own field of economics and provide some insights into the constraints to global transformation that I have experienced.

Encounter 1: In co-creating a new Master in Economics for Transition, the question was posed about what was the theory of change underlying the transition process? Contributors offered different perspectives about their views on the primary driver for change in the economy. This ranged from technology; policy interventions; vision and the power of ideas; catalysing system wide change through complexity and ecological thinking; to personal, authentic and embodied leadership. Generally, the discipline of economics has focused on outer transition (shifting technologies, enterprise forms, institutions, policies and so forth). Shifting the inner world of beliefs, values, preferences

and worldviews is rarely considered in the domain of economics and dismissed as 'exogeneous' to the system. In the Economics for Transition programme, the inner and outer aspects of transition are considered together as a dynamic whole.

Encounter 2: Universities are educating young generations for their role as future leaders and change agents in their chosen profession. However, my personal experience as an economics faculty member was that although we were equipping students with the necessary intellectual knowledge, tools and methods, we were falling far short in developing other forms of knowledge such as emotional intelligence; intuition; and embodied practice. I concluded that to make the transition to a sustainable society needs an integrated and whole person approach to learning.

Encounter 3: Somebody once asked me if I thought I was as effective as a change agent when I worked for Schumacher College as when I worked for government on reforming economic policy; or with multinational companies around corporate social responsibility. It got me thinking.... Is it more effective to work with critiquing and transforming the existing system, or is it more effective to demonstrate the new in practice; or is it more effective to transform values, world views and personal practice?

Experimenting with Theories of Change in Economic Systems

The encounters shared above, led me to explore and experiment with processes of transition and theories of change in economic systems that:

- Integrate inner and outer transition
- Work at different levels of scale – from the individual to the collective
- Foster self-awareness; reflective and embodied practice
- Recognise that values and worldviews and their associated economic behaviours are endogeneous
- Leverage and catalyse change rather than predict, manage and control

The remainder of this paper uses these personal insights to explore theories of change that I have incorporated into my own work and practice in economics for transition, personal transformation towards right livelihood living, and systemic policy and design interventions. Firstly, I present two conceptual models (Integral Theory and U Theory)

that integrate the inner and outer dimensions of change (at the individual and collective level) using case studies to demonstrate what this means in practice in an educational context. Secondly, I present models of change rooted in systems thinking and complexity theory and explore what this means for practical policy and design interventions.

Integral Theory and the Economy

The application of integral theory (Wilber 2000) to economics enables us to broaden our understanding of economic relationships and dynamics in different spheres of our lives. In particular it extends our traditional focus of the economy from its outer collective manifestation in terms of economic growth and wealth creation, business models, policy frameworks and financial systems to bring into the frame the inner dynamics of value creation, social narratives and how these enable and constrain our individual and collective choices as economic agents. This in turn frames consumption patterns, savings and investment choices, participation in community and civil life, as well as the work and livelihoods with which we engage in daily life.

Integral theory expresses four dimensions of our everyday experience that arise, co-exist and evolve together. At the individual level these are subjective experiences (individual/inner) and individual observable behaviour (individual/outer). Individuals also operate together in groups with a collective/inner and collective/outer dimension as illustrated in Figure 1.

Figure 1: The Integral Framework: Four dimensions of everyday experience

	Inner	Outer
Individual	Personal beliefs, identity, values, worldview Individual behaviours and choices	Individual behaviours and actions
Collective	Shared values, worldview, beliefs, culture, social narratives and norms	Collective structures and actions; technologies; institutions; infrastructure

Adapted from: Transition Network (2014; 3)

The neoclassical economic paradigm operates largely in the outer dimension with a focus on external structures to support material GNP growth with individuals acting independently to generate this aggregate phenomena. According to this paradigm, the primary levers of change are technology, institutional reform and policy interventions. Neo-classical economics is a social science that is firmly rooted in the dominant scientific discourse with its primary focus in the external material world.

> "Western science has proceeded to right hand reductionism: all of reality, it was believed, could ultimately be reduced to external objects behaving and interacting without any interiority."
>
> (Arnsperger 2010; 34)

I use the integral framework as a framework to broaden our understanding of economic relationships across the full spectrum of our lives. In particular, it extends our traditional focus of the economy from its collective-exterior focus to bring into the frame the inner dimension (individual and collective) of economic life.

Broadening our economic lens in this way, highlights the dynamic of inner-outer transition by connecting our inner values, aspirations and cultural stories and their outer manifestation in the world in the form of the socio-economic systems we have collectively created. If we view the economy, not as a separate entity, but a set of relationships that we constantly re-create, which over time become embedded in formal institutions (such as governments, policy frameworks and legal systems) as well as creating informal social norms and cultural narratives. Economic relationships stem from our beliefs, values, and worldviews informed by our levels of awareness as we strive to satisfy our own wants, needs and desires. Collectively, this manifests in our economic relationships with others (as consumers, employers, employees, investors, savers, citizens and so forth) and the form of our relationship with nature (which may range from seeing the world as our mother, to being the source of natural resources; to being a commodity to be traded and profited from).

Figure 2 illustrates how integral theory can be a useful tool for re-imagining transitioning the economy towards more sustainable futures across the 4 domains.

Figure 2

	Inner	Outer
Collective	Personal beliefs, values, identity and intentions informed by an ecological worldview Shifting from extrinsic towards intrinsic values2 Awareness raising and reflective practices; reconnecting to self, others and nature	Personal transition towards: • Sustainable consumption • Ethical savings and investment • Right livelihood • Active citizenship • Community engagement
Individual	Social narratives, collective visions and norms informed by an ecological worldview and social justice; towards qualitative growth in well-being of people and planet. For example: • Switching the narrative from GDP growth to GNH growth	New economy structures, technologies, institutions and infrastructure. For example: • Social enterprise models • Social ownership • Green & social technologies • Local currencies

Case study 1:
Integrating Inner and Outer Transition for Economic Change

Recognising the power of inner transition (individual and collective) has been critical to social movements for change such as the Transition Network as well as being an integral element of transformative education for new economics thinking and practice.

At Schumacher College, the outer journey of transition into new economic paradigms, schools of thought and enterprise models is complemented by an inner journey of transition. A range of 'internal' methodologies are used to reinforce this element of change. This includes the power of narrative and story-telling as well as a range of reflective and consciousness raising practices. For example, reflective inquiry and phenomenology are used as research methods to cultivate first person awareness of how the economic systems constrains and impacts on the individual and forms and reinforces worldviews and their outer manifestation in daily economic life.

The aim is to encourage participants to become more aware of their values and behaviours; how these are both framed by and causative of the dominant economic paradigm and indeed, the emergence of a new economic paradigm; and how to consciously bring their values and behaviours into greater alignment with their lives as economic, social and spiritual beings.

In this way, economics moves beyond a description of the economy as it is, or visioning how it could be, towards developing the day to day practices for a more developed human being living in a more developed economy (Arnsperger 2010; 217). In other words, moving beyond learning 'about' the new economy towards 'becoming' the new economy in daily life.

Theory U and Right Livelihood

Theory U is a framework and method to facilitate transformative change developed by Otto Scharmer and colleagues at the Presencing Institute at MIT. It is being used in authentic leadership and as a learning and design framework to enable innovation and transformative action applied at multiple levels of scale. At Schumacher College we use it as a learning framework to catalyse personal transformation towards right livelihood living. Others are using Theory U as a participatory social process (such as the Social Innovation Lab) and in the design and implementation of well-being economies in Africa and Asian.

From the perspective of Theory U, the main obstacle to effectively deal with the sustainability challenges of our time arises from a 'blind-spot' in the deeper dimension of leadership for transformational change. This 'blind-spot' links the quality of results that we create in any kind of social system to the quality of awareness, or consciousness of participants in that system.

"The success of our actions as change-makers does not depend on what we do or how we do it, but on the inner place from which we operate...We cannot transform the behaviour of systems unless we transform the quality of attention that people apply to their actions within those systems, both individually and collectively". Scharmer and Kaufer (2013)

Theory U defines the change process as one of letting go of elements of the system that are dying ('the push factor') in order to reconnect with what is coming to life in the emerging future ('the pull factor'). This requires moving beyond existing methodologies that rely on learning from the past, to create new methods that learn from the future. Hence, the emergence of Theory U and Presencing, where presencing combines sensing (feeling the future possibility) and presence (being in the present moment). Emerging from the space of sensing and presence, creates seeds of new potential. A process of rapid prototyping crystalises these seeds into rapid form or manifestation.

Different levels of responding to change can be distinguished ranging from reacting (quick fixes); to redesigning (policies and interventions); to reframing (values, beliefs) to regenerating and enlivening (sources of commitment and energy). In practice, this implies a radical shift from design and decision making processes based on top down command and control solutions to bottom up co-design processes rooted in meaning making through collective participation, conversation and dialogue.

Case study 2: Using Theory U in redesigning personal lifestyles towards sustainable living.

The Right Livelihood Programme is a collaboration between Schumacher College and the Gross National Happiness Centre in Bhutan. Participants embark on a one year personal and collective learning journey with peers, tutors and mentors. They arrive with a vision of their path towards more fulfilling and sustainable livelihoods, which evolves in an iterative way throughout the programme and beyond. Theory U provides the framework and method for transformative social and collective change and a process for reconnecting to more authentic or higher aspects of our self, to the social group and to nature.

Participants are invited to observe their current situation and the wider system within which they are embedded. This invitation goes beyond usual modes of perception, intellectual analysis and judgement; and explores different ways of knowing and interacting with others. Tools and methods include practicing different levels of listening, seeing the wider system through the lens of different stakeholders; and listening to their own embodied experience through constellations and social presencing methods.

Exploring the system in this multi-dimensional way, creates a rich canvas for experiencing future possibilities. Unlike many other visioning processes, the emergence of future possibilities is catalysed through an inner and introspective process of retreating and reflecting. Mindfulness, meditation, journaling and deep ecology experiences can all be used to re-connect with our inner knowledge and intuition.

The presencing process creates the conditions to reveal new insights and possibilities that are tested out through a process of rapid prototyping.

"Prototyping is the first step in exploring the future by doing and experimenting. We borrow this term from the design industry. David Kelly, founder and long term CEO of the influential design firm IDEO summaries the approach to prototyping succinctly: 'fail often to succeed sooner'. For example, prototyping means to present a concept before you are done. Prototyping allows fast-cycle feedback learning and adaptation". (Scharmer 2007; 2013)

Systems Thinking and Complexity Theory

Reductive science was once described as 'the most successful explanatory technique that has ever been used in science". (Medawar and Medawar 1977). As a theory to predict the future, reductive science relies on some core principles and assumptions, such as the primacy of analytical, objective knowledge; linear cause and effect relationships; and strict separation of the observer and the observed. Partly in response to its inadequacy to predict the behaviour of complex systems and partly in response to the emergence of new thinking in science, the 20th century witnessed a revolution towards a new paradigm in holistic thinking and practice. This new paradigm is formed from a transdisciplinary body of knowledge that draws from physics, biology, ecology, systems thinking, chaos and complexity theory as well as organisational change; sociology and psychology.

In its wake, a new theory of change is unfolding. It is a theory of change rooted in the nature of living organisms; and a whole variety of complex systems. Applications can now be found in almost every field – from predicting the next financial crises; mapping climate change as well as the emergence of new forms of leadership and global social movements such as the Transition Network.

This new holistic paradigm has characteristics and behaviours with important implications for the way we work with transition processes at the systemic level. The comparative framework in Figure 4 offers five distinctive characteristics of the emerging holistic paradigm and what this means for change processes.

Figure 3

Reductive paradigm	Holistic paradigm
Whole equals the sum of the parts	Whole is greater than the sum of the parts
Non-linear, network relations with dynamic feedback	Linear cause and effect relations
Subjective values and qualities lie outside the scientific method	Values and qualities are integral
Knowledge of the whole system is derived from knowledge of the component parts	Emergence: characteristics of the whole system cannot be predicted from a knowledge of the component parts
Simple self-regulation within known parameters	Self-organisation: learns, adapts and co-creates new order and behaviours.
Knowledge created through non-participatory, objective analysis	Co-creation of knowledge and meaning through whole person and participatory processes.
Process of change through design, management and control	Process of change orchestrated through co-design and catalytic systemic interventions

Source: Adapted from Richardson *et al.* (2007, 13)

Shifting our perspective from a reductive, mechanical world to a complex, ecological world fundamentally challenges how we catalyse transitions to more sustainable futures as illustrated in the following two case studies. Firstly, working with complexity

Box 1: Re-designing environmental policy

When the issue is part of a larger complex system

When human-ecology linkages are characterised by synergy, uncertainty, irreversibility and tipping points, then more pluralistic and contextualised tools are needed. At the project level, this may mean incorporating local sustainability constraints into project appraisal (Spash 1997). At the policy level, this may mean decentralised, adaptive management processes based on real time experiments and learning from experience rather than relying on abstract models and standardised solutions. For example, this approach has been pioneered in UK fisheries management (PMSU 2004)

When there are multiple viewpoints and establishing trust is an issue

This type of issue may require the inclusion of many different viewpoints and the fostering of understanding, trust, ownership and joint action. A variety of different methods can be used to recognise divergent values and create context specific solutions. For example, Multi-Criteria Analysis is a transparent way to take account of different values that uses a mix of quantitative (ranking, weighting, scoring) and qualitative techniques (Vardakoulias 2013; Stirling 1997). A range of participatory appraisal methods (including participatory mapping, seasonal calendars; matrix scoring) is another tool to capture multiple stakeholder perspectives.

When different types of knowledge can provide insights

A major drawback to using reductive science to study complex phenomena is that we are restricted to looking at those things that are quantifiable and measurable (Reason and Goodwin 1999). Other ways of gathering knowledge (such as feeling, sensing and intuition) are often rejected as subjective projections and unreliable data on which to base decisions. These concerns can now be addressed by methods that combine qualitative descriptors of value or assessment with a pattern matching statistical technique that detects the level of inter-subjective consensus in patterns of response across groups of people with diverse perspectives. The method has been applied in a variety of environmental contexts – including animal welfare and landscape quality assessments (Welmelsfelder *et al* 2001; Butterworth T. (2004).

To enhance awareness and cultivate value and responsibility

Phenomenological inquiry is another method that extends our knowledge of nature beyond traditional scientific analysis (Sokolowski 2000; Bortoft 2012). The method engages the whole person in environmental observation and assessment using quantitative measurement, sensory perception and intuitive response to natural phenomena. (Colquhoun 1997). In contrast to imposing standardised values and policy solutions on a system, the approach offers a practice to enhance awareness, and cultivate value and ecological responsibility amongst those engaged in the study.

Sources: Richardson *et al* (2007; 16-31); Richardson *et al* (forthcoming)

thinking and how this transforms our approach to environmental policy making. Secondly, exploring how and where designers can intervene to create conditions for more sustainable production, consumption and lifestyle choices.

Case study 3: Complex thinking in environmental policy

Sustainable developed has provided us with a powerful narrative for viewing the world as an integrated economic, social and ecological system. However, much of the language, concepts, methods and policies of sustainable development have evolved from our existing mental model, which is predominantly one of reduction. Consequently, standardised policy prescriptions for sustainable development, have often resulted in unintended and sometimes counter-productive outcomes.

If we shift our mental model to view ecologies, economies and societies as complex systems –then what does this mean for re-designing and re-thinking our approach to environmental policy making? This was question posed in a research project I undertook for the Environment Agency in the UK entitled 'Using Science to Create A Better Place' (Richardson *et al.*,2007). Box 1 illustrates our selected findings and proposal for re-designing environmental policy in the UK.

Case Study 4: Designing where to intervene in a complex system

One of the most influential and practical contributions to systems thinking is the article by the late Donella Meadows, 'Leverage Points: Place to Intervene in a System (Meadows 1999). Although originally inspired to understand complexity of the global trading regime, the model offers a set of leverage points (in increasing order of effectiveness) that can be applied to any system. Figure 5 shows how adapting the Donella Meadows framework to the design context, reveals a range of design interventions, tools and methods that can be used to catalyse systemic change towards more sustainable production, consumption and lifestyle choices.

Designers can operate across three of the areas of knowledge identified in the Transition Design Framework – Visions for Transition, Theories of Change and New Ways of Designing. It greatly expands the role, responsibility and influence that designers have in transitioning towards sustainable futures. In particular, this systemic approach to design

demonstrates the application of different tools and methods for sustainable design processes that are explained in more detail in Appendix A.

Final Reflections

The original invitation for this paper was to reflect on my own field of expertise in economics through the lens of Transition Design. This paper reveals the many areas of overlap and similarity between Transition Design and Economics for Transition.

Both Transition Design and Economics for Transition are essentially about 'transitioning' from one state to another. The visions for a possible future state are similar insofar as they are both concerned with the transition to a life sustaining society for both people and planet.

Economists tend to focus on the theories and tools of their discipline to explain how change happens – for example, through technology and policy interventions. Introducing a more systemic understanding of economics, leads us to processes of economic change that draw on new thinking in science (living systems theory, complexity science and quantum physics) where the focus is on catalysing change towards more sustainable futures. However, this paper suggests that this not sufficient in its self. Economics needs to move beyond complexity thinking and catalysing change in the external world, to fully embrace the discovery in quantum physics (that has been known for many millennia in many spiritual indigenous wisdom traditions) that we live in a participatory universe.

This means that practices for shifting states of awareness and consciousness (at both an individual and collective level) are critical in our role as active and aware participants in the universe – and indeed, in bringing into being particular forms into the world in both the disciplines of economics and design. This has been known for many millennia in spiritual and indigenous wisdom traditions through practices for 'inner cultivation'. In secular societies, this signals a critical role for practices such as reflective inquiry, action research and phenomenology as well as tools and methods for creating healthy group culture at the collective level to foster values such as trust, cooperation and compassion. This is just as important for Transition Design as it is economics.

On reflection, Transition Design and transition economics are not really separate disciplines, to be compared are contrasted. To the extent, that they both embrace tools, methods and practices drawn from living systems theory [Theories of Change] and transforming states of mind through individual and collective cultivation practices [Posture and Mindset], they may be thought of as different manifestations (in the sphere of economics and design) of the process of creating a more conscious and participatory universe. Ultimately, they are both critical contributors to bringing into being a life enhancing world and its multiple manifestations and forms of human and ecological flourishing.

Appendix A

Leverage Point: Example of Systemic Design Intervention

Amounts: Changing physical quantities that can be measured and quantified	**Factor X Efficiency:** Eco-efficiency is a product-based approach that focuses on increased resource and energy efficiency through technological innovation.
Redesign the structure: redefine products and production processes	**Redesigning materials**, structure of a product and production processes to make it more recyclable/nontoxic/ bio-degradable.
Stocks relative to flows: changing the ratio of stocks to flows	**Product Service Systems (PSS).** By using a service rather than a physical product to meet consumer needs means reducing material and energy requirements.
Feedback loops: creating circular systems	**Cradle to Cradle Design** uses 'closed resource loops' where waste from one industry becomes 'food' or raw materials for another.
Feedback of information	*Information Design:* Information about products in marketing and packaging provides a primary interface with consumers. Product labelling schemes enable consumers to make better choices

Critical nodes – engaging with key stakeholders	**Life Cycle Assessment (LCA):** Effective intervention involves engagement with stakeholders throughout the product lifecycle (extraction, production, distribution, use and disposal).
Changing the rules: formal and informal rules define system behaviour	**Branding Design:** Designers may influence and be influenced by formal rules such as government policy as well as product perception through brand design
Self-organisation	**Co-Design and User Centred Design:** Emergent design processes that involve users and other stakeholders in the design process. This approach is characterised by system-wide view of design problems and their context.
Paradigm Shift – shifting the collective 'mind set'	Design approaches that work at this level, **start from a vision of a sustainable future and work backwards** to redefine what types of products and services would be needed and how they would be delivered. This can include sustainable everyday scenarios envisioned by Manzini (2003) or re-patterning our lives according to nature's principles (Benyus 1997)

Source: Adapted from Richardson, Irwin and Sherwin (2005)

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Dramaturgy of Transition: Finding Stories in a Form That Can be Acted

Lucy Neal

When the artist, Emily Hinshelwood, walked through Wales for a year asking each person she met three questions about climate change, she discovered that everyone she met was aware of climate change, but none of them discussed it with anyone they knew nor felt able to act in the face of its overwhelming complexity. Coming across her unexpectedly however out and about they talked about it to Emily for hours. She made their responses into a wonderful verbatim poem, A Moment of Your Time.

Zoe Svendsen, a theatremaker, whose productions such as Third Ring Out engage audiences directly in imagined climate change scenarios, finds that when confronted with having to 'act' in the big change stories of the planet, a certain 'scriptlessness' descends on us: we lose the thread of the part we're to play and agency for making change.

I'm interested in the dramaturgy of transition; how perspectives shift from one of 'non-agency' to being players in action or citizen artists and how the imaginary helps us transform and renew the real.

My own insights into imagining and creating a socially just and liveable world came from involvement locally in Transition Town Tooting, part of the global social change movement, making change in how we live, where we live. From 2008 on, lines between art making and community making, community activism and art became blurry for me. Both facilitated participative, collaborative processes in the public realm to conjure with alternative futures and imaginary worlds.

This lived local experience, provided a new definition of dramaturgy for me – finding stories in a form that could be acted: finding scripts for action and creating everyday parts for people to play. Transitioner, Chris Thornton, speaks of an existential transformation taking place when people connect to 'being as act':

'action reminds us of our innate potential for choice...where action is socialised or collaborative, the sense of connection and responsibility to others encourages it to continue.'

I see this expanded concept of dramaturgy as increasingly key to designing transition: if we are all players in action, how do we choose to act? and what role do we play? When facts and figures about climate change cannot catalyse the shifts needed to move towards a zero carbon future, the arts have a tradition of sparking cultural change and speaking differently – as Emily did – creating emergent space to rethink the future collectively.

With poetry and metaphor, the arts explore the language of the heart, the pain of what we're losing and the deep yearning in us for the restoration and celebration of life. They re-engineer time to allow our imaginations to flourish, glimpsing other ways of seeing and feeling and it is from these experiences that different futures can emerge. Drawing on patterns of belonging, empathy, kindness, community resilience, stewardship, reskilling, alternatives to 'limitless' growth, the arts reenfranchise our imaginations.

The role of finding new stories to live by has been the traditional role of theatre for thousands of years. Indian, theatre-maker Neelam Mansingh Chowdhry recounts how the Hindu God, Brahma, created a new art form in an attempt to restore balance to the universe. The new art, theatre, would be accessible to everyone on Earth and was popularised in the Natya Shastra, by a dramaturg with a large household, Bharata Muni. 'The task', says Neelam, 'was given to someone who understood community and its requirements of empathy, compassion, tolerance and adaptability'.

The search then, as now, was for a story in which everyone on Earth has a part to play: a co-created story in which we all participate and in which no-one is silenced, including the Earth itself.

Playing for Time

Understanding the crucial role our imaginations and creative skills play in imagining a world in which life on Earth is cherished and sustained, finds expression in my book *Playing for Time – Making Art As If the World Mattered*.

Co-authored by over 60 artists and community activists, it is a practical handbook mapping collaborative arts practices emerging in response to planetary challenges.

It reclaims a traditional role for artists in the community as truth-tellers and agents of change. It follows my own experience over 35 years in what is known as the 'participatory arts' – where boundaries blurr between maker and specatator; works are co-created by groups of people, sometimes (not always) people who have never previously engaged with or identified themselves as artists.

The emergent 'transitional arts practice' will be familiar to anyone rooted in traditions of 'relational'; 'socially and ecologically engaged' art or Joseph Beuys' 'social scuplture'.

Aesthetic vision and social engagement are equally important and often what is created between people is the art. Worlds emerge not from a single author, but from the breadth and depth of many people's perspectives and experiences. The wider and deeper the engagement the more validating and transformative the work proves to be. The book includes 100 stories of such art and community making.

Playing for Time makes a case for play: the ground of arts being and how we learn what we need to know to survive. In our imaginations, we rehearse possible futures saying 'if that happens, I'll do that'. We draw on these memories of the future to make decisions about how to 'act' in the real world. Play opens us to creativity and change, extending the range of possibilities we draw on. Artists re-engineer time to allow our imaginations to flourish and it is from these extended range of possibilities that a different future emerges. Framing space for play requires skill: play can be disrupted by fear, which our present dangers elicit.

Four narratives created the edges of the book: a Supernarrative of Earth; a Grand narrative of drama and action; the biographical personal narratives we all bring to the story, and one that formed the central practice of the book: the communal narrative, informing a practice of community and collective agency for change.

In keeping with the collaborative nature of transitional arts practice, and working with editor Charlotte Du Cann, the book evolved its structure and design alongside 60 contributing artists and activists. (Reading the Dartington paper on Transition Design, I understand better the slow, iterative collective decision-making process we went through over the two-year period).

Structure, practice and principles

The book's structure was relatively simple: the first section set out the systems and 'macro' drivers of change challenging our present times. They cover energy, finance, food, community resilience, activism, climate change, kindness and wildness and establish a realistic basis for collective action on which to build compelling narratives of a more sustainable future.

Transitional arts practice proposes how these 'macro' challenges are transformed creatively by a daily 'micro' personal practice. Artists use the word practice to describe what they do and how they do it, but the book's proposal is that anyone can use it to describe a daily life that combines creativity and intentional change. A practice embodies an attitude towards the future and embraces the 'cognitive dissonance' of living in two realities at once: the way the world is and the way we want it to be. A creative role is to reimagine and reconfigure the systems of the current stories we live by breaking through their blind spots to transform culture, attitudes and behaviours. A 'what if' becomes a starting point to see what will happen.

The second section gathers an abundance of stories showing exactly how artists are doing this:

Harry Giles' *Everything I Bought and How It Made Me Feel* questions the relentless nature of consumer culture. *Clayground Collective* explores the use of our hands with practical claymaking skills, connecting to the history of ceramics and the canal system; *Fruit Routes* plants edible fruit and nut trees across Exeter university campus to connect ecology, art and the sustainable management of land whilst in Sussex Andreas Kornvall builds a *Cairn for Lost Species*.

In Scotland, Deirdre Nelson's *Bird Yarns*, draws attention to the plight of Arctic Terns whose long-distance migrations have been disrupted by climate change. Amy Sharrocks invites people to donate 'water that is precious to them' to a *Museum of Water* whilst *Human Cost*, marks the anniversary of the BP Deep Water Horizon explosion, launching an ambitious (and increasingly successful) campaign to end fossil fuel sponsorship of the arts.

An activist art spectrum includes the everyday activism of Norway's Eva Bakkeslett who works with microorganisms to celebrate culture's resilience – microbial and social – when fermented, exchanged and shared. Encounters Arts creates a temporary High

Street shop 'with nothing on sale, but lots on offer' where a community's memories are shared and a future re-imagined – a process now being applied to the creative development of the disused 3.5 acre Dairy Crest site in Totnes as part of a Community Right To Build.

The Happy Museum creates a frame for the UK Museum sector to explore how our own wellbeing connects to that of the planet. Happiness becomes a trojan horse to decouple the notion that our own prosperity is linked to material wealth and infinite economic growth. The hands on design focus of the ReMake project at the Derby Silk Mill challenges the community to engage directly with the creation of a new Museum of Making.

These practices set a new era for the arts. Although found in theatres, galleries and museums, such art is likely to found away from the conventional places of art: in apiaries, playgrounds, hospitals, community gardens, on bandstands, shorelines and mountain tops. Not easy to categorise, these arts emerge chameleon-like in the spaces in between people and places: creating everyday parts for people to play. Few fall into the conventional, siloed categories of 'dance' 'music' or 'visual arts' – or art that can be purchased, coveted or consumed.

The third section gives Recipes for Action and Tools which offer triggers and starting points to inspire readers to create positive change as individuals and in communities or neighbourhoods.

In the process of writing *Playing for Time*, we looked for patterns of transitional arts practice that could be distilled and translated into a set of principles others could recognise, take up themselves and act on. Ten principles map the capabilities and skills of transitional arts practice:

- Intention
- Ignition
- Frame
- Work with Community
- Facilitate
- Hold Space

- Connect
- Work from Commonality
- Collaborate
- Change

In an explicit context of collapsing ecological systems and in combination, they create momentum for a narrative of change; building community from as many people's stories as possible and creating momentum for rethinking the future.

These principles underpin ongoing creative workshops – the International Transition Conference in Devon September 2015; a Community and Public Engagement with Health Wellcome Trust conference in Mumbai in January 2016 and most recently in play rehearsals at the National Theatre in London. They make visible the soft performative – even dramaturgical – role artists and community activists play in finding 'scripts for action' and 'stories in a form that can be acted'.

Underlining them all is the iterative and collaborative art of building neighbourliness:

> *'Neighbourliness, the geographer Barbara Heinzen found, was developed under certain conditions: experiment and engagement with intimacy (ie small numbers), diversity (a mix of age, culture, professional expertise, educational background and knowledge), working together project by project over time.'*

Whilst blueprints, such as The Centre for Alternative Technology's *Who's Getting Ready for Zero?*, demonstrate how societies across the globe can transition to low carbon futures, there's no collective map of how they're invented socially, or how a cultural commons is created for the future we want and can find our place in. Neighbourliness provides many answers to how societies innovate and learn.

Outriders and alchemists

In recent years, UK arts and cultural initiatives such as Platform London, Cape Farewell, Julie's Bicycle, Tipping Point, Artsadmin, Emergence, Creative Carbon Scotland and others have created a step change in recognising the role the arts community plays in re-imagining a more viable future on the planet, shifting society's rules and values from

consumerism and commodity towards community and collaboration. A letter from over 350 artists and creative leaders from the worlds of music, film, theatre, literature and art to Christiana Figueres at COP21 in December 2015 called for an ambitious climate agreement from the world's decision makers. Figueres acknowledged the letter as a key signifier of the shift taking place in the public narrative towards care for the planet. Artists can be 'outriders and alchemists in the vanguard' speeding up a public process of seeing and feeling the 'truth' of climate change. A subsequent movement of 'Coptimists' signed a Creative Climate Coalition on May 4th 2016, recognising a key role in joining climate activists, researchers, economists, scientists and energy specialists in leading cultural change.

Often beneath the radar, transitional arts practice focuses explicitly on the radical changes required to live within ecological limits. There is a movement afoot, in which Playing for Time plays its part, that recognises the power collaborative arts practices have to build our resilience and reinvent us; extending our imagination, collective courage and knowledge we're part of a larger whole. This to me is the dramaturgy of transition.

Joining dots

The dots are yet to be joined though between research underpinning the methodologies of transitional and participatory arts practices explored in Playing for Time and the great reimagining of a liveable world. The seeds of the case lie in what's already known about how the real is explored through the imaginary; through story, memory dreams and play. Eliot Eisner (cognitive processes of art-making critical for all walks of life); Jerome Bruner (how we use stories to make sense of our lives); Donald Winnicott (transitional objects and phenomena at heart of culture and the arts) provide some beginnings: the use of metaphor and symbolism provide the 'other' space for exploration of oneself and the world.

Kris de Meyer, a neuroscientist at King's College can be added, specialising in the psychology and the neuroscience of belief. Currently working with scientists on how an understanding of belief might inform communication around climate change, Kris' film Right Between the Ears, explores how people come to believe in the things they do. Early research suggests our actions and decisions change our opinions and beliefs (not the other way around).

This is the historic change, social theorist Jeremy Rifkin refers to when he talks about the switch from a 'psychological era' to a dramaturgical one, in the Empathic Civilisation. A shift climate scientist, Kevin Anderson acnowledged in Paris in December 2015 at COP21:

'Climate change is a very complex problem. The great thing about complexity is that it has emergent properties. The good thing is that it gives every person, all 7 billion of us, a role as an agent of change. Most of our ideas will wither and die on the vine, but a few seeds will flower and come forth, and the role of society is to nurture those ones, to fertilise those ones, scale them up..and if you see the world as a complex problem, you're no longer relying on the Prime Ministers and the leaders, you're relying on all of us, as part of that change....we could see change emerging from different places, to give ourselves all some scope for thinking differently about the future'.

The arts have much to offer to foster these different emergent spaces. People trust artists suggests Ann Jordan, co-founder of Wales' Elysium Gallery 'they can get different people in a room talking to one another when no one else can'.

Creative connections across sectors are on the up. At a recent Happy Museum conference in February 2015, 'wellbeing' economist Lord Gus O'Donnell acknowledged how (constructively) challenged he was by arguments made by Transition Rob Hopkin's practical case studies for reengineering local economies around wellbeing.

Paul Allen from the Centre for Alternative Technology has evolved 'the extraordinary story of human beings and energy' both in Playing for Time and in a range of cultural settings. He acknowledges this has allowed him to broaden the 'zero carbon narrative' to tell a wider story, 'to help people see that today's normality is actually an extreme energy lifestyle that we have been coaxed into living. This means moving on from it is a much more thinkable task'. Following on from a Playing for Time presentation at the What Next? arts network, Allen's presentation at the National Theatre in April 2016 was followed by animated discussion with the leadership team there around the need for a positive vision of the future; how we have been duped into over consumption and what theatrical narratives are involved, both communal and individual.

The future is dappled in the present.

I come to Transition Design at Dartington eager to learn how to design and structure a second cycle of life for Playing for Time. As it makes its mycelium-like progress across the land, influencing artists' thinking, making and doing and public debates, how to map its story of change? What training can be offered in transitional arts practices? What resources can be harnessed? What advocacy is needed? What peer-to-peer

encouragement and support to model and live compelling new narratives of the future?

What form could this take? What protocols of meeting and making would be involved? Answers will emerge: paying special attention and looking around to connect to serendipitous possibilities.

In ancient Greece, theatre was a 'place for seeing'. The difference between a tragedy and comedy was one of time. In tragedy, 'seeing' came too late for action, but in a comedy there was more time for learning and hope and the reconstitution of the community.

Opportunities to play for time and reweave our world are within our imaginative grasp.

Appendix

Playing for Time: Transitional Arts Practice Principles

1. Intention: the intention is to create conditions for change. Open-ended, with no precise plan, this is a felt sense that pulls us forward, requiring us to act. Maintaining the artist's instinct to come at things sideways and risk the unknown, engaging in intent gives life to the choices we make to bring about change.

2. Ignition: like a call and response, this is where the practice begins, turning an idea into something that exists in the real world. Ignition catalyses energy in others and comes back, enriched. When we commit to action, the universe comes to meet us in unforeseen and providential ways.

3. Frame: a frame creates a boundary or structure within which the freedom to play exists. It shapes the aesthetics of a project with parameters for decisions and details and is a filter to direct attention at something new, or something familiar in an unfamiliar way. A frame creates a context or narrative for people to explore.

4. Work with community: a practice of community fosters the self-awareness, empathy, vulnerability and realism to help us evolve. We must relate to each other for our survival but we're not yet community creatures. Communities can be accountable to people and place over the long term, building new shared

knowledge. Each project becomes a rehearsal for the next and people can embark on even greater experimentation. The practice brings people that are not like-minded together with different backgrounds and experiences who wouldn't normally meet to create communities that didn't previously exist and newly connect communities that do. Narratives can emerge that transcend people's individual worlds views. In this context people behave differently; they see themselves as integrated and part of a larger, celebratory whole.

5. Facilitate: with a project underway, there are obstacles to overcome. Facil means easy and faciliation means getting things to flow and making it all look effortless. Some aspects of facilitation can be predicted and organised but much needs improvising and intuiting with a willingness to respond to what's needed, often without prior specialised knowledge. Facilitation often involves crossing boundaries between disciplines and sectors; building networks in local places; engaging people in power; negotiating with institutions; opening doors and roads; making celebratory spaces; setting partnerships up to enable work to happen.

6. Hold Space: at best an invisible art, holding space focuses the attitude and energies of a group. Holding space creates boundaries within which people feel safe to participate creatively so that new possibilities emerge. No-one feels judged and everyone can contribute equally to what's happening. Transitional arts practice holds collective space for creating a new narrative of change.

7. Connect: The practice creates a story of interconnection which counters a sense of isolation and separation people feel in a society of pathological individualism. Connecting makes space for coherent and holistic narratives of where we are now: connecting the narrative of Earth to a new narrative of community and positive change. People act differently when they feel this sense of interconnection. Serendipities spring from such connections between ourselves, the non-human world, the cycles of the seasons, the visible and the invisible, the just and the unjust and between the past, present and future.

8. Work from Commonality: this requires paying attention to what people have in common: their humanity and common values. In a culture of separation, looking at what we hold in common breathes new possibilities into a public realm depleted of empathy by a culture of commodification and adversarial debate. Empathy lies at the heart of working with commonality and opens people to a breadth and depth of human experience. Empathy is key to how people change: it creates liminal

space in which people see and feel the world through new eyes. Making space for emotional and intimate narratives in this way connects people. This shared space of imagination is a new commons seeding the chances of acting together to build relationships of trust and the creation of a communal or social brain.

9. Collaborate: Collaboration is a transformative, complex human process and requires surrender of some control, but not of rigour and care. The word includes laborare which means work, often challenging work. It needs humour, open-heartedness and negotiation, all of which are part of its creative dynamic. It requires an active openness to working with others to allow creative journeys to be co-created, rather than shaped by a single author with a predetermined vision and can involve staying with some difficulty and discomfort.

10. Change: People's perspectives and sense of capabilities can change. The story of change happens on many levels at once: within our lives; within other people's lives; within society and within the world. These stories build into a larger narrative of change.

A dramaturgy of action can be created in which everyone finds a part to play. The conditions in which change happens can be nurtured: the intention with which the practice began.

Panel 3: The Political Economy of Transition Panel

The question of how we can conceptualize and catalyse societal change is at the heart of Transition Design and was the unifying theme of this panel. The panellists argued, in various ways, that transition requires a two-way relationship between the 'top' and 'bottom' of society, the political and the personal, the institutional and the grassroots. Indeed, this vexed relationship has for many years preoccupied the transition and green movement at large. Hilary Cottam argues that it is necessary to remember that whilst we need to take a broad view of complex, wicked problems, solutions lie in building personal networks in everyday situations; Andrew Simms and Ruth Potts argue that historically, rapid large-scale transition has occurred as initiative from below is collectively co-ordinated, networked and scaled; Robin Murray shows how socio-technical transitions relating to sustainability are unlikely to take hold if, in the face of indifference or antagonism from national government and large business, they remain too grassroots, without financial, technical and municipal backing. A core skill of transition designers, therefore, will be to help develop institutional support for local, grassroots initiatives.

Preparing for Enlightenment? Transition Design and the Welfare State: some thoughts

Hilary Cottam

What is life for? According to Buddhist traditions life should be used as a preparation for death. In his best selling book The Tibetan Book of Living and Dying, the Buddhist scholar Sogyal Rinpoche suggests that death is the mirror in which the entire meaning of life is reflected. The third and final stage of our life he writes, is a critical one, potentially a time of liberation and enlightenment.

Rinpoche's teachings point to a radically different way of being in the world, one which is far from the lived experience of many of us. And this distance is perhaps at its greatest when Rinpoche writes about the third stage of life. Ageing in Britain, as in many parts of the world, is not seen as the last stage of a journey of development. Rather it is viewed with fear and dread: a potential time of personal crisis and diminished capability.

The fear with which old age is viewed by many is not an irrational response. The demographic shifts we face are profound, systemic and global. They are exerting often intolerable pressures on both our informal systems – our families, our relationships and our communities – and on our formal systems. In Britain this pressure is felt acutely in our welfare services: systems of health and care that were designed well before our current wonderful longevity was envisaged.

Ageing is a complex challenge: any solution will enable thousands of individuals and many different types of organisation to change in ways we still find hard to imagine, much less make happen. This is a reason that incremental change within existing institutions – still the dominant approach to social change – is bound to fail. It is the depth and complexity of the ageing challenge which makes the subject a fascinating case study for the potential of Transition Design [TSD].

This paper draws on my personal experience of using design to facilitate change. I focus

on the last ten years of work in which I have been developing new models of welfare and use the ageing work, Circle, as an exemplar. The paper falls into three sections:

- In the first part of the paper I look at some core characteristics of the design process used – a process I call Transformation Design [TFD] which shares many of the precepts of Transition Design [TSD].
- In the second part of the paper I describe the solution: a new approach to ageing we call Circle.
- In the final third part of the paper I will outline some specific thoughts which arise from this work in response to the provocation on Transition Design.

Design: transforming and transitioning

In 2005 I won an award as UK Designer of the Year. The award was made for work I had done in the fields of health, education and criminal justice. The work and the collaborative processes behind it – were exhibited as part of a competition at the Design Museum in London and the title was awarded on the basis of a public vote.

The British general public knew intuitively that a collaborative approach to problem solving, one that could engage fully with the wrinkles of real life, one that could make connections to bigger systems, made sense. I also believe the public responded to solutions which were beautiful, uplifting and generous – not qualities readily associated with social projects in Britain today.

I am however a social scientist, not a trained designer: I have never been to art school and the award evoked a passionate and heated response in the Design Community. I received personal hate mail and Mike Dempsey, the Master of the Faculty of Royal Designers for Industry spoke out publicly against the worrying abuse of the term designer, asking "can we please have our name back?"

Over a decade later, the response of Dempsey and his peers seems almost quaint. Thousands of young people apply every year to study the new discipline of social design: they are a generation who want to use design skills to change the world. Design is advocated as a problem solving approach by government, business as well as by an increasing number of design agencies. The process we described as Transformation Design in 2004 has grown, mutated and flourished. In her recent book Hello World, the eminent design critic Alice Rawsthorn maps the world of design placing what she calls

"design aimed at the 90 percent", that is design that combines social purpose with an awareness of wider ecological ramifications, on an equal footing with more traditional forms of design.

For me personally, the process was not a comfortable one but it did create an opportunity. I was able to use the prize money I was awarded to start a new organisation: Participle. Participle was a ten-year experiment to consider how we might use the design process to re-Đimagine the British welfare state and Circle (the ageing work considered in this paper) was Participle's first project.

At the heart of Participle was a long-term vision of what a future welfare state might look like. In homage to the designer of the original post war welfare state, Sir William Beveridge, I called this vision Beveridge 4.0.

A Long Term Vision

Most of the discussion today around reform of the welfare state centres on how we can reform the post war institutions originally designed by Beveridge and his contemporaries and how much should be spent on this process. The focus is narrow and short term. Beveridge 4.0 starts from a different place.

Standing outside the institutions and alongside people and their communities it asks what is needed to flourish in the 21st century and advocates five core shifts that would underpin a new approach. The most important of these shifts is a transition from meeting needs and managing crisis (the culture of the current welfare state) to one of supporting the development of core capabilities in each and every one of us.

The capabilities approach has been developed by the nobel prize winning economist Amartya Sen and the philosopher Martha Nussbaum. Their work combines a deep questioning on the nature of a just society with a rigourous focus on the causes of poverty and the ways in which these causes are hidden and elided by dominant discourses and their supporting institutions.[1] Both Sen and Nussbaum in different ways draw on Aristotelean notions of the good life, questions that are echoed in the work of Rinpoche and the search for Enlightenment.

At Participle, each of our projects, including the work on ageing focused on the cultivation of four capabilities: (meaningful) working and learning; health and vitality

(of the mind and the body), relationships and community. The latter encompasses both a local vision of belonging and a broader concern about the need to protect and nurture both social and natural eco systems.

A Design Process

The Participle design process is the "how": a set of participatory techniques and tools that can make the transition between a big vision and the messy business of change in the world. Building on and developing the Transformation Design (TFD) process developed with colleagues a decade earlier, Participle's approach also shares some core characteristics with Transition Design (TSD) and is not new. In particular the process draws on the inspirational and generous work of Robert Chambers and the methods of Rapid Appraisal, adopting and adapting the visual methods in ways which can work with British communities.

Acutely aware that dominant approaches to problem solving advocate chunking up a problem and concentrating on its components and that such methods are not suited to complex social problems, the Participle process additionally owes a debt to Jake Chapman and the discipline of systems thinking. As Chapman has noted "mechanistic and reductionist thinking [is] deeply embedded in our culture, particularly in the culture of government" [2004; however the reality is much more messy". Chapman argues for a different approach that includes diverse perspectives, a focus on connections that are not always linear and the need to go up a level of abstraction in our thinking.

The Participle process attempts to go up: including different perspectives and different directions at once. And to go down: to get close to the creative power of real people with real problems, giving a genuine voice to those who don't have one. The process depends on an inter-Ddisciplinary team with diverse skill sets, which include both strong analytical skills and creative, visual skills. The power of the methods lie in their ability to get underneath issues and to grapple in particular with underlying emotions, which may not always be conscious, but which determine behaviour.

The process works on many levels keeping the person, the wider community and the system in view at the same time. Local and national policy, economic frameworks and business models are also part of the picture since the intention is to develop something that will work in practice and is affordable. Introducing elements from the Lean Start up model developed for technology companies improved the way we were able to test

and adapt at speed and is an example of the close relationship between technology and design, a subject I turn to in the third section of this paper.

Within the confines of this paper I cannot fully discuss the radical potential of the process, nor is it possible to examine in depth the similarities and differences to the TSD framework. It would seem however that both approaches share a number of critical characteristics and here I discuss four that I consider to be of particular significance before moving to describe Circle, a creation of this process, in the next section.

Firstly, the process does not assume that the problem is known at the outset. Indeed, there is supposition that the presenting problem is most likely to be a sympton rather than a root cause and up to one third of the project time (9 to 12 months at Participle) is spent defining the problem, a project phase which rarely exists in most traditional consultancy work.

Problem identification is a dynamic process which is never completed. Jocelyn Bourgon, the former leader of the Canadian civil service has recently argued that this flexible and continuous approach to problem setting is a tool that public administrators and policy makers need to adopt. Her assertion, based on the findings of a research project that spanned six public administration systems in six nations is that public systems need to explore and adapt, adjusting their approach to problem setting in the new complex realities of this century. Identifying the problem is a dynamic process which is never complete, however at the close of this phase (approximately three months of work) a shared working hypothesis on the problem has been set.

With a working hypothesis established as to the problem, the process continues to be open in the succeeding phases. We describe the project work as a Foggy Project. The term is borrowed from the work of Eddie Obeng to describe work where neither the end goal (the solution) nor the method for solving the problem is known. This is a process which invokes high levels of anxiety in the team involved and particularly amongst partners from government organisations. The latter are more used to and comfortable with what Obeng calls Painting by Numbers where the goal and the steps to get there are closely described and have been covered many times before. In this context the design process provides a container, it is like a vehicle that everyone can travel in safely. The process also provides a common language ensuring that people from different disciplines can participate (this is not a process that can be facilitated by designers alone) and the voices of those from very different social and professional hierarchies can be heard.

Secondly, the mindset is one of searching for insight rather than seeking for an absolute truth. As the design process continues through the succeeding stages, of idea generation and the early stages of co-Ðdesign as solutions are proposed, the mindset is one of seeking insight as opposed to "the truth". Indeed multiple "truths" may need to be held in mind. The work is a process of observing and, what the psychoanalyst Christopher Bollas calls "revolutionary listening". What is unsaid or silent is listened for as much as what is said. It is a process of the imagination, of play and free talking. To stimulate the process, we ask people to keep diaries, take pictures, make diagrams, try new things out with new people. The purpose is not the activity itself but the insight that is uncovered and the stories that are told.

Because the search is for insight rather than "statistical truth", we often work at first with quite small numbers. This is a way of working which is concerning to many, in a world where there is an increasing emphasis on large panel data and the methods of the science laboratory. Small numbers enable us to work at a deep level where the valuable insight is to be uncovered. In choosing participants we seek out those living at difficult extremes. If most social research takes place with those who fit within the norms of a social distribution curve, we try to work with those on the edges. The marginal –whether applied to people or to ideas – is where we find the richest insight. A shared hypothesis at Participle is that if we can design things that work for those at the extremes, then those same solutions and approaches are also likely to work well for those whose situations might not be quite as difficult.

Thirdly, the process is practical, designed to transition from ideas to concrete change in the everyday world. Prototyping, the building of models to learn and iterate ideas is a basic tool in the designer's tool box. It is one of the many strategies that facilitates the transition from research to practice and action. Rapid mock ups are made to try in real life situations. These might be elements of a service, a new role, a new script or a simple piece of technology. The important thing is that they are tried in real life situations: prototypes can be rapidly changed, taken apart, re-assembled and tried again. The motto is fail fast, fail cheaply. The process is the antithesis of a traditional approach to policy making and public service reform where research (from an institutional perspective) is followed by a small pilot and roll out at scale, often with expensive and dismal results as seen in a catalogue of cases from the Department of Health to the Department of Work and Pensions.

Prototypes make things visible so they can be understood and challenged; problems can be identified that might not be apparent through a written report or description. They

also bring audacious ideas to life, encouraging others to believe that change can happen, so much so that partners are frequently disconcerted when we take a prototype apart to make something better: they liked it, they had grown fond if it and they want it back. I liken the use of prototypes to the concept of a transitional object in psychoanalysis. The Winnicottian idea of an object that can support the transition between developmental stages.

Fourthly, the process makes power in all its multiplicity visible. It is important to reiterate no design is unique and over the last decade the core tools and techniques have spread, morphed and been given a plethora of new names, which include the new focus on Social Design, now a taught course in many universities and recently recognised as a 'global phenomenon'. Similar practices are used by big consultancy firms from Price Waterhouse Coopers to McKinsey and many corporates have now adapted elements of the process for very different ends. It is a salutary reminder that the process alone is not progressive transformation or transition.

In this complicated arena where processes can be adopted and adapted to extend the reach of the market or to prop up redundant systems, rather than to give birth to the new it is important to hold on to first principles. In the context of Participle and our ageing work (Circle) three things have been key: a strong vision behind the process (Beveridge 4.0 and a focus on capabilities); an insistence on an open process, the agenda cannot be defined by either the funders or the dominant welfare institutions; and an authenticity in the relationships involved (with no client we can speak truth to power however uncomfortable the process might be).

The necessity of making power visible, of confronting and addressing power in the process of change and transformation is one reason that the design process cannot be facilitated by designers alone.[2] Analytical skills and the knowledge and history of other disciplines is required: at Participle economics, history, anthropology and psychoanalysis have been core disciplines in the team mix and in leadership roles.

The design process, like power and the work itself is neither static nor without its challenges. At its best the process does allow for a wide range of voices which are not flattened, uncovers insights whose validity is long term and facilitates a transition into action. Circle, the focus of the next section was developed through the Participle design process in 2009. Seven years on, Circle continues to grow and adapt building on the core findings and discoveries of the design process.

Circle: transitioning to a flourishing third age

Circle is a membership organisation open to anyone over the age of fifty. Members, who pay a low monthly subscription fee, have access to a free phone number which they can call for on demand practical support and are invited to a rich calendar of social events in their community.

Circle shares some characteristics of a traditional service: part concierge service, part self-Ðhelp group and part social club. Members can access a core offer whether that is advice on the phone, support when coming out of hospital or joining in any of the social events published on a monthly calendar.

But this is only part of the story. The culture of Circle is more that of a facilitator than that of a service provider. With the support of a simple piece of technology, the small staff team at Circle see it as their role to foster relationships between people as much as to provide any "thing". Those who have time to give to offer a lift or do a bit of gardening (sometimes paid, sometimes unpaid) are connected to those who need help. Those who have a particular interest whether it is opera or playing darts are connected to others who are like minded. Making these connections is not always easy: it requires time and trust, tact and persuasion. Circle members have often lost confidence through loneliness, the loss of a loved one or perhaps as the result of a fall which has reduced mobility and physical self-confidence.

In addition to providing a service to members within the communities where it has been established Circle also makes an incursion into the systems which surround it and of which it is part. This systemic incursion takes a number of forms. Firstly, traditional hierarchies are subverted: members decide what the service offers and how and the service adapts in real time. In this way Circle holds up a mirror to the other services which surround it, often uncomfortably questioning their hierarchies and practices. Secondly the culture which underpins Circle – one of trusted personal relationships – is very different to the transactional culture bound by rules and above all the avoidance of risk, which typifies not only what is traditionally offered to older people but how it is offered. Thirdly, as I will discuss in more detail below Circle can increasingly take over more traditional aspects of care and change the way they are done thereby infecting wider areas of the system with its culture and vision.

Starting a Circle requires an initial upfront investment. Participle asked its partners (local authorities and in one case a housing association) to enter into a double contract:

invest in building the network (Circle) and then work with us to re-Ddesign your systems around this network. Circles usually start in a modest way: changing light bulbs and organising coffee mornings, but through the social bonds these activities create, further structural change can take place. Where the double contract was embraced a wider impact on the system was measurable: GP visits fell in one locality by 70%, hospital readmissions were significantly reduced (saving money and misery).

The obstacles to the double contract are however many and not insignificant. For one thing it takes time to build a sufficiently robust community that can absorb more complex issues and frequently by the time this community had become established the local leader who shared the systemic vision had moved on. System change like the service itself is dependent upon strong relationships. System change is also dependent on a shared vision and where Circles were championed purely as a cost cutting measure they were not successful.

Since 2009 Circle has offered a service to over 10,000 older people and been much emulated. I consider Circle to be a work in progress however four factors have been central to the success of the design to date:

- the core offer (practical support and a social life based on shared interests) and the culture of delivery grew directly out of the participative design process;
- technology: the use of a simple technology platform offers the potential to scale, link people in real time and create a new sustainable business model;
- philosophy/culture: Circle is rooted in a vision and capabilities model which ensures the radical culture can be sustained;
- systemic view: Circle offers an immediate service but is rooted in the long view of transformation: an immediate practical foothold being an important tactic for system change.

Radical and Positive Change: reflections on Transition Design (TSD)

A decade of practice: building working models of the British welfare state, informed by the Beveridge 4.0 vision and the capabilities approach has been a process rich in learning. Specifically, in response to the Transition Design Symposium I offer up four concluding reflections as follows:

- The self-reflective organistion that can hold, build and nurture the work
- The role of technology
- The role of money
- The role of data and measurement

The Self-Reflective Organisation (a reflection on mind set and posture)

How can we infect the systems around us – as opposed to being consumed by them? This is a question at the heart of my work. It is a question that operates at two levels. Firstly, Circle itself as we have seen attempts both to offer a transformative service to its members whilst simultaneously attempting to transform the wider welfare systems within which it works. Secondly it is a question that sits at the heart of any practice or organisation that is attempting to transform systems.

Transformation is a practice that requires a simultaneous focus: on the work and on the organisation that makes the work possible. In setting up Participle I wanted to build an organisation that could create and nurture radical work: develop both the vision and the process/practice in such a way that we could infect the systems around us.

This is not easy work. The reality of inter-disciplinary team work is not always comfortable. As the recent research of the Harvard academic Iris Bohnet demonstrates, those who work in inter-disciplinary teams that include difference always report that their work was harder and often less enjoyable – than those who work with colleagues just like them (even though the work itself is of consistently higher quality). Leading and sustaining this work therefore is a particular task.

The psychoanalyst Harold Bridger, a founder member of the Tavistock Institute of Human Relations and a leading thinker on transitions, developed a process he called "the double task" whereby the work (the projects) and the process behind the work (the organisation) are simultaneously assessed. Bridger who is no longer alive worked with companies such as Unilever, Philips and Shell to assess constraints, opportunities, conflicts and feelings as an integral part of the very successful strategy process he developed in the 1960s. Interestingly, in a recent collection of essays reviewing Bridger's work the editors Amado and Ambrose are struck by the way in which this second task

(reviewing the process and the feelings behind the work) no longer has legitimacy in the prevailing bureaucratic culture; "you are not allowed to take time out for it".

In fact, the experience at Participle is that, only by taking time out for the double task can transformation take place. Transformation is emotionally based work, it is difficult and periodically one realises one has indeed been "infected" and there is a need to re-find the path. At Participle collaboration with a psychoanalyst was an integral aspect of the process and the inter-Ðdisciplinary team. Teams were offered a space to reflect on the process of the work. In this way our internal processes and learning mirrored those of the external work, the projects, where there was also an understanding in Circle for example it is not what you deliver, it is how you deliver it. Relationships as I have written elsewhere are at the core of the success of Participle's work and relationships must be nurtured within the organisation as much as within the work.

Technology (a reflection on the missing role of production in TSD)

The welfare state – the context of my last ten year's of work – is a child of its historical time. It is a system designed to underpin an industrial model of production (ensuring a healthy and educated workforce) and it is driven and supported by forms of physical and social infrastructure that define the same era of production: cultures of hierarchical command and control and an investment in physical buildings: the hospital, the school, the day care centre, where the modus operandi is that of the industrial production line.

A 21st century welfare state would start from a very different place and its technology would be that of the current age: digital. The work of the economist Carlota Perez has explored the ways in which this new revolution in technology will transform production, financial and social systems in ways which are still barely understood. Her descriptions of both the potential and the lack of understanding as to the potential and depth of these transitions mirror the world of welfare reform.

The world of social innovation is populated by many who are excited by the transformative potential of technology. Their engagement with incremental approaches to change means however that all too often the response is to use digital technology to prop up out of date systems: electronically tagging prisoners instead of educating them for example or electronically monitoring when older people fall over rather than preventing falls.

The work I have described in this paper is connected to all the complexities surrounding technology. Circle could not exist in the pre-digital world. Circle's membership levels: a community that goes beyond the face to face are facilitated by technology. Technology also makes Circle financially viable. A digital platform built out of a readily available and simple piece of consumer technology inverts the business models of traditional services. Circle has virtually no fixed costs: no mini vans, no buildings: instead the platform enables the use of members cars and homes for example in real time.

Technology should also enable infection of the system: supporting integration with other services and thus their transformation. But here we see some of the limitations of current possibilities and why the integration of technology was in many ways the hardest part of the Participle design process. In reality many of those we work with are not on line and despite the rhetoric the design of technology systems themselves are still relatively expensive and not sufficiently agile.

Circle demonstrates the need to put bigger questions of production and the potential and role of technology in particular at the heart of the Transition Design framework. Technology is at the heart of everyday life (the context of design) and is intimately connected to new ways of designing yet an analysis of these important dynamics and their interplay with the possibilities and challenges of social transitions is missing -Ð or at least silent – within the TSD framework.

Money (a reflection on the missing role of economics in TSD)

The fundamental change at every level of society which is envisaged by TSD is a path that will involve conflict as power is challenged. An intimate part of this is the question of resource: put simply who has the resource and who controls its use. Money in this instance is an exemplar of a bigger question.

Transition requires resource: the process of transition requires funding and the work created needs to be sustained. These are challenging questions which have to be confronted if TSD is to move from theory to practice.

In a critical and brilliant analysis of the social economy carried out in 2009 Robin Murray highlighted the disconnect between the creative potential of the social economy and the location of resource (still primarily in the state economy and to a lesser extent in the grant economy). Resource in other words is not where it is needed for transition. Without

disruption of old systems where resource remains locked, alternatives will remain at the margins. Such disruption can only start when the issue is planted firmly at the centre of the transition process.

Economic analysis and business modelling is integral to the Participle design process. Circle by combining private resource and state money with other non-monetary resources such as time and talents on the same platform was able to create an economy that could include significant numbers and, importantly inverted the dominant business logic of scarcity. In the case of Circle, the more people who join the stronger the service since they bring their time and relationships.

Circles however remain fragile. Each local Circle is a social enterprise in part because in 2009 there was a promise that new resources would be made available to this form of organisation. In reality this has been a promise that remained hollow and the adoption of this form of the market has not been entirely positive introducing concepts of competition and intellectual property which were limiting.

These are subject which go beyond the scope of this paper. However, it remains important to assert that Circle, like other work was possible because no client imposed the brief. Finding the resource for such work and indeed innovation of any kind in the UK context is increasingly difficult as scarce resource is controlled by fewer and larger organisations disbursing their funds in small amounts which make any form of transition an impossible dream. Confronting these issues of power and money will be fundamental if TSD is to move beyond a theoretical position.

Measurement (a reflection on theories of change)

We are working on the incoming tide of the geometer kings. Today systems (and those with the resources) will only adopt, adapt or even listen to "what works" which means, what can be measured within the dictates of the prevailing system. Outcome measures, randomised control trials, data and statistics: these are the currency of existing systems.

In a fascinating paper on the history of statistics, the philosopher Ian Hacking traces the rise of current approaches illustrating how the process of measurement is far from neutral, but rather part of the apparatus of power. In Hacking's analysis 'what works" is shown to be far from neutral and all about power.

Jake Chapman has noted "from a system perspective that the very notion that it is possible to always obtain evidence of what works is clearly not universally true". Current approaches to change and measurement presume context is relatively insignificant when, as TSD emphasises context is key and inter-Đconnections are paramount and rarely linear. Furthermore, within current approaches time horizons are short – rarely longer than two years –but transition is longer term. This is dangerous territory. As Chapman points out, so deep is the adherence to the idea that everything can be measured, those who talk about challenges "are likely to be replaced by people who claim they can control and predict"

At Participle we adopted a pragmatic approach, measuring money saved and traditional outcomes (one foot in the existing system) and developing our own capability measures (one foot in the new system). TSD emphasises theories of change but is silent on the intimately connected idea of measurement. Without work in this area it will be hard to challenge the dominance of current systems and mind sets. Our theories of change will blow flimsy in the prevailing wind.

Are we nearly there yet?

We have certainly not reached Nirvana. But Circle grown by a small team out of a room in South London, and sustained over an eight year period demonstrates the potential, a glimpse perhaps of Enlightenment. There is, as Rinpoche would say, tremendous hope.

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1 In more recent writings Nussbaum explicitly calls the capability approach a Counter Theory arguing in a Foucauldian vein that too much government policy reflects the biases of society's elite and suggesting that capabilities – because they must be grown by people themselves with the right support – forces us to focus on the granular stories of human lives.

2 In her critique of TSD (DPP 2015) Anne Marie Willis asks "Where are the Politics?". She analyses the ways in which design teaching limits students' understanding of theories of power, social structure and social change, thus limiting their potential to bring about structural change.

Testing Rapid Transition in historical perspective: What can we learn from past examples of rapid societal transformation, and how far ahead can we 'design' for transition?

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Introduction

The Transition Design Framework proposes four mutually reinforcing and co-evolving areas of knowledge, action and self-reflection: 1) Vision, 2) Theories of Change 3) Mind-set and posture, and 4) New ways of designing.[1] It argues that solutions to the complex, and interlinked, challenges of the anthropocene are likely to be more successful if they are based on belief in the possibility of rapid, radical transition based on shared values and principles, and informed by evidence and insights demonstrable from historical practices of change.

Drawing on two case study examples, this paper argues that in addition to the exploration of precedents from large-scale socio-technical changes (themselves providing both positive and negative lessons), Transition Design is strengthened by the exploration of past examples of rapid social transformation. The challenges we face are complex, interlinked and cannot be solved in isolation. Large and growing inequality poses serious social challenges and the preservation of an ecosystem to support human civilisation provides a timeframe for action that includes critical, irreversible bifurcations, such as climatic feedbacks, ecosystem loss and species extinction. This is why we are particularly concerned with examples of rapid social transformation.

We look at Britain in the approach to World War II, and Cuba in the immediate post-Cold War period. In each of these examples we find, in addition to experimental and innovative planning, the emergence of practices and evidence of traditions of self-help and mutual aid, and creative responses to challenges from ordinary people that were often followed, not led, by those in positions of authority. We also find a range of policy measures applied conforming to a clear set of values, where equity is particularly important.

While the experience of the transitions described are often complex, we find evidence that responses meet the form of the 'Domain of Everyday Life' described in the Transition Design framework: they often emanate from the grassroots, but are regionally, and also nationally co-ordinated. We find a pivotal role for design in creating the context in which those transformations were possible, often by reflecting inspiring visions and contributing to the collective shift in mind-set. For both examples we draw out key lessons for Transition Design and conclude with a number of proposals for the future of Transition Design.

In the words of Professor of Comparative Literature and historian of the Paris Commune, Kristin Ross: "This is the mark, to my mind, not of nostalgia, but of a profoundly historicising way of thinking." To Ross, and to us: "Without it [history] we have no way of thinking the possibility of change, or of living the present as something contingent and open-ended."[2]

Rapid Transitions: pre-war Britain and post-Cold-War Cuba

The world is not short of transitions in action. But policy and academic debates about green transformations and transitions often come up against scepticism about the speed and scale of change that is possible. For example, Hilary Clinton's recent pledge to generate enough renewable energy to power all US homes within a decade was called 'impractical' by many.

But are there lessons from previous periods of rapid economic re-engineering that tell us otherwise? When have transitions in energy, food, finance and transport come about before at a rate demanded now by climate science and how would they be brought about again? Many still doubt that even the best, current examples add-up to a pathway

to de-carbonisation that is capable of matching what the science says is necessary to address climate change. So, in addition to looking forward with hope, fingers crossed, and learning from existing experiments, can history provide important lessons about how to implement and substitute new systems for old and achieve complementary, supportive changes in culture and social norms? Are there insights, both positive and negative, that can be codified on how to accelerate transitions, overcome obstacles and achieve major disruptions in technological and economic systems, political institutions and society?

Transition Design, sets itself the task of pre-empting broader crises by beginning the process of transition towards a post-carbon economy, constantly evolving new solutions and deepening and broadening the scope of the Transition. It identifies the range of challenges we face as slow-motion crises, to which we are, in the main, able to adapt. But history also tells us that seemingly stable systems can shift rapidly and in unexpected directions. The challenge for Transition Design, just as for the Transition Network that inspired it, is not only building resilience before change becomes avoidable but accelerating that change and increasing preparedness for rapid moments of shift.

Rapid behaviour change, the re-purposing of the economy, and meeting the demands of both energy and food security while maintaining a spirit of collective endeavour, were key challenges for Britain in 1939 and Cuba in 1990. Here we look at the dynamics of those changes and explore their implications for Transition Design.

We are concerned with the implications for everyday life in these examples, the resources required to meet basic human needs in times of extreme shock, and the economic measures and approaches that worked. We are interested in the dynamics of change, the mechanisms deployed, who was involved and the impacts of the changes. As the sociologist and anthropologist Lucien Levy-Bruhl observed: "we participate in one another's existence, influencing each other and being influenced in turn."[3] That counts for our history too, or at least the story we choose to tell about it.

Case study: The economics of a war effort – Britain during World War II

In the run up to World War II, even in the face of open aggression from the Third Reich, the case for major government action and national mobilisation had to be strongly argued for. There was a powerful domestic establishment lobby for appeasement and

engagement with Hitler. When sufficient consensus was generated to go to war, the big question was how to find the resources to fight industrially resurgent Germany.

The economist John Maynard Keynes lobbied the Treasury through a series of articles in *The Times* newspaper and a pamphlet, *How To Pay For The War*. Keynes pointed out that even a 'moderate development of the war effort necessitated a very large cut in general consumption'.[4] If taxes, rationing, and scarcity were inadequate to lower consumption, Keynes foresaw the danger of an out-of-control inflationary spiral of wages and prices. In that case the 'spirit and efficiency' of the nation would be at risk. To avoid it, Keynes proposed a plan of compulsory saving, backed with the promise of payback at the end of the war.

Keynes faced problems that haunt modern officials tasked with re-gearing the economy to be climate-friendly and climate-proof. Yet, he understood this as no reason for inaction. His key to unlock official intransigence was agitation. His 'great service', wrote The Economist in 1939, 'has been to impel the so-called 'leaders of opinion' to reveal the state of their ignorance on the central economic problem of the war'.

Lesson for Transition Design:

Change must be agitated for, and from a range of sources. We see this in the range of scientists and academics campaigning for change today, but much more could be done.

As the war progressed, purchase taxes were introduced as an attack on luxury spending. As time passed, the taxes became more sophisticated. Real luxuries like fur coats, silk dresses, and jewellery were taxed at the top rate. Essentials such as towels, bed-linen, and utility clothing were exempt.

Famously, there were collections of pots and pans and the railings from metal outside houses to provide extra metal to help with the war effort. Some believe that the more important purpose of the collections was demonstrative – they were to convince the public of the seriousness of the war situation, and that the metal itself was secondary. The collections were a public display of collective action and said, unmissably – 'we are all in this together'.

As the changed consumption patterns took hold, the overall effect on people's health of the new ways of living delivered unexpected benefits. The period from 1937 to 1944 saw

a dramatic fall in infant mortality, a clear indicator of more general improvements in the nation's health. At the start of the period around 58 children per 1,000 died before their first birthday. By 1944 that figure had fallen to 45 per 1,000.[5] History suggests, then, that the shift to a low-energy, low-material throughput economy could create more convivial lifestyles.

Conversely, a recent review of many different studies, including around 60 million participants in total, found that people living in regions with high income inequality have an excess risk of premature mortality and poor self-rated health, independent of their socio-economic status, age, and sex.[6]

Behind all the schemes to manage demand, the objective was to: '...secure the fairest possible distribution of whatever supplies are available and to ensure... that as far as possible the things that everybody needs shall be within the reach of all."[7] Britain's war time experience highlighted critical choices over which economic mechanisms were most likely to achieve key objectives. Where changing behaviour with regard to consumption of essential goods were concerned, generally, the government deliberately chose rationing over taxation for reasons that were rational and progressive. Taxation alone, officials concluded, apart from disproportionately and unfairly placing a burden on the poor, would be too slow to change behaviour. Rationing was considered quicker and more equitable. Tradable rations were rejected because of fears that they would encourage fraud and inflation and critically would undermine 'the moral basis of rationing'.[8]

Also worthy of further exploration is the relative success in war-time Britain of efforts explicitly to substitute cultural activity and production – theatre, music, film, art, festivals, sort, and numerous other local entertainments – for material consumption.[9] Importantly, these were all collective activities that supported and strengthened community and made the war effort not only about collective struggle, but also collective celebration. The arts and cultural production were seen as vital for public morale.

Lesson for Transition Design:

Equity matters, rationing is more effective than taxation, localisation works and in the effort to ensure provision it is important to pay attention to all areas of life, including the cultural.

In 1940, Mary Adams, one of TVs earliest producers, moved to Whitehall and was given the task of monitoring domestic morale. Inspired by Tom Harrison's Mass Observation studies before the War, from May to September 1940 information was honed in from

the regions daily, and from then on, weekly. The reports relayed ordinary conversations – known as 'verbatims'- providing vital information that quantative analysis could not. They revealed that the population were solid in the main; it was the authorities who were perceived to be wavering: 'we are all anxious to be up and doing'. All people needed was 'to be told precisely what to do'.[10]

Government was not only emboldened by the evidence from these reports, they also included practical proposals that were later taken up: 'Not only people in executive positions but also ordinary working classes are demanding that Government should take over and make use of every able-bodied man. It is suggested that Government should order all private gardens to grow at least 50% foodstuffs.'[11]

Neither were people motivated by Britain's interests alone, but: 'for a community of interest for the people of Europe'.[12] The historian Paul Addison argues that the effect of 'national unity' was to open up the political agenda by increasing the authority of the Labour Party and the TUC, but most critically, through the lived experience of collective endeavour, creating the political context in which the post-war Labour Party Manifesto with its promise of greater equality, a National Health Service and good homes for all, would resonate.[13]

Lesson for Transition Design:

Collective action is transformative, and is included in Transition Design but could be made more explicit.

Case Study: Cuba – planning, decentralisation and local organisation

Cuba has lived through some of the most sudden and extreme macroeconomic shock, disruptions to energy supply, and natural disasters of any country in living memory.

Since 1962 Cuba has been subject to one of the longest running and most comprehensive economic embargoes imposed anywhere. During the 1970s and 1980s, heavily subsidised by the Soviet Union, Cuba became dependent on cheap oil for its transport, farming, and wider economy. Consequently, the collapse of the Soviet Union in 1990 devastated the Cuban economy – some 80 per cent of imports and exports were lost almost overnight. Oil imports dropped by around 50 per cent and oil consumption by 20 per cent between 1989 and 1992, with very considerable impact on both transport and energy generation. Given Cuba's reliance on cheap energy, the effects of this could have been disastrous. In

the short term, these shocks did give rise to severe energy and food shortages. Over time, however, both problems were ameliorated to a large degree.

Before the Soviet collapse, Cuba imported most of the goods required to meet the needs of its people. It exported sugar and tobacco to the Soviet Union at agreed premium prices and took oil in return, some of which was re-exported. This created a distorting incentive, leading to large amounts of Cuban land being given over to export crops grown in industrial monocultures, heavily dependent on oil-based inputs. Just before the collapse, in 1989, three times more land was dedicated to sugar than to other food.

Following the collapse, use of chemical pesticides and fertilisers dropped by 80 per cent, putting an end to the industrial, high-input approach to farming that had developed in the country. The knock-on effect on people's daily lives was dramatic. The availability of basic food stales like wheat and other grains fell by half, and, overall, the average Cuban's calorie intake fell by over one-third over the course of around five years.

Prior to the shock, Cuba was already investigating (albeit on a relatively small scale) forms of ecological farming that were far less dependent on fossil fuels than other approaches. When the shock came, therefore, a system of regional research institutes, training centres and extension services; 'was already in place to support farmers.' Immediate crisis was averted by food programmes that targeted the most vulnerable people, and a rationing programme that guaranteed a minimum amount of food to everyone.

Serious food shortages were overcome within five years by a radical transition to self-sufficiency. At the heart of the transition was a rapid shift to the use of bio-fertilisers and bio-pesticides, crop rotation and inter-cropping, plus the use of animal labour and manure (in other words, a largely organic system) and the success of small farms, urban farms and gardens and the use of window boxes to grow produce.

Shortages and rising food prices made urban farming profitable. There was a revolution from below rooted in neighbourhood and community initiatives that was only later supported and extended by action from the national government. Many backyards in Cuban cities became home to food crops and farm animals – grown and reared almost exclusively along organic lines. Half the food consumed in the capital, Havana, is grown in the city's gardens and, overall, urban gardens provide 60 per cent of the salad vegetables eaten in Cuba.[14] The Cuban experience both echoes, and – statistically at least – surpasses what America achieved in its push for 'Victory Gardening' during World

War II. Led by Eleanor Roosevelt, between 30 and 40 per cent of vegetables for domestic consumption were produced by the victory gardening movement.

Emergency measures were swiftly adopted to direct rapidly diminishing resources to economic and social priorities. The severity of the shock made continuity impossible: with inputs failing to arrive, the economic plan quickly ceased to function. Rather than embark on a process of liberalisation and privatization like its former Comecon (the Soviet trading alliance) partners, however, the Cuban approach preserved, and built on, its existing institutional assets. These included not only the welfare state, price controls, monopoly of international exchange and national ownership of the means of production, but also a capacity for a state-led, collective response that benefited from a long-standing tradition of galvanising voluntary support through mass mobilisations and a policy process that could draw on mechanisms for public participation and debate.[15]

Compared with virtually all other nations of a comparable level of development, the level of top-down management of the Cuban economy is striking. However, in the policy areas where this central planning is most successful it is strongly linked to an architecture of highly engaged local administration and participation.

With no easy way to increase energy supply quickly, the government realised that efforts had to be made to reduce consumption. In the mid-1990's, it began a concerted drive to encourage the idea of energy efficiency. In 1997, the *Programa de Ahorro de Energia por la Ministro de Educacion* (PAEME: Energy Saving programme of the Ministry of Education) was established to promote teaching about energy conservation in schools. Now, almost all school subjects address energy issues.

Most of Cuba's energy was produced by 11 large, outdated and relatively inefficient thermoelectric power stations. When the 2004 hurricane season hit Cuba, the dilapidated state of the energy infrastructure was laid bare. Between mid-2004 and mid-2005 there were at least some power outage son 122 days and at one stage a million people were left without access to electricity for ten days. The response from the Cuban government was to dramatically increase existing efforts towards energy efficiency. This was done through the instigation of a co-ordinated series of initiatives, under the banner of the Revolucion Energetica. Announcing the initiative, then resident Fidel Castro said: 'We are not waiting for fuel to fall from the sky, because we have discovered, fortunately, something much more important: energy conservation, which is like finding a great oil deposit.'

The programme was large-scale and ambitious, funded by government and directed from the top down. Most initiatives were focused on improving efficiency rather than increasing gross energy supply, accompanied by a concerted move towards a more decentralised energy system. It also involved initiatives that targeted individuals. Existing (and already comprehensive, by Western standards) education programmes were ramped up, and a new residential electricity tariff was introduced for households with steely rising unit costs.

Energy-saving light bulbs were distributed free of charge to all households. The result was 9 million incandescent light bulbs exchanged for energy efficient bulbs within six months – almost all the light bulbs in the country. Inefficient Russian-made fridges and televisions were replaced by models the Cuban government imported en masse from China, as well as electric hobs, rice cookers and fans. Appliances were given away free to those classified as in need and made available at cost rice to others. This was still expensive relative to average wages, so the government also provided an interest-free loan scheme with favourable repayment terms.

Within two years, around two million fridges, one million fans, 200,000 air conditioners and 250,000 water pumps were replaced, and almost 3.5 million rice cookers and pressure cookers were purchased or given away. Cuba's *trabajadores sociales* (literally, social workers), a group of around 14,000 volunteers who both act on behalf of the government and provide vital information to the government, played a key role in ensuring that the new equipment found its way to the right people.

Conclusions

Planning, local initiative, enterprise, vision, ambition, and shared objectives coupled with a rugged, and often experimental, collective endeavour – all appear to be part of the dynamics of rapid transition according to these historical examples. They create the conditions in which change first becomes possible, and then takes on a momentum of its own.

They also provide invaluable insight into how, in economically stressed times, affordable finance can be made available in a targeted way to accelerate, or kick-start, new, low carbon, energy, transport, food and housing sectors and the employment that provides.

As Transition Design moves forward it must pay particular attention to the differentiated impact on employment implied by system and technological options for new transition infrastructure and production should all be explored in terms of their potential for

collective action, and equity identified as key aspects of rapid transition in this paper. (What are the differentiated impacts of agro-ecological vs conventional intensification; renewable and decentralised energy structure vs fossil fuel and nuclear, for example)

As these case studies show historical precedent is a rich resource for Transition Designers and reveals the level of agitation required to achieve wide and rapid societal shift. One question then, for Transition Design is not only how does it help to support and shape the wide-reaching transition to societies that are low carbon, socially just and support human flourishing, but what is its role in agitating for that transformation?

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Design and the Political Economy of Transition

Robin Murray

In the spirit of design, I would like to start with a case study. It is a case study of failure. It was a project that sought to develop a new ecological system for an industry which, in economic and technological terms, was relatively simple, namely the management of waste. After seven years the project managed to get a bridge to a new order half built. But it couldn't close the gap and the traditional waste industry has now re-asserted its control.

It started like so many projects by chance. I had been working in Canada for the NDP government in Ontario. It was a Government that had launched a number of innovative green initiatives, and was already by the mid 1990s a strong supporter of recycling. Some parts of the province were already recycling 60% of their household waste and were planning to move to 80%. Even Toronto had a target for 50% in the medium term.

On getting back to Britain after the electoral defeat of the NDP in 1995, I was struck by the fact that London like England and Wales only managed to recycle 5% of their waste. Talking about this to the Chair of the London Planning Authorities, led her to ask a Canadian colleague and myself to talk about the Canadian experience to a meeting of the London borough planning chairs. It turned out that the meeting had been called to approve a plan for a new wave of incinerators, but that on hearing about Canada they turned the plan down and voted to pursue the Ontario model. We got a call asking if we could prepare a strategy along these lines.

There are two significant things about this beginning. First, it started with the political support of the municipalities in charge of waste collection. Secondly, they supported it both because of the unpopularity of the old system, and because a new system appeared to be feasible.

As for the strategy, we replied that we wouldn't do one, but rather invite a dozen Canadian recyclers to come to London to start implementation immediately. This process would allow us to understand the London's waste economy and we could then write a

more grounded strategy later. We didn't know the phrase at the time, but it was a form of rapid prototyping, and was welcomed by the results-oriented politicians.

The Canadians came. They quickly got the measure of the multiple streams of waste – low rise, high rise, commercial, office, large venues, food & garden. Within six months they had prepared plans and budgets for 30 of the 33 boroughs which were submitted to a Government grant competition. To everyone's surprise the project was granted £12 million and this financed the roll out of an intensive recycling programme all over London (and we produced a Strategy).

That was stage 1. It taught us four things. First there were distinct alternative technological paths up against each other. There were attempts to develop new types of thermal processing (pyrolosis and gasification) and reduce the hazards of the giant incinerators and landfills. It was the trajectory of mass production innovation applied to mass waste, complex processing to reduce difference to mass, and to increase scale: bigger plants, and larger collection vehicles carrying waste to them over long distances. This was the path of the large waste companies.

In contrast there were technologies appropriate to a circular rather than end of pipe linear system, one that what was capable unbundling waste into its separate components and processing them differently (so called reverse retailing). The innovations involved what Illich would call convivial tools like household collection boxes (there were 59 differently-performing alternatives).

So the old order was changing at the same time as a new one was emerging. To each critique of the old order, the reply would be that those critiques applied to the old order of the past, not the new one. But it was a defensive path of innovation, quite different to that of 'flexible specialisation' applied to waste.

Second, the processing industries had to be developed in tandem with the expansion of recyclate supply. The focus was on newspaper recycling mills. The project developed plans for a new mini mill next to one of London's two historic incinerators and concluded a joint venture agreement with the largest multinational paper mill to expand on the basis of a guaranteed supply from the London boroughs.

Third, introducing a doorstep recycling scheme appeared to increase household interest in the environment more generally, particularly if the recyclers engaged with the householders around the service. It was as though an active participation in recycling

provided a thread that encouraged people not to block out environmental problems as beyond their influence.

Fourth, we were struck by the ideological offensive mounted against the project by the traditional waste industry. They engaged consultants to show that medium term recycling targets of 50% and 60% were unrealistic. They suggested that the maximum possible rate was 36%, and that new incinerators and mass waste plants were still needed. They organised a conference to question the achievements in Ontario (only to find that the Canadians invited confirmed them). They lobbied government, and the trade press. Although the environmental case for a closed loop policy was overwhelming, the Government civil servants in the waste department saw the new recyling centred system as an adjunct and produced a National Waste Strategy based on the old industry arguments. The contest of figures and economic models, of a forecasted future and the reliability of alternatives, became a leading issue in the transition strategy.

In this respect we made a possibly fateful decision. We decided to work most closely with the young recycling officers in the Boroughs since they would be the generation to carry the programme through in the long run. The Chief Waste Officers were more traditional. They were trained in the old school. That was their practise. They read the trade press and attended the annual trade conferences. They had strong relations with the major waste companies, and this was intensified with the expansion of sub-contracting waste services in this period. So, although the politicians were clear about the direction, the chief officers and those running the disposal authorities were less so.

How did this all develop? As soon as the London work started we came in touch with a wider community recycling and composting movement with over 600 active groups nationally. There was an associated movement that arose out of protests against incinerators and landfills. As a result no new incinerators were built in the UK in 10 years, and municipally backed recycling schemes mushroomed, many of them run by community recycling groups. A Zero Waste network was started that quickly became international. New consultancies were formed in support of these initiatives. The national recycling rate for municipal waste that had been stuck at 5% for many years quickly rose to 25%. Local closed loops were more difficult to establish because of the existing norm for the scale of processing (in aluminium, steel and newsprint) and the absence of long term fixed price supply contracts.

Politically waste at last received national coverage as a result of scandals about the disposal of highly toxic incinerator ash to allotment holders (in Newcastle) and in

building materials (in London). Some politicians began to recognise the unquestioned employment and environmental advantages of recycling and waste reduction. The EU were increasing pressure on member states, raising recycling and reduction targets, as well as introducing producer responsibility schemes. In 2002 the UK Cabinet Office stepped in and set up a team to review the Government's Waste Strategy. It came out strongly in favour of so called 'high diversion' and proposed a steep and escalating landfill tax to force local authorities to address the issue. What they couldn't get political agreement on was to extend the tax to incinerators.

2002 turned out to be the high-water mark for the community recycling movement. The tax on landfill tilted the playing field towards incinerators for disposal authorities who couldn't envisage a fine fingered decentralised system like intensive recycling. This was re-enforced by the Labour Government's promotion of favourable financing of large waste projects (PFI schemes) and increased sub-contracting of waste services. The contracts were up to 5,000 pages long and covered all aspects of municipal waste in a single package. In Germany the high recycling strategy had been led by industrial policy. In the UK the Government's new waste policy remained disconnected from its economic Ministries. A key link in the closed loop was missing.

The Community Recyclers could not sustain their progress. They were gradually pushed to marginal activities like furniture recycling and re-use schemes. Locally based composting schemes were more resilient, but for the most part the five major waste companies re-asserted their dominance, introduced low capture recycling, and focussed their strategies on large scale sorting and disposal facilities that required 25-30 year contracts. By 2010 proposals for new incinerators began to be agreed, further freezing the options for a more sustainable future. Government policy reflected the new material and ideological dominance of the waste majors, repeatedly opposing EU moves to introduce a new order. It is in this sense that the community recycling movement left a bridge half built.

What does this example tell us about the themes of the symposium in terms of system change and the potential role of design?

11. Vision. The role of a vision in system change is three-fold: it provides a central galvanising idea; it provides it with a narrative; and it locates it as part of a new aesthetic, a way of looking at and acting in the world. The project's vision in this sense stemmed from that developed over the previous 25 years by the environmental movement internationally. It was not an ideal state but generative, open to multiple forks and possibilities.

As with many social innovations, it arose out of opposition to the realities of the everyday economy – the pollution of chemicals, and the discharges from landfills and incinerators – and achieved its impact by up-ending the customary way of thinking about waste. Instead of cradle to grave, cradle to cradle. Instead of waste, resource. Not discard but reduce, re-use, recycle, indeed re-everything – repair, re-skin, refill, re-process, re-tread, re-engineer, re-design. Invert the normal production processes. Establish disassembly lines. Reverse the pathways of retailing. See waste not as an item of abjection, to be banished to black plastic bags, and black plastic bins, and emptied in marginalised lands or dispatched into the air or the sea. Rather see it as a collection of valuable materials to be harvested and mined. Think of old newspapers as an urban forest, and old computers as so many seams of precious metals. It illustrated one of the principles of social design of reconsidering liabilities as assets. It was a looking glass way of seeing.

One of the tools of the movement was to find ways of tangibly bringing waste and waste collectors out of the shadows into centre of the stage. Community recyclers introduced sessions of waste sorting, inviting politicians and the press to discover first-hand the composition of a street's dustbins. The Italians substituted transparent bags for black ones. Open recycling boxes got higher capture rates than closed ones. The conceptual artist Mierle Laderman Ukeles was employed by the New York Sanitation Department, and for more than a decade used the city's waste system as the raw material for transforming the way we think of daily life in the city.

We could describe it as an ideological project and as such the British community recycling movement (that widened into Zero Waste) has been remarkably successful. The new framing, has been accepted by the government, (spurred on by EU Directives), and followed with different degrees of enthusiasm by municipalities. Retailers and many large companies have promoted the ideas in their own operations. And it has gradually spread among households – led, according to consumer analysis – by women and the young.

The issue however is practice. New ways of looking at the world achieve their force when they can be seen to work. Successful projects are the idea made flesh. They are the gold that backs the currency of inspiration. Vision cannot be adequately thought of separately from realisation. Each feeds the other.

The contest between the old order and the new in waste as in other areas of transition has been conducted first and foremost as an issue not of ideology but practicality. This

is in part a technical issue – how this new system is going to work. But this is only one element of a wider question – that of economics.

As with any economy, a system for managing waste has common features; there has to be land, technology, labour, financial capital and information. There have to means of communication, institutions, and systems of distribution. Yet one of the features of the new vision was that a system centred on resources not waste required a different type of economy. The process would be a necessary part of the outcome.

This may have been the richest features of the community recycling movement, as with its associated movements elsewhere. All of them sought to develop a social economy that inverted many conventional economic axioms in the same way the vision inverted the idea of waste. Land was not to be used as a dump but rather as something to be revived by processing biological waste.

As mentioned above, technology was not larger and larger vehicles and waste processing plants but small scale specialised vehicles, and distributed sorting and processing facilities. There were new multi compartment vehicles for dry recyclables. London developed a pedestrian control vehicle that went on the pavement. The Italians introduced small electric trucks for food waste. New Zealand invented neighbourhood closed vessel compost plants. The aim was to develop a distributed system, centred in neighbourhoods and closer to households.

There was a similar contrast in labour and skills. The first difference was that householders are seen as part of the production process not just as passive consumers of a municipal service. As such they needed support and advice. They were encouraged to be micro recyclers (with home composters and wormeries) and to be promoters of re-use. In parallel the frontline recyclers were seen not so much as beef and brawn as green collar workers. They knew about materials and played the role of household advisers. They worked in collaborative teams and were encouraged to innovate. In Italy, the food waste collectors were as often women as men.

These are illustrative of the differences. What is common is that they were established and ran as enterprises in the social economy. Their rationale was the environmental and social vision. This was the magnetic force for those involved in it. Profit was necessary but not primary. The enterprises were largely companies limited by guarantee or varieties of co-operatives. They tended to have small ratios of the highest and lowest

paid. Most were small, but, inspired in part by the industrial districts in Italy, they collaborated in many areas where scale was important – such as the marketing of materials, or the lobbying of government. They had the decisive advantage of having an interest in sharing rather than privatising information.

Was such a social economy practical? In the early years, the movement accounted for over 80% of doorstep recycling, and retained its dominance until the early years of the new century. In what sense then has it been a failure? In part it remained unintegrated with the wider waste system and could not gain from system economies once recycling reached the 50% tipping point (the Italian system meant that it reduced costs even with four separate food waste collections a week). The shift to large, long term contracts re-enforced this weakness.

It was a problem of not being able to move to the stage of more complex systems (often referred to as scaling) which further highlighted the community recyclers inability to develop adequate sources of independent finance, academy, research and development capacity, and common information systems.

It also relates to complex interface between its partner in the social economy – namely the local state. Where a new recycling intensive system has taken root the local, regional and often national state has played a central role. This has been the case in Canada, in cities in the USA (San Francisco now recycles 80% of its household waste), in the lander in Germany, and the municipalities of Italy. The local state has productive capacities which often complement the community recyclers, though social-public partnerships have often been delicate to sustain over the longer term. Yet one of the key distinctions of the municipal waste sector is that it is one (like education and social care) in which the state is central not just as a producer and a contractor but as a setter of policy, a regulator, and an orchestrator of markets and their price signals. It is necessarily political.

13. Power. One of most striking things about this example of waste is that so much of the transition was a contest of power. It was not just about the shaping of strategy and regulation – which was the most visible battleground of the first decade. It was about the performance of the old order just as much about the future of the new.

Communities had to conduct their own research on the pollution effects of local landfills and incinerators. They pressed for public enquiries which became theatres for a critique of the current system the arguments for transition. A small group of barefoot expert

consultants supported the objectors against the arguments drafted by locally authority hired consultants. As the sociologist Ulrich Beck had underlined, science had become central to politics in the age of risk.

Metrics were one of the contested areas as we realised early on. It became clear that the official metrics were often misleading. In some cases, they were consistently gamed. In others the measures hid as much as they revealed. Some waste streams went unrecorded (including illegal hazardous waste). The number of households in cities were found to be strikingly under-recorded. There was no data trail of what the large waste companies did with their recyclate (there were periodic scandals involving the disposal of recyclate to domestic and overseas landfills). The community sector showed the traceability that was necessary, but it has been resisted by the industry.

The market economy has its own structures of power – its scale, its scope and its sources of finance. But this is imbricated with the complex and shifting politics of the state, and with the contested sphere of ideology, of information, and the analysis of this particular economy-in-process.

14. Theories of transition. Some of the most suggestive writing on transitions has come from the Schumpeterian schools concerned with technological change. Long wave theory has been an established leader in this field, and relevant to environmental transition in its arguments about the stages of transition following the introduction of an emerging generic technology that eventually touches all sectors and is accompanied by shifts in the dominant economic and technological paradigm. Socio-technical systems theory stems from similar roots and explores particular industrial transitions.

With respect to the case of the potential transition in the UK waste economy, I would make two points. First, any analysis of transition should keep in mind the potential significance of major shifts in the dominant generic technology. In earlier waves the primary technologies were textiles, railways, steel, chemicals and electricity, and mass production. In the current one it is information and communication technology. We need to ask how ICT might bear on the waste industry and the potential for transition.

I have already suggested some parallels with the post mass production paradigms enabled by ICT. One is the shift from mass production to mass customisation –the view of the market as so many niches. Another is the shift of polarity of industrial production from the 'push through' of mass production to the just in time 'pull through' of products according to demand (a change that the recycling sector has still to take on board). But a

key one that is changing the whole topogaphy of the waste sector is the development of platforms.

In the 1990s the community sector focussed on recycling not because it was more important than product re-design, reduction and re-use, but because it was a way into the issue in a way which involved households directly. The idea was to start at the end of the pipe and work back upwards to the real source of the problem.

Platforms change this. The appearance of eBay, of Facebook, of Uber and Airbnb, and similar ventures, offer to radically change the utilisation of existing products, and to encourage the recirculation of products rather than their disposal. They do so by enabling citizen to citizen relationships to an extent undreamt of by the community recyclers. Their control and governance is another matter. The so-called collaborative economy is enabled by an extractive platform, but it need not be. They are social platforms that have similar functions (Freecycle for example, or the remarkable 4 million strong Ravelry that has been enabling the growth of a distributed, sustainable economy of woollen textiles). The point is that there are now means to radically change the way in which products are designed, produced, used and redistributed in a way which potentially reduces the quantity of waste.

The second remark is a proposition suggested by the waste experience on the pattern of transition. It is that – particularly in relation to the environment which is concerned with issues 'externalised' by the market – the initial innovations come from the social economy. They may begin with critique of the existing system, but soon explore the possibilities of alternatives. They show that there are new sustainable systems, and this provides a basis for the political pressure for regulatory change.

Internationally, recycling and zero waste took off in the 1970s. They made most headway in political systems which were more open to innovation as the result of federation and proportional representation systems. The Greens shifted the policies of waste in some of the German lander in the 1980s and nationally in the 1990s. Environmentalists made headway in municipal politics and then at city level. Then comes the political tipping point. Public strategy and regulation changes. At this point private companies respond and give a new inflexion to the direction of travel.

In the UK, the tipping point came in 2002 with the Cabinet Office report. The environmental influence was politically weaker. The industry tipped the wrong way and led to the development of a new generation of facilities that have frozen system

transition in many parts of the country for twenty to thirty years. It is in this sense that I have said our project was a failure. But then one of the purposes of prototypes is to encourage failure – to get failure in early. From a longer term perspective, we could say that this as a good failure, a failure from which there is much to learn not just in relation to waste but to sustainable transition more generally.

Panel 4:
The Learning to Design Panel

The members of this panel all ask how new ways of thinking about design can feed into design pedagogy, and how design education can realise its potential in relation to transition. Sevra Davis notes that as design becomes more widely applied it has become increasingly important at all levels of education and describes how the RSA is teaching students to collaboratively address wicked problems, in an effort to empower change makers. Emma Dewberry argues that designers must learn to take into account the social and ecological context of design at all levels of scale. In other words, designers must become ecoliterate and work with new narratives about locale, place, everyday life, and resource usage. Claire Brass and Julia Lohman argue that design education needs to be reconceived and linked more effectively with design practice in order to support student business proposals, from conception to maturity, over the long term. Lucy Kimbell and Beatrice Adams argue that design approaches need to be taught to management students, since many in this sector are often working in organizations engaged with the kinds of problems that transition design hopes to address. They also argue transition design needs to understand and connect with this sector, since without its support, systems level change is unlikely to occur.

Design Education for Wicked Problems

Sevra Davis

Introduction

Design is a story of intention and hope. By engaging in the design process – observing, analysing, identifying opportunities and setting out to solve a problem or issue – we are engaging in an act of optimism and the very belief that we can improve things for everyone. It is design's intention and its inherent optimism that makes it such a powerful force for social change.

Design has always been about change, often radical, sometimes reactionary – just think about the Bauhaus or the Italian Futurists – so, in many ways, the developing practice of so-called 'social design' is a return to its roots, but it still represents a paradigm shift. Saying that design is a cornerstone of the fight for positive social change may sound like a very worthy, ambitious, and probably even unattainable goal, but this encompasses large and small interventions and it is, crucially, about moving in the same direction with positive intention and delivery.

This is where Transition Design becomes so vital. With an aim for design-led societal transition toward a more sustainable future, Transition Design relies on an understanding of – and a belief in – the inherent interconnectedness of the 'wicked problems' and challenges facing society, the economy and the environment today and the power of design to incite and foster collaboration and participation. Ultimately, Transition Design and an associated education requires changing mind sets – both those of citizens who may not have engaged with design before, as well as those of designers who might not see themselves as adaptors, actors and agitators. It is important to note that where 'social design' used to be an outlier among design disciplines, the changing nature of society means that all design needs to be ready to adapt, transition and demonstrate its positive social impact.

In this context, the most powerful outcome of a design education is an enduring commitment to identifying needs, fostering and liberating creativity, adapting to

contexts, and crucially, helping to bring about real positive change in response to the world's most pressing issues.

Design Contexts

The field of design has changed and is changing. The field of design has grown and is growing -- it has been growing day by day, year to year, century to century. Overall, this is exciting time to be a designer, to receive a design education, and to believe in the possibilities of design, but we are now faced with trying to reconcile how the same term 'design' can be used at once to describe transforming public services to meet complex challenges to developing better consumer products to a process that will be essential in moving us to a circular economy.

This ubiquity of design thus presents increasing challenges for educating designers and design commissioners. As management consultancies snap up service design agencies at record pace and business schools around the world offer design thinking courses, workshops and lessons in empathy for their students, 'design thinking' is now at the forefront of most business and innovation vocabulary. At the same time, design labs are popping up in state and national governments around the world in an effort to bring an agile, iterative approach to policy making.

Cynically, much of the application of a so-called design thinking methodology today means running workshops with little tangible outcome. 'Design thinking' has become the new normal and instead of driving new solutions and jolting us into different ways of doing things, the process now sounds technocratic and can feel meaningless. We are now faced with real questions about design's preparedness to tackle complex issues and the suitability of design methods to deliver and make real change.

At the RSA, we work towards a mission to foster 'the power to create,' and in this context, design can be a very powerful tool. As the RSA aims to imbue more people and communities with the power to be creative, it is imperative that those people and communities understand how they can unleash their creativity. The creative process is a mysterious one but breaking it down through the application of design thinking can make it more tangible and straightforward, allowing more people to unleash their own creativity and help others to do the same. Design can help us to be more aspirational, but importantly, it can help realise change.

But when talking widely about design today, it feels at times as though we have lost sight of the fact that the very concept of designing requires a commitment to the full process from ideation through delivery. All of this signals changes to what it means to be a designer, and it brings up larger questions about the designer's responsibility. In that context, not all design – or design thinking – is good design, so the future of increasingly broad applications of design provokes interesting questions about what constitutes good design and the perils and consequences of applying 'bad' or an 'incomplete' design process, particularly in a policy context.

A Designerly Education

Most of the discussions about preparing future designers for a changing world focus on higher education, and rightly so from the point that at the college/university level, students have actively chosen to study design. Indeed, most of my 'day job' is spent working with higher education design students and working with them to develop their transferrable design skills. But what about our young people who will go on to choose a design education? The reality is that in the UK, Design and Technology (D&T) education for young people is in decline as fewer students choose to enroll and there are fewer trained teachers.

D&T stopped being a compulsory GCSE subject in 2000. Since then there has been a steady decrease in the number of pupils achieving a GCSE in the subject. In fact, the number of young people taking design and technology at GCSE level has halved from 400,000 to 200,000 per year over the past few years. This steady loss of interest in D&T has seen the subject fall down the GCSE popularity table despite its importance for Britain's economic growth.

As the Design Council has pointed out, design delivers substantial benefits for the UK's business community. For every £1 invested in design, businesses can expect over £20 in increased revenues, over £4 increase in net operating profit and a return of over £5 in increased exports. In fact, it is no wonder that the Intellectual Property Office estimates that UK businesses invest up to £35 billion a year on design to develop more valuable products and services. These statistics, however, don't align with the decreased take-up of the subject, which means that we must ask ourselves if we are doing enough to demonstrate the true value of a design education from its earliest stages.

As the RSA and others, notably the Design and Technology Association, have previously argued, Design and Technology (D&T) is a crucial tenet of a child's education and has

the potential to lay the groundwork for a fulfilling and necessary future career. Emily Campbell, Director of Programme at the Creative Education Trust, notes that design has the power to set young people on a path of economic independence as creative, practical and enterprising adults. However, the focus on 'core' subjects in primary schools and Ebacc subjects in secondary is leading to the marginalisation of D&T in many schools and, in some cases, its removal from the curriculum. With such high levels of investment in design and the soaring levels of youth unemployment across the UK, we simply can't afford to let D&T education to continue to slip off the school curriculum.

Changes to design and the curriculum do lie ahead in the UK. From 2017, there will be a new D&T GCSE taught in schools. In contrast to previous years, this reformed "single title" GCSE will not be split up into the different strands. Instead, pupils will learn how to use a broader range of materials across several disciplines rather than one area, such as textiles. D&T will be a qualification that provides children with an understanding about how they can bring about change in the world through good design. It will also be an essential qualification for careers and work-related skills, not just life skills.

While this is a promising change at a policy level, the reduction in school budgets could hinder meaningful progress. D&T is an expensive subject, and the materials, machines and equipment schools need are comparable in cost to science subjects. For a head teacher who has to navigate league tables and reduced budgets, D&T is an easy target for cuts.

At all levels of education, not enough emphasis has been placed on design's unique ability to help clarify and give structure to the creative process. We must think more seriously about what it is we need and want from design education – and all education – at every level.

The RSA and Design

The RSA was established in 1754 on the basis of eliciting 'designs for the publick good' and it soon began issuing open calls for ideas and awarding 'premiums' as a means of finding solutions to economic and social challenges. At the time, this notion that good ideas could come from anywhere and anyone was nothing short of radical and challenged established ideas around hierarchy and value. Premiums, coupled with the RSA's enduring interest in 'arts, manufactures and commerce' led in 1924 to the establishment of the 'Competition of Industrial Designs', aimed at providing an opportunity for young designers to develop and apply their craft.

This evolved into the RSA Student Design Awards, which has been running for more than 90 years and is now widely recognised as the leading programme for students in higher education to apply design methods and principles to today's intractable challenges. The programme is delivered as an annual open-source curriculum, comprising a set of projects co-developed by the RSA and industry sponsors, adopted by colleges and universities around the world and integrated into teaching. Crucially, because they are embedded into coursework, the award briefs must not only complement existing work, but also capture the imagination.

Project briefs issued this year include how to design and deliver environments that foster creativity; how to develop financial capability; how to encourage lower water consumption; how to encourage healthy eating in young people; how to lighten the burden of water collection in the developing world; and, how to encourage communities to better celebrate and invest in their heritage.

The RSA Student Design Awards are unique in issuing briefs that are not prescriptive in task or discipline, but rather ask design students to identify and define a problem within a wider social, environmental and or economic challenge area and then come up with a solution based on extensive user-centred research, identifying insights into the problem, and applying design thinking. This shift from responding to a defined design brief to responding to an issue is revolutionary for many students. Time and again, students note that it is working on an RSA Student Design Awards brief that empowers them to use their creativity in new ways and opens up new career possibilities.

Kingston University graphic design graduates Jade Kent and Amy Webster entered and won in the 2014 RSA Student Design Awards for their project about how to improve mental health and well-being. Kent and Webster said that 'Participating in the RSA Student Design Awards has been an incredible journey for us – we have both learned so much about ourselves and the ways that design can be applied in the real world, and we feel we have gained skills that will remain with us throughout our careers'.

To support students working on the project briefs, the RSA now offers a programme of workshops and seminars around designing for behaviour change, applying user-centred research methods, generating insights, developing commercial awareness, and writing a business plan. By understanding the gaps in formal design education and looking ahead to the future of design practice, the RSA Student Design Awards emerge as a broad 21st century curriculum, training students in new knowledge domains, systems thinking and appropriate user-centred solutions.

The RSA's view that creative potential is latent in everyone and must be unleashed, means that the RSA is in a better position than ever before to provide a platform for people to turn their ideas into reality. Accordingly, the RSA's evolving view of design is that it is less about specific solutions and more about the capacity of students and designers to adapt and respond to the world in which we live. The RSA Student Design Awards programme embodies this philosophy, furthering arguments about the role of open innovation and for engaging and enabling more people in debate. In a way, we now see the RSA Student Design Awards returning to something more akin to the 'premiums' set by the RSA in the 18th and 19th centuries where design is used as a tool for bringing about a greater distribution of creativity and innovation.

Whilst the RSA Student Design Awards has been an agitator and innovator within the design community since its earliest days, in recent years, extensive integration with industry and with the ground-breaking research work of the RSA has enabled it to have a massive influence beyond the world of design, reconceptualising the role of design in society.

Designing our Future

Building on the long-term success of the RSA Student Design Awards as an educational curriculum to help students understand the power of design, the RSA is exploring the necessary criteria for design to deliver real positive change in our future. This thinking is still emerging, but as I've argued before, it centres on a need to review the state of design thinking and design practice to better understand where it can have the most tangible impact. To date, we've identified 4 key criteria that design thinking practitioners and designers should (re)adhere to:

Commitment to the whole process: design processes are for the whole journey of an idea from conception through to implementation. The journey is extremely important for stakeholders and significant transformation can be achieved through the process, but it must be followed through from problem definition through to solution delivery.

Genuine engagement with 'humans/users' and understanding what people bring: true engagement and consultation with users means taking the time to listen with a commitment to active participation and applying user insights to deliver the best possible solution rather than a box-ticking exercise. Engaging with people also means

thinking about who is part of the process. Who are the 'users' to engage with? What do they bring to the process – what insights and understanding, but also what experiences and biases?

Human understanding and craft: in the same way that traditional designers have a deep understanding of materials (wood, metal, plastic, computer programmes, etc.) and how they can manipulate these through craft to create delightful products and outcomes, service designers must have a deep understanding of people – and more, a basic understanding of behavioural economics, social knowledge, human motivations, group dynamics – if they are to apply their methods with success.

Reassertion of design aesthetics: design thinking gained traction initially because a successful design process achieves elegance, sensorial acceptance and emotional appeal for the solution (be it a product, service or campaign); in a new era for design thinking, we must reassert the value of the aesthetics of design that go beyond traditional technocratic and top-down solutions. Aesthetics are not only about the form of the outcome, but about the attitude, the process and the 'why' of a particular solution.

In conclusion

Design has never been a more powerful tool for change and there is no shortage of 'wicked problems' that will require collaborative solutions delivered through thorough applied design approaches, although to do so will require a fundamental shift in the way in which we educate all citizens. We must ask tough questions about what we want our educational systems to deliver and how we can actively teach and stimulate collaboration, making connections, and adaptability so that everyone can unleash their creativity in a way that makes sense and empowers people to become change-makers. In line with some of the key concepts of Transition Design – notably, Futuring, Everyday Life Discourse, Needs and Worldview -- we must ensure that design education produces designers that are at once adaptable leaders and facilitators and that a design approach does not become simply a trendy by-word for inefficacy, but instead is seen as the integral method by which we can deliver positive economic, environmental and economic change.

Eco-literacy in Transition: the role of design ecologies in developing our capacity for radical change

Emma Dewberry

Introduction

This short paper explores the people-product relationships that are forged in the course of everyday life and addresses the role of design ecologies in fostering long term socio-ecological adaptability and resilience. I reflect on the premises and principles of Transition Design and explore the different kinds of knowledge required for designing with the natural world in mind.

It is unnecessary to repeat the well-trodden ground of the limits of 'modern' societies responses to the environmentally damaging behaviours that are endemic to industrialisation. I will, however, summarise these ideas through describing two very different perspectives on sustainability — 'technical sustainability' and 'ecological sustainability' — as described by Environmental educator David Orr (1982) and industrial ecologist John Ehrenfeld (2008).

The first approach, described by Orr and Ehrenfeld, is 'reducing unsustainability' or 'technical sustainability' and stems from the modern, deterministic and reductionist mindset. It proposes that solutions to unsustainability will emerge through the integration of new science and technology and the application of new regulations and responses to market drivers. It is argued that in making what we currently do less environmentally damaging we can simultaneously support current models of growth and development and shift society towards sustainability.

By contrast, the second approach, also outlined by Orr and Ehrenfeld, is 'creating sustainability' or 'ecological sustainability'. This encourages a reimagining of human requirements through creating new solutions to the provision of food, shelter, energy

and materials alongside the management of the resources that derive from these processes (currently termed waste).

Both perspectives reflect an old dilemma that results in a plurality of views on ecological and social disruptions. The case for continuing 'as is' with a reliance on technological fixes continues, almost universally, to dominate thinking in strategic, political and cultural domains. The contemporary crisis caused by global industrialisation and a growing global population remains distant from, and unaddressed, in the main political decision-making arenas.

The Transition Town movement, however, embodies an alternative approach to sustainability, acknowledging head-on the human-ecology-resource crises (i.e. Peak Oil) and exploring new solutions through alternative modes of producing (distributed modes) and of consuming (local modes). Solutions are particularly rooted in context and specifically connected to place.

The Transition Design Framework likewise resonates with the more radical scope and activities associated with an ecological paradigm. It proposes theories of change informed, for example, by social practice theory and multi-scale perspectives of technology, innovation and change; visions for transition that reframe lifestyles and the expectations, resources, communities and systems that support these; the need for a focus on posture and mind-set in terms of alternative ways to think, to learn, and to do; and that this framing of transition will inform of new ways to design. It is hoped that these approaches will co-evolve, adapt and develop in context-specific ways.

These ingredients represent a call to 'a change' in current design practices and should become common to all design practice in its journey away from the industrial paradigm. The danger of mapping 'Transition Design' apart from 'normal design', however, is that it proclaims 'difference' and potentially limits opportunities for achieving change of the magnitude required. As we have witnessed over the last 30 years or so, 'eco' or 'sustainable' design has provided a frame for an environmental and social focus in design but, in-so-doing, has inadvertently permitted other design activity to carry on as normal. This has resulted in frustratingly small steps forward during a period when the external signals for the need to adopt alternative strategies have been at once obvious and blatantly ignored. The label 'transition' may well be a useful device to articulate a different approach but we must be careful for it not to become another reason for such thinking and action to be marginalised and ignored. As a global society we are in

transition and thus we need new approaches and tools to stimulate hope and inspire peoples' imaginations for an equitable, everyday life.

This paper aims to explore some of these ingredients for Transition Design specifically relating to the ideas of ecological mind-set and the importance of creating sustainability (alongside reducing unsustainability) to embrace a deeper understanding of design ecologies and their landscapes of innovation.

Towards an ecological mind-set

Illich (1971:1) prophetically comments in his book Deschooling Society "that the institutionalization of values leads inevitably to physical pollution, social polarisation and psychological impotence: three dimensions in a process of global degradation and modernised misery." I am both struck and saddened by the relevance of this comment 45 years on. The issues identified in Illich's critique of industrialised and institutionalized society are exemplified in the education crisis of our own era. The continuing development of educational processes that are designed serve the demands of industrialization diminishes opportunities to convey other types of knowledge, in particular those that connect people to place. Contemporary responses to unsustainablity reflect institutionalized and risk adverse approaches to change that fail to connect citizens with the consequences of their collective actions.

Societal 'norms' need to be informed by eco-literacy. An example of this is industrialised societies' mind-set on 'waste': discarded materials and products are seen as 'waste, rubbish, garbage' – a collective language that continues to support the 'normality' of linear resource flow. This is in contrast to an ecological mind-set that views all resources as useable resources to be effectively re-crafted for other uses.

Changing mindsets is a challenge when formal-based knowledge institutions are required to accommodate governance that is centralised, generic and non-specific. Most formal learning today delivers the opposite of the knowledge and skills required to foster more ecologically aware mindsets and thus the capacity for effective transition. It is also difficult to propose change in established modes of learning from the very mindset that caused the problem in the first place. As economist, John Maynard Keynes (1935) wrote "The difficulty lies, not in the new ideas, but in escaping from the old ones ...".

The question is, how can we develop eco-literate interventions that promote new ways of understanding our world and our place in it – where the questions of relationship between personal endeavour, societal need and ecological boundaries can be better articulated and valued. This requires both a spirit of exploration and conditions that are conducive to adventure and risk-taking, neither of which are much in evidence in most contemporary educational systems. Both formal and informal learning need to reanimate responses to unsustainability through new types of ecologically framed literacy.

Eco-literacy represents a shift in the industrialized mindset that asks people to understand the fundamental role of natural systems in human society, and the relationship between their own well-being and the health of those natural systems. It is not only the theoretical underpinning of the interconnectedness of systems that is important but also the value of action-oriented eco-literacy. David Orr emphasises this point, "The study of environmental problems is an exercise in despair unless it is regarded as only a preface to the study, design and implementation of solutions. The concept of sustainability implies a radical change in institutions and patterns that we have come to accept as normal. It begins with ecology as the basis for the redesign of technology, cities, farms and education institutions, and a change in metaphors from mechanical to organic, industrial to biological." (1992:94). Eco-pragmatism as an approach to learning nicely aligns with design-based education. The teaching of design thinking, process and practice offers up useful spaces to explore the relationship between ecological theory and practice to foster new ways of designing.

The transition design framework provides a structure to deliver formal, theory and practice-led eco-literacy in the education of expert designers as described by Manzini (2015). Teaching eco-literacy to expert designers has the potential to permeate other, often informal types of designing (co-creation, activism, hacktivism, repair and maintenance) as more 'expert' designers engage with a wider landscape of design, of which non-expert designers (citizens) are a part.

The last section of this paper explores an integrated, ecological view of design. It also explores the role of design outcomes (in this case a product) to convey the ecological-social-technical story of the product as part of the journey of consumption, use, reuse and the redistribution of resources at the end-of-life.

Innovation landscapes and design ecologies: finding ways to tell new stories

Design thinker, John Thackara (2005) describes a contemporary dislocation in thinking. He says that there is a common consciousness that the world is 'out of control' – that it is all too complex for us to delve into, to interrupt and understand. But we also, he says, have culture, a language and the ability to understand abstract phenomena; to share knowledge and ideas and to shape solutions through design. So, on the one hand, there is much that seems big and distant, and on the other there are, all around us, things that are accessible and at the right scale – and here we have the opportunities and scope to act differently. "The dance of the big and small entails a new kind of design. It involves a new relationship between subject and object and a commitment to think about the consequences of design actions before we take them, in a state of mind – design mindfulness – that values place, time, and cultural difference." (2005: 226).

We can connect to this 'bigness' through design thinking and practice where the designed outcomes provide a useful response at a meaningful scale.

If Transition Design represents a shift from reductionist to holistic values, how can these best be represented in the outcomes of a newly framed design process? And how can these outcomes not only help to grow expert designers but also to engage citizens, more actively than passively, in new types of relationship with the resources they consume? Seeing the value of creating different types of 'made' future in a context of ecological parameters is, I believe, a primary role of design education. These values are also embodied through the designs created for, and in, society.

In my twenty years or so of exploring design for sustainability, I don't believe the relationship between bigness and smallness has been properly addressed. The 'beyond ecodesign' approach to reconceiving human-material relationships is difficult to implement because 'beyond ecodesign' shifts thinking, and therefore action, beyond an efficiency imperative. This deeply challenges the core premise of the industrial model: that is, to get more stuff, to more people, at a faster rate. We may make products more efficient but if we consume so many more of them than before, overall gains in efficiency are lost. Efficiency often only tweaks at the edges of the change needed and may not address the interrelated 'bigness' issues that we face.

By contrast, concepts such as 'sufficiency' present a challenge to an economic model that favours consumption of large quantities of resources. Issues such as resource scarcity, flows and sinks, the scale of consumption, manufacturing futures, and economic models are highlighted through explorations of sufficiency. Exposure to such debates are vital for developing ecoliterate designers, so that they can comprehend the rationale of 'beyond single-issue' foci such as recycling, disassembly and energy efficiency. It is not that these foci are irrelevant, but rather that they need to be understood in an interrelated way.

Developing eco-literacy in design education'

The Open University teaches design modules to over 1,000 students a year. In 2014 a new third level program was launched exploring sustainable design and innovation. In this module a framework was created to help students consider the interrelated landscape of a designed outcome. The innovation landscape (Figure 1) is a matrix that links multiple scales of design (product, service, system) to the material, people and context of the design to make visible the multifarious nature of design ecologies.

Figure 1 Innovation landscape (Dewberry 2014)

Multiple scales of design				
	SYSTEM Need Function Resources Impacts Adaptability			
	SERVICE Need Function Resources Impacts Adaptability			
	PRODUCT Need Function Resources Impacts Adaptability			
	DESIGN AND INNOVATION LANDSCAPE	**MATERIAL** Elements Technologies Interfaces	**PEOPLE** Requirements Actors Interactions	**CONTEXT** Governance Living Systems Infrastructure
		DESIGN ECOLOGY		

Each square of the matrix has a number of questions associated with it to prompt the designer to consider a range of issues. For example, the product-material square scopes out issues of resource use across lifespan, the nature and ecosystem impacts of resources (renewable, toxic, scarce), the nature of, and reliance on, technology (fast/slow, durable, adaptable), product infrastructure (robust, flexible, adaptable, vulnerable to change), types of interfaces (versatile, accessible, maintainable), the needs the product meets and its core functionality and resilience.

This is a useful exercise for looking at any everyday product in 'its landscape' of innovation opportunity. It is often easier to complete the product level than it is to consider responses at the service and system levels. As we move to the upper right-hand side of the matrix the issues are further removed from the ones usually associated with design decision-making and linked to broader concerns such as geographical locations of ecological impacts, ethics of resource use, systems of regulation, cultural norms and sensitivities or technological trends. Take the washing machine as an example. In the bottom left corner we might be concerned with issues of resource use across lifespan – using less metal, light-weighting, maintenance, using less energy, reducing detergent use, reducing water, cold water washes only etc. At the system level the focus shifts to question the need for clean clothes, cultural expectations of clean, access to hygiene, domestic grey water use, the infrastructure of redistributed manufacturing, the cyclical flow of resources and the diversity of regulation. These jumping off points for innovation are not the ones usually considered in the washing machine's design. They instead open up the debate concerning the role of clean clothes in society and how this need can best be met.

This kind of design has the potential to (quietly) educate us, to develop new narratives about everyday life. Products that result from large-scale and global production processes tell a common story, regarding speed of consumption, passive use, linear flows of resources, technology lock-in, technology redundancy and wastefulness. Designs that help to create sustainability will tell different types of story: mindful of resource origins, impacts and use; regenerative; celebrate locality and cultural difference; promote active people-product interactions across lifespan (e.g. repair, adaptation); and foster new knowledge and skills.

The Fairphone (Figure 2) is one of the most interesting examples of how a different story can emerge in a complex, globalised and fast-tech market. As a relative newcomer to the smart-phone market, Fairphone pitches in with a set of values and characteristics that is different to its competitors. The phone has the usual technical specifications but

also opens itself up (both metaphorically and physically) to reveal its ethical make-up – which, among other things, responds to concerns regarding mineral mining in conflict areas – alongside its physical ability to be taken apart, hacked, repaired, upgraded and restored. The design ecology of the phone can be viewed across its lifecycle (extraction, production, use, disposal). In extraction, the raw materials of the phone and the social, ethical, political and ecological issues associated with mining depleting resources; in production, the modular and long-life design of the phone and the systems required to support that ambition in terms of component development, retrieval and renewal; in use, the ability for people to repair, update, adapt and hack the phone to best meet their needs; and in disposal, a phone that is modular and easy to disassemble to retrieve a range of resource values through refurbishment, reuse and recycling.

The Fairphone traverses the innovation landscape presented earlier, particularly highlighting manufacturer's responsibilities concerning the ethics of resource management – which may result in context changes such as the governance and regulation of resource use. Its story also connects deeply to people across the product lifecycle. This differs from the traditional manufacturing view of focusing on 'customers' in relation to market research and predominantly in the pre-use stages of the lifecycle. In the case of Fairphone the reality of a longer-life, adaptable phone draws customers into a dialogue about product care and optimising its service to meet individual needs. Such dialogues will occur across the life of the phone and may involve formal dialogues with the manufacturer or service providers or more informal dialogues with communities of repairers and hackers.

Above all Fairphone encourages its customers to engage with its product in a deeper way: to look inside it, to understand the components and their functionality, and to develop the confidence to repair and adapt the product as technology progresses. While the concept of an ethically sourced, repairable and adaptable product is not rocket science, it is a universe away from the trajectory of the smart-tech market characterised by built-in technological obsolescence and maximum sales. By comparison Fairphone represents a new story – an innovation with ecological and social credentials that have influenced its design and its mode of business.

Figure 2 Fairphone 2: white case and modular design (Fairphone, 2015)

Conclusion

This paper proposes that the journey towards sustainability will in part be determined by the ability of designers, through designing the world around us, to make the social and ecological context more evident and meaningful. This gives designers an opportunity to develop new patterns of production and consumption that have the potential to redefine human activity to positively contribute to sustainable change. Products (and other designed forms) can tell different stories of resource origin, use and reuse; of technology, resilience and economies of wellbeing. These stories are not designed simply to sell more products. Instead they should embody ecoliteracy which needs to be intrinsic to the designed outcome and which can communicate and guide users through lifespan decisions – from processes of co-creation to activities associated with maintenance, modularity, repair and up-cycling. It is through these ecologies of design that we can create future resilience and hope.

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Images

Figure 1 Innovation landscape: Author's own, based on work from Open University, 2014

Figure 2 Fairphone 2: black matte case and modular design, Accessed from Flickr Album Fairphone 2, 2015, on 03/05/16 at: https://www.flickr.com/photos/fairphone/23624799326/in/album-72157654222299268/

Implementing Transition Design: It Takes a Village to Raise a Child: A Project Examined Through the Transition Design Framework

Clare Brass and Julia Lohmann

By way of illustration we would like to introduce you to Ento, a project developed in 2011 by designers Jacky Chung, Aran Dasan, Julene Aguirre-Bielschowsky and Jonathan Fraser during their MA at the Royal College of Art with guidance from Clare Brass through Sustain RCA.

Ento is, in the designer's words "a roadmap for introducing edible insects to the western diet. We believe that this cultural leap could be achieved through a sequence of products and services that will steadily build acceptance. Insects offer a solution to accelerating global food demand. They are much more space and energy efficient than traditional livestock and will happily eat the crops we don't want. They are also high in protein, low in fat and cholesterol, and rich in nutrients like omega-3. We designed our brand Ento to build awareness of the benefits of edible insects. Ento will deliver a succession of foods and eating experiences that will gently challenge our cultural taboo. And perhaps by 2020, fresh grasshoppers will be a regular sight in your local Tesco." (Dasan, A., 2011)

Through their research, the designers became increasingly convinced of the imperative to introduce insects as a staple source of protein to the western world. The real challenge, they reasoned, was twofold: to change the hearts and culture of a people; and to create the infrastructure that would allow this transition to take place over time. Drawing a parallel with the meteoric rise in popularity of Sushi (containing raw fish), that until not long ago was regarded by the majority as mildly disgusting and is now available in every UK lunchtime fridge counter, they understood that this transition takes time and careful crafting. Their vision included a viable answer to one of humanity's biggest pending crises – food – and a visual roadmap towards this future, allowing time for small adjustments to take place and for trends to set in and new habits to become commonplace. A vision of insects as a staple food that seems, from today's Western

vantage point, logical but unattractive and unattainable became imaginable through their careful and incremental transformation of the cultural /societal norm.

Ento was a brilliant plan and could have been a critical part of the jigsaw puzzle that will complete the landscape of transition, but in spite of the enthusiasm, talent and planning that went into the project post-graduation, it was never implemented. At the very time that this paper is being written, the team have taken the decision to shut the company down. To us, the failure of Ento is representative of the failure of the system into which it was born, that is well set up for conception but not equipped, we feel, to nurture and support the very projects that we so urgently need in order to drive transition. To understand what went wrong, we look at the project through the lens of the Transition Framework (Irwin, Kossoff, Tonkinwise, 2013), and question the adequacy of our educational institutions to help to bridge the gap between academia and practice for Transition. In doing so we draw an analogy between the conception and implementation of Transition Design and the notion of family: the conception, birth and raising of children.

Vision

Since the post-war period, designers have been primed to solve problems for industry, employed as a tool for driving consumerism, production and growth (Brass, 2013). Now we need the skills that have evolved to do this to address a different kind of challenge, one that requires an approach by which, instead of trying to solve a problem, the designer works on a vision and its implementation. In order to achieve transition, we need to move from a 'push' mechanism (problem solving for the present and near future) to a pull mechanism created by future-casting 'magnetic images of a proposed future' that draw us to them. (Polak,1973). He states: "the rise and fall of images of the future precedes or accompanies the rise and fall of cultures. As long as a society's image is positive and flourishing, the flower of culture is in full bloom. Once the image begins to decay and lose its vitality, however, the culture does not long survive. To work, transition visions need to be underpinned by reasons that make sense to everyone involved, and a map of designerly interventions that help us getting there. The Ento process began quite clearly with a vision – a world in which it is perfectly normal to pick up a pack of grasshopper mince for dinner on your way home. The designers then used a problems-as-opportunities approach, where the obstacles in their pathway to implementation became the stepping-stones of their design project.

Theories of Change

The analysis of those obstacles was an important part of the rationale for the project because they made clear what was holding us back from this possible change. Transitioning is a journey, and as in nature itself, not a short one. In the Transition Provocation (Irwin, Kossoff, Tonkinwise, 2015), consideration is given to the time factor, suggesting that there is a need to "design solutions for varying horizons of time". But this is not a mechanism that fits comfortably within the established academic framework. In current design education, concepts and prototypes are often the final outcome of quite a short design process. There is a gap between education and practice: the fruit of many excellent projects are simply portfolio pieces that serve as proof of the designer's abilities, a kind of photograph album of potential 'babies' demonstrating what the designer is capable of creating and allowing a future employer to assess his genetic suitability to bear the fruits of that company. Contrarily, a Transition Design concept like Ento only bears fruit to society if it is actually implemented. Through short and structured modules, the university actually promotes symbolic 'TED projects' that tell a wonderful story and are widely shared but are often not implementable. As an illustration of this, we see projects tackling ocean gyres by, for example, manufacturing plastic chairs on the decks of the (soon to be) redundant fishing boats – an unorthodox vision that raises awareness of an open loop (plastic in the ocean) but closes it only symbolically, rather than presenting a viable way to address the systemic problem.

Posture and Mindset

According to research carried out by the PIRC (Holmes, Blackmore and Hawkins, 2011), every person in the world shares a set of universal human values. The emphasis placed on each value varies according to personal and cultural factors and our actions and decisions are shaped by these personal values. In Transition Design, the values of the designer are the driving force of the project and shape the design decisions that are taken along the way. The designer forms a self-reinforcing bond with the project that leads him/her to identify with it: it is the 'brainchild', the 'baby'. According to Alistair MacIntosh in a speech to Scottish parliament in 2013, it is this sense of identity, founded on common values, that leads to a sense of responsibility.

While it is normal for students to be values driven, it is unusual for professionals in the workplace, where in a commercial context, designers often have to work on things that they don't believe in. One graduate from the RCA, for example, who in the SustainRCA

Show & Awards was the winner for Visionary Processes for his extraordinary exploration of the common Luffa plant as a means of bringing environmentally positive income to societies in South America, now designs toys for Lego. Graduation is often the moment in which the designer's values need to be suspended, in order to join the workforce and get a 'good job'.

Academia offers a space for designers to create transition projects that are driven by their will to change society, and by their personal values. Not being able to take care of these babies after graduation stands in stark conflict with the designer's sense of responsibility towards them. How can we capture more of these good transition design concepts and help to develop them into implemented design solutions?

New Ways of Designing

We believe that the reason Ento and so many other similar projects failed, is because the academic system is not set up to support design projects from their concept phase to implementation. Transition design projects can have timescales of decades, with objects and interventions laid out for today and for future possibilities. However, both our academic and commercial practices are based around much shorter timescales that are set up to maximise profit in the shortest possible time. Business incubators repeatedly rejected the Ento pitch, not because it was not credible or necessary but because the return on investment would have been unacceptably slow for today's standards.

Transition projects go beyond the purely conceptual. They are design projects that aim to make a change through implementation. To support this, the academic system needs to develop strategies that differ markedly from its current practice, that measure success not by the current key benchmark of employment, but through the ability of its graduates to drive change, which is notoriously difficult to measure. This also means enabling and supporting trans-disciplinary working and group activities because 'great ideas, fantastic marketing and tremendous financial management' (Sirolli, E. 2011) cannot be achieved by the designer alone. The fabled German Egglaying-wool-milk-sow comes to mind: a pig that bears merino wool and also lays eggs is disapprovingly invoked when one person is asked to fulfil too many tasks at once. In order to bring a project to completion, time, dedication, network building, infrastructure and capital are needed. This combination of factors is so challenging that almost immediately upon graduation most potential transition designers are pushed into commercial design, abandoning their college project they really believed in, their baby, soon after conception.

The journey of Ento fits well onto the Transition Design Framework, but this did not help it succeed. It did not fail because the idea was unrealistic or based on the wrong assumptions, and indeed the interim years have seen a proliferation of insect-related food businesses, particularly in the Netherlands. It failed because the institution encouraged it to be forward thinking but was not equipped to support the project that, as a result was ahead of this curve, possibly paving the way for the other similar initiatives. Once cut loose from the institutional womb, Ento failed because the team was unable to engage successfully with a business partnership that believed in it sufficiently to make the investment. It failed also because of practical and legislative reasons that left the designers unable to complete their task.

For example, although there is a EU team currently working on the legislation around eating insects, there is as yet no legal framework, leaving Ento exposed to legal action should a customer become ill after eating their products. Setting up the supply chain proved to be another difficulty, with no current suppliers able to provide a regular flow of fresh insect meat to the restaurants they envisaged, ensuring the all-important quality of taste.

For this concept to become an enterprise there are parallels with raising a child. So, while higher education provides guidance and removes a designer from the 'hedonic treadmill' (Porritt, J. 2007), enabling them to create plausible visions for transition and compelling concepts for change, the implementation of these projects, like raising children, requires a much longer timeframe and an appropriate support system. The conception, gestation and birth – a nine-month process resulting in a baby clearly 'authored' by its parents – is only the first small step. It is the raising of this child, that in human scale takes about twenty years and involves a multitude of experiences, that work together to form a unique character clearly not authored by the parents. As in parenthood, we think that within the heart of this process lies a shifting posture of the designer: the author of a pure and delicious concept becomes the facilitator of its often quite imperfect but nevertheless wonderful realisation.

The process of design shifts from a hypothetical and creative act to a consideration of design as a form of participation in complex adaptive systems (Slavin, K. 2016). The task of the designer shifts from the creation of a thing (with Ento it was a vision explained and illustrated by two- and three-dimensional design and film), to the implementation of a system. The translation of bold ideas to workable concepts and businesses necessitates building a network- and infrastructure and the designers becoming change agents (Tonkinwise, C, 2014, Antonelli, P., 2007). Anne Marie Willis asks how to cultivate serious

people, committed to lifetime projects, to their life as a project? (Willis, A.M. 2015). In our experience many designers are already very committed to their conceptual babies and feel responsible for raising them but are lacking the supporting framework to do so.

It Takes a Village to Raise a Child

A traditional African proverb states that 'It takes a village to raise a child'. To realise Transition Design projects conceived in academic institutions we need an extended family: grandparents, siblings, friends, godparents, nurses, doctors, teachers and social services who help to transform concepts to fully formed enterprises. Child services offer family support to enable the parents to care for the children rather than plucking them from a less than perfect setting. The extended family of our babies are the alumni, students, staff and friends of the institutions that gave birth to the concepts.

However, there are cases where children for one reason or another just cannot stay with their parents and foster parents or adoption can be perfectly suitable substitutes. Equally, with designers, there may be situations where for a variety of reasons – perhaps for example a lack of entrepreneurial drive – a designer may not be able to take the project to fruition. In this case we could imagine a pool of such projects that could be 'fostered' or 'adopted' by other new parents with similar values and intentions as the original ones, taking the projects and allowing them to flourish. Aran Dasan, one of the directors of Ento, spontaneously commented that although the team had failed to complete the Ento journey, they wished they could hand it over to someone else who may be able to turn the idea of Ento, with all the love and care invested in it, into a reality.

A second, and more speculative idea is that we question the very role of education itself and set up a new kind of relationship between institution and student that is specifically designed to support transition. We could, for example, consider that in place of a time-limited period that a student spends in university, you become a 'life member' of a Transition Community, that offers support and guidance from conception to adulthood as and when it is needed, for ever. It could be, for now, limited to the creation of a new PhD-type structure, in the same way as practice-based PhDs were introduced only few years ago, a 'Transition PhD'.

What would a transition PhD look like?

In the current model, a PhD is focussed on the individual. The Transition PhD would allow groups of people to work as a collective for as long as the project needs institutional support. Instead of a single supervisor, a collective would have a network of supervisors according to the varying needs of the enterprise at different stages of its maturity. Collaborative doctoral awards of designers, entrepreneurs, and business-students could be funded by research bodies such as the Fraunhofer Institute or the OECD, who would be able in this way to field-test the viability of their proposed policies. For example, the EU team currently working on insects for human consumption could support the designers of Ento to test the viability of their concept. The educational funding model of the PhD could also see larger and more established transition businesses (such as Interface Flor or Loowatt, for example) provide a pot of funding that enabled a number of projects to be carried forward to the point where a business model becomes possible / viable.

Once mature, the adult business leaders would join the network of supervisors in order to care for the younger generation of Transition Enterprises coming into the family, becoming 'godparents' to the newly born concepts, that may be from the same institution or another one affiliated through a cross-institutional community. The alumni would become the village elders and the bond with the educational institution would not be severed after the degree but continue in perpetuity with changing roles, as a village.

To conclude we feel that there is the need for a new academic framework that is more of a partnership than the current student-supervisor relationship. In this paper we have offered some thoughts about how the academic framework could better nurture designers in the development of Transition Design projects. But as with the beginning of any design process we need a big collective brainstorm to draw out many more possibilities of how this might happen. We need to radically rethink what education is for and consider how it can be redesigned to facilitate Transition Design through partnership models between education and practice, so that it supports not only the conception, gestation and birth but also the upbringing of successful and mature Transition Design projects.

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Transitioning organisational practices through design thinking

Lucy Kimbell and Beatrice Andrews

Background

In the discussion that follows we share observations informed by our experiences of teaching design (thinking) to non-designers, specifically management students (Kimbell) and civil servants (Kimbell and Andrews). The aim of doing this is to add nuance to, and reveal some challenges for, the fundamental premise of Transition Design of making "the tools and approaches of design accessible to experts from other disciplines, as well as laypeople".

A brief biographical note is needed here to give some context. One of us, Kimbell, has a background in design practice and research. In 2005 she joined the faculty of Said Business School at the University of Oxford on a five-year research fellowship, with a remit to develop teaching and research relating to design in the context of management. As well as doing research into design for service and design thinking, she set up, taught and assessed an elective in "Designing Better Futures" on the MBA for a decade. Using various formats, this for-credit elective tried out different means to teach the approaches and methods associated with design thinking and designing for service to management students on the full-time and executive MBA. More recently she led the development of a new MBA set up by Central Saint Martins, University of the Arts London in collaboration with Birkbeck College, University of London, launching in 2017.

With the spread of design (thinking) into public services, social innovation and policy contexts over the past decade, Kimbell has had opportunities to explore through practice and research the possibilities and challenges of exposing design approaches to people from other fields. She was embedded for a year via an Arts and Humanities Research Council (AHRC) fellowship in Policy Lab, a small team of civil servants in the Cabinet Office in the UK government, in which the second us, Andrews, plays a key role. Policy Lab's remit is to bring new approaches, methods, techniques to policy making by using approaches from design, digital and data domains within the work of civil

servants making policy in government departments. With several years experience inside government as a policy maker, and having completed an MBA, Andrews was one of the people who made the case for and then set up Policy Lab in 2014 with its head, Andrea Siodmok, as one of the responses to the Civil Service Reform agenda. The team's work takes many forms, from one-hour workshops to two-day "policy sprints" to longer demonstrator projects over several months. The Policy Lab team, whose expertise includes policy, design thinking, service design, social research, futures and digital design, work closely with policy officials in government departments, often involving collaboration with analysts, delivery partners inside and outside of government, civil society and other stakeholders. As part of its remit of supporting capability development in the civil service, Kimbell assisted Andrews to design and deliver one-day courses in "Design Thinking for Policy Makers" for staff from UK and international government entities.

Drawing on these experiences, we reflect on the potential for and the limitations of such teaching and learning when it focuses on individual capabilities and practices rather than organisational capabilities and practices. Reviewing teaching design thinking to MBA students (the first author) and to civil servants (both authors) reveals some of the questions for the Transition Design agenda that need answering in order for its vision to be achieved.

1. From teaching design to MBA students to enabling transitions through organisational action

Of the many post-graduate programmes that exist, the MBA seems to cause more confusion and irritation than others. Society seems to have no problem with medics, scientists or lawyers doing further study to develop capabilities in a specialism. When humanities and social science students do post-graduate study, people applaud this (but may wonder how this helps them get a non-academic job afterwards). Within the arts, it's understandable that self-motivated and probably self-financed creative practitioners doing post-graduate study will expect to build up or deepen their practice. But society queries how studying for an MBA gives a graduate a licence to manage teams, projects, ventures or organsations or, as is often the case, develop strategies as a consultant for others. Further, there is growing concern about the implications of particular ways of thinking about the world embedded in many business schools associated with neo-liberal opportunism, rationality and an almost exclusive focus on financial value.

MBA programmes are individualist. They appeal to people able to "lean in", access loans to pay fees which are often substantially higher than for arts, humanities or social science courses, and make the most of the resources, opportunities and expertise bundled into a business school, its faculty and networks. Business schools attract and produce individuals able to recombine these resources into new capabilities that help them achieve personal and possibly organisational advantage. Business schools' accountabilities are more to individual students and perhaps their future employers, but less to society at large.

Directors of MBA courses have been grappling with these issues for years. In my experience, many MBA educators and business school faculty are conscientious, thoughtful people wanting to animate students so they can fulfil their potential and guide or lead organisational change. Many are trying to use the resources of a business school to address the complex challenges that Transition Design is focused on. Initiatives in management schools addressing environmental change, social entrepreneurship, corporate social responsibility and getting more women into leadership, for example, attract and inspire faculty and students who want to change the world for the better with broader accountabilities.

One of us, Kimbell, has been involved in management education for some years. Her experiments in teaching design thinking on management programmes over a decade have revealed a capacity in these students to adopt and adapt approaches and methods from design, remix them with other managerial concepts and practices and apply them to their own challenges. As a result of taking Kimbell's MBA elective, many of these students taking the class were persuaded by the idea that the characteristics associated with design thinking – such as managing iterative processes, making mock-ups of new concepts, and focussing on people's experiences of processes and strategies – are competences they need to know about and possibly develop in their future teams or projects. True, design as taught in an intense 24-hour MBA elective may seem quite similar to lean start-up or agile software development – other current management fashions. But students come to appreciate that the design thinking approach – of materialising and synthesising possibilities to explore the future in the present – is a distinctive capability and something they need to be able to understand, or at least manage.

This openness to design among some MBA students, however, is not matched by administrators and faculty from traditional disciplines within management schools. Many institutions continue to recruit and reward staff who achieve highly on established

metrics such as publishing in particular management and business journals, rather than having recent experience of contemporary organisational practices. So it's not a huge surprise to note that there are still very few management schools investing in teaching or researching design (thinking), with one or two exceptions. Much of what does exist is tied to designing products and services for consumer experiences, rather than designing new social practices that address resource scarcity or environmental change.

But for the Transition Design agenda, management schools and MBA programmes matter a great deal. This is because unlike in the discipline and practice of design, their unit of analysis is organisations. Business school graduates are not the only ones who lead organisations or manage resources, but they are often the people who employers turn to when seeking to make change happen at scale through organisational action. So instead of teaching more design, or different design, in the MBA context, Transition Design could include within its scope enabling transitions through organisational action. This would imply connecting with and amplifying some of the diverse knowledge and expertise inside business schools and integrating this into the evolving conversation that is Transition Design.

This is not to propose importing such approaches uncritically into the vision for Transition Design. Much of the research and practice within management and business neglects to examine its own key assumptions, origins and power structures and their consequences inside organisations as well as the communities whose worlds they intervene into as creators of strategies, initiatives and ventures, providers of products and services, or as employers. But there exists research within business schools on topics directly relevant to the Transition Design agenda as diverse as supply chains, strategic value co-creation, social enterprise and critical management. These have the potential to be sources of insight and allies in the Transition Design agenda if it shifts the unit of analysis which is the contemporary focus of design from users and their interactions with products, services, or systems to include organisations.

In particular we propose the following questions for the Transition Design agenda to consider:

- What would a Transition Design vision for teaching and training aimed at managers, leaders or entrepreneurs look like?
- To what extent can Transition Design's theories of change make use of knowledge and concepts from studies of organising and managing?

- How does Transition Design's focus on people's experiences, everyday activities and social practices intersect with knowledge and expertise in management and business? Or put another way, where does experience design meet strategy, operations design or business model design?

- How can Transition Design initiate, curate and sustain platforms and networks connecting MBA graduates and management school faculty with people from other fields with a shared interest in the vision of transforming futures?

2. From training civil servants in design thinking to enabling changes in institutional practice

The next section draws on observations from when both authors were teaching design thinking to civil servants in the UK. For some of the participants, their role was to devise communications campaigns to shape employee behaviour to comply with security guidelines, for example regarding use of computers and digital devices. Although the context and scope is different to Transition Design, the example we give is relevant because it concerns designing (for) changes in the ways people do things, as well surfacing the issue of how organisational cultures and routines get in the way of taking forward plausible radical visions for new solutions.

The day-long training session we devised and delivered offered participants a practical, embodied encounter with design thinking. The learning outcomes of the day included (a) developing an orientation to understanding people's experiences of an issue, (b) generating new concepts informed by insights, (c) exploring these concepts and their implications using visual methods such as sketching and table-top prototyping, (d) reflecting on the outcomes of the design thinking approach, and (e) reviewing opportunities to develop design capabilities within their communications function. Throughout the day the team focused on a challenge they articulated as how to change employee behaviours to reduce security incidents.

When exploring the issue together during the first part of the training, where we highlighted understanding people's experiences (learning outcome (a)), participants shared examples of occasions when employees had breached security regulations. One example highlighted the issue of customer service staff in call centres using their own smartphones at work, leading to security incidents, whether malicious or intentional or not. Participants recognised and wanted to address the monotony of employees' day-to-day work – but they felt powerless to do so as their organisational function was

communicating issues about security, not managing the work. This allowed us all to discuss habits, motivations, attitudes, expertise and organisational culture, and where these intersect with processes and routines in this part of the civil service.

Having identified a specific challenge, participants individually started sketching potential solutions as one method we wanted them to try out within the training day. Most of the ideas they produced were quite narrow in scope. Several participants produced variations of the team's existing communications campaigns around behaviour-change. But one woman generated something quite different. She sketched out a new layout for the call centre, which included a separate space for 'social media breaks'. She explained how this would allow for the proposed regulation in which staff would not have access to personal devices at their desks, but also address the issue of staff motivation by not removing access to their devices entirely.

In her proposed design, this participant bundled together work routines, contemporary consumer practices, organisational regulations, the layout and use of space as well as training, performance management and corporate communications. In short, her proposal reframed the challenge from devising communications to encourage staff comply with security protocols, to changing work practices and routines to result in increased security. Her design was of a quite different order to most of the other suggestions from participants, and it was clear from discussions in the room that they recognised this. But when we asked participants to continue iterating their ideas within another cycle of exploration, this concept disappeared. The participant came up with something else for round two, and for the rest of the day her radical design proposal did not reappear.

As trainers/facilitators, we drew participants back to this reframing. We staged a discussion of the implications of this design proposal in comparison to those of others that had been generated. But the sense in the room was "Yes, she came up with something original that really might do the job, but it's so different we can't do it – it's out of scope". This was a training day, not a co-design or innovation workshop, so this outcome was not a problem, but we were left unsatisfied.

This vignette highlights how practicing design thinking may require a group of people to think about operating in the future beyond their current institutional practices, capabilities and structures – and this may produce resistance. This problem participants chose to work on was one they were very familiar with and was closely tied to their function. But very quickly the participants came to understand that to solve the problem

they would need to go beyond the limits of their current remit, agency and influence. For this reason, they chose to abandon the option, rather than explore how that might happen.

A new design concept is not the same as a collectively generated and held vision, in which some of the actors involved have a stake in outcomes to which they will be held accountable. The practice of design thinking – as we were teaching it – generated a novel proposal that reframed the issue these participants worked on. But the novel proposal produced in this training had substantial implications for organisational routines and structures and would require participants to shift beyond their current ways of thinking, knowing and doing. In our workshop, training in ethnographically-informed design thinking produced a proposal for a radical innovation but conflicted with current institutional practices, capabilities and structures.

This has some implications for Transition Design. In its model, by making explicit theories of change and mindset as well as visions and new ways of designing, Transition Design changes the object of designing. It indicates the need for redesigning social practices, changing configurations of resources, and developing new ways of thinking and being. But without being attentive to organisational practices, capabilities and structures, any proposals for redesigns are unlikely to take hold. To achieve its intent, the Transition Design agenda needs to be able to work with different, perhaps conflicting groups of stakeholders inside and beyond organizational boundaries, and catalyse and empower them to redesign their organisational practices and routines.

We therefore propose the following questions for Transition Design to consider:

- How can Transition Design help people negotiate the tensions that emerge when radical proposals are generated and explored without always having the legitimacy, agency or resources to take them further?
- What knowledge and understanding does Transition Design need to develop to address the challenges of (re)designing organisational cultures, capabilities and practices?
- How can Transition Design acknowledge the differences between the mindsets and postures of individuals in organisational functions, teams and cross-organisational projects involving people with different capacities, legitimacy and urgency in addressing an issue?

Conclusion

The Transition Design agenda argues for making the tools and techniques associated with it accessible to people from different backgrounds. Through our discussion of teaching design thinking to managers and civil servants, we have indicated some of the potential of and limitations of teaching design to people with other kinds of expertise. We believe that teaching and training courses are opportunities for re-designing organisations through problem-based learning. As well as achieving learning outcomes, such events have the potential to generate new opportunities and insights about organisational change, which have relevance to Transition Design.

By teaching design thinking within a post-graduate management degree and to civil servants in the context of one-day courses, we have had opportunities to identify some challenges for the Transition Design agenda. The first is closer engagement with research and practice in organising and managing. The second is the need to understand how radical design proposals connect with or challenge existing organisational routines and structures. Both highlight the need for the Transition Design agenda to connect better with organisations as sites of action.

Biographies

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Beatrice Andrews is a senior policy advisor within Policy Lab, a team in the Cabinet Office of the UK government. policylab@cabinetoffice.gov.uk and @Beatriceemilya

Clare Brass, Designer and Trainer, Department 22

Clare Brass a designer and trainer with product design background and expertise in using societal and environmental issues as drivers for innovation. She founded, and was head of, SustainRCA, a cross-departmental centre for sustainability at the Royal College of Art, and Senior Design Tutor in IDE (Innovation Design Engineering). She was a commercial design practitioner for 20 years, with sustainability as a main driver of her work. She was Leader of Sustainability at Design Council before setting up SEED Foundation, exploring the role of design in creating and supporting social business, and using the learning from environmental research to create enterprise opportunities.

Hilary Cottam, Innovator/Social Design Entrepreneur

Hilary's work has touched the lives of many thousands. At its heart is a simple idea, that if we start with people and their human connections we can bring about radical social change. Recent award winning work includes: new systems to support an ageing population; a prison that reduces re-offending; new approaches to chronic disease and unemployment. Hilary has advised governments, companies and third sector organisations in the UK and internationally. She was educated at Oxford, Sussex and the Open Universities. She was awarded her PhD in 1999. She currently lives and works in London.

Tom Crompton, Author and Co-Founder, Common Cause Foundation

Tom Crompton worked for charities for 12 years. He is author of *Weathercocks and Signposts: The Environment Movement at a Crossroads* (2008), *Meeting Environmental Challenges: The Role of Human Identity* (with Tim Kasser, 2009) and *Common Cause: The Case for Working with Our Cultural Values* (2010). *Common Cause* has led to extensive debate across the third sector in many countries, and many charities are now responding to its recommendations. Tom read Natural Sciences at the University of Cambridge, and

holds a doctorate in evolutionary biology from the University of Leicester. He is an author and co-founder at The Common Cause Foundation, a network of people working to rebalance cultural values, creating a more equitable, sustainable and democratic society.

Sevra Davis, Director of Design & Challenges, Royal Society of the Arts, London

Sevra Davis is Director of Design Challenges and Director of the RSA Student Design Awards, a curriculum and competition that challenges emerging designers to apply their skills to social issues. She has consulted on design for social impact for international government clients and often speaks on the value of design and a design approach, design for social innovation, and how open innovation could positively impact our future. Sevra is an architect and urban designer and spent 10 years working in industry prior to joining the RSA.

Emma Dewberry, Senior Lecturer, Design Faculty of Mathematics, Computing & Technology, The Open University, Milton Keynes

Emma Dewberry joined the Design Group at the Open University in 2008. She is interested in the capacity of design to create sustainable futures. This expands the idea of design from a discipline of practice (product, graphic, fashion) to post-discipline; knowledge grown between practices and discipline areas (trans-discipline). She proposes design as a curious intervention between everyday practices and interconnected thinking and the possibility that journeys of sustainability will require more radical transformation facilitated by curious learners, doers and thinkers.

Tony Greenham, Director of Economy, Enterprise & Manufacturing, Royal Society of the Arts, London

Tony leads the economy, enterprise and manufacturing program at the RSA. He is a chartered accountant and former investment banker with experience in both business and in the NGO sector, and is a regular media commentator on economic issues, in particular banking and finance. He was previously Head of Finance and Business at the New Economics Foundation and is author and co-author of many books and reports on economic reform including best-selling economic textbook, *Where Does Money Come From? A guide to the UK monetary and banking system*, a report on local economic development. He was a member of the Government's Regional Growth Fund advisory panel, and currently acts as an external advisor on sustainability to Alliance Trust Investments and the Institute of Chartered Accountants in England and Wales.

Lucy Kimbell, Director, Innovation Insights Hub, University of the Arts, London

Lucy Kimbell is the Director of the Innovation Insights Hub at University of the Arts London and associate fellow at Said Business School, University of Oxford and was formerly an Arts and Humanities Research Council (AHRC) research fellow embedded in Policy Lab, Cabinet Office, and prinicipal research fellow at the University of Brighton. Lucy is involved in bringing design approaches to organisational problems and community challenges. Through her consultancy she designs and facilitates large (up to 100 people) workshops for entrepreneurs and innovators to try out design thinking and service design.

Dan Lockton, Assistant Professor, Director of Imaginaries Lab and Chair of Design Studies School of Design, Carnegie Mellon University

Dan Lockton is a designer, technologist and researcher, specialising in the links between design, understanding, and human action, particularly with respect to what's become known as "behaviour change" for social and environmental benefit. His work centres on in-context research with people, including the use of products, services and built environments, with a focus on practical prototyping and co-creation, integrating insights from multiple scientific, technological and social science disciplines. For his PhD at Brunel (2007-13), he developed the Design with Intent toolkit, an interaction design pattern library bringing together behavioural insights and examples into a form useful for designers.

Julia Lohmann, Professor, Academy of Fine Arts, Hamburg

Julia studied at the Royal College of Art, where she has also taught and is currently engaged in an AHRC-funded collaborative PhD scholarship between the RCA and the Victoria & Albert Museum. As designer in residence at the V&A in 2013, she established the Department of Seaweed, a transdisciplinary community of practice exploring the marine plant's potential as a design material. Julia Lohmann's work is part of major public and private collections worldwide and has received awards, bursaries and support from the Esmée Fairbairn Foundation, the British Council, Jerwood Contemporary Makers, D&AD, Stanley Picker Gallery, the Arts Foundation the AHRC and the Wellcome Trust.

Ingrid Mulder, Associate Professor Industrial Design, Delft University of Technology, The Netherlands

Ingrid Mulder is an expert in transformative and social design. As part of her previous readership in Rotterdam, she has initiated the first Fablab in Rotterdam as well as the

Rotterdam Open Data movement. She also founded Creating 010, a trans-disciplinary design-inclusive research centre enabling citizens, students, and creative industry making the future of Rotterdam. Since 2007 she chairs the research program Meaningful Design in the Connected City, which connects research and education in both Delft and Rotterdam. Her background is in Policy and Organization Sciences (MA, University of Tilburg) and Behavioural Sciences (PhD, University of Twente). In 2005, she headed the evaluation of the first Dutch living lab, "Kenniswijk", currently known as Brainport Eindhoven. As an expert for the European Commission on Internet of Things and Smart Cities, she advocates participatory bottom-up innovation as a means to empower people in driving social change.

Robin Murray, Industrial Economist (1940-2017), The Young Foundation, London

Robin Murray was an industrial economist. He was educated at Balliol College, Oxford, and at the London School of Economics. He joined the London Business School, where he lectured in Economics, and then moved to the Institute of Development Studies, the national centre for the study and teaching of development at the University of Sussex, where he was a Fellow for 20 years. During this time he acted as a consultant on industrial and development issues to a wide range of governments, and served as Director of Industry in the Greater London Council in the 1980s and as a Director of Development in the Government of Ontario in the 1990s. From 2004-5 he was seconded to the Design Council as Director of RED, its innovation unit, where he led the team working on new forms of health care, particularly in the areas of chronic disease management and public health.

Lucy Neal, Writer & Theatremaker

Lucy Neal is a writer and theatremaker and was co-founder director of the influential London International Festival of Theatre (1981-2005). Active in the grassroots Transition movement since 2008, she is interested in how celebratory events act as a catalyst for change. Her recent book *Playing for Time – Making Art As If the World Mattered*, published in 2015 by Oberon Books, is co-written with over 60 artists and activists and has been described as 'a hand book for life', 'extraordinary and timely', 'a manifesto; a work of art' and 'a beautiful and invaluable book'. Joining the dots between the 'macro' stories of energy, food, finance and climate change it explores creativity's role in reimagining new ways of being human on Earth.

Julie Richardson, Senior Lecturer MA Economics for Transition, Schumacher College, Devon

Julie has taught ecological economics and international development at the Universities of London and Sussex and has worked in sustainable development for over 20 years in Africa, Asia, Latin America and Europe. This experience changed her view of 'development' – believing there is much we can learn from the wisdom of other cultures about sustainable livelihoods and restoring healthy relationships between human society and nature. Julie has applied systems thinking and complexity science to different aspects of sustainability – including sustainable design, organizational change and environmental policy. The Landscope project at Dartington arose out of this work to demonstrate industrial ecology in practice. Julie has an MSc in Holistic Science from Schumacher College.

Andrew Simms, Author, Analyst & Campaigner, co-founder, the New Weather Institute, London

Andrew Simms is an author, analyst and campaigner. His several books include *The New Economics*, *Ecological Debt: Global Warming & the Wealth of Nations*, *Tescopoly: How One Shop Came Out on Top*, *Why it Matters, Do Good Lives Have to Cost the Earth?* and most recently *Cancel the Apocalypse: The New Path to prosperity.* A political economist and environmentalist, Andrew studied at the London School of Economics and has written widely on the political economy of both global and local economies and is on the board of the Transition Network. He was the originator and co-ordinator of the influential Clone Town Britain campaign and led its work on the Great Transition. New Scientist magazine called him a 'master at joined up progressive thinking.'

Symposium Organizers & Moderators

Terry Irwin, Professor/Head of The School of Design, Carnegie Mellon University, Pittsburgh, USA

Terry is a designer/educator who has taught at the University level since 1986 and was a founding partner of the international design firm MetaDesign. A 2002 short course at Schumacher College with Fritjof Capra inspired her to move to Dartington and enrol in the Masters Degree in Holistic Science at Schumacher College. Her thesis explored how principles of living systems could inform a more responsible and sustainable design process. Since 2009 she has served as Head of the School of Design at Carnegie Mellon University where she led a 2-1/2 year curriculum redesign. The new programs place sustainability and social innovation at the heart of all curricula and introduce Transition Design as an area of design studies and doctoral research. She is currently working with colleges and universities worldwide to integrate Transition Design into programs and curricula. Terry holds an MFA in Design from the Allgemeine Kunstgewerbeschule in Basel, Switzerland.

Gideon Kossoff, Doctoral Co-ordinator/Adjunct Professor, School of Design Carnegie Mellon University, Pittsburgh, USA

Gideon Kossoff teaches Transition Design courses to undergraduates, graduates and PhD students in the School of Design at Carnegie Mellon University. From 1998 to 2007 Gideon was programme administrator and course tutor for the MSc in Holistic Science at Schumacher College, where he also managed the College library and built its extensive collection of books, and regularly created chaos in the kitchen. Gideon's research focuses on holism and the tradition of anti-authoritarian social and political thinking. He completed his PhD in design, entitled Holism and the Reconstitution of Everyday Life: a Framework for Transition to a Sustainable Society, at the Center for the Study of Natural Design at the University of Dundee, Scotland. His thesis proposed the concepts of 'radical holism' and Transition Design and is summarised in an article in the book Grow Small, Think Beautiful edited by Stephan Harding and published by Floris.

Ruth Potts, Senior Lecturer MA in Ecological Design Thinking, Schumacher College, Devon

Ruth is a Senior Lecturer on the MA in Ecological Design Thinking at Schumacher College. She is a co-founder of Bread, Print & Roses, a collective engaged in seditious pamphleteering, radical walking, anarchist baking and transformative education and a co-editor of Red Pepper. Previously, Ruth was Artistic Advisor to Utopia 2016 at Somerset House, London. She is a freelance consultant on communications, projects and events and was Campaign Organiser for the Great Transition at NEF (The New Economics Foundation) where she co-developed a new model of campaign designed to kick-start the decade -long transition to a new economy and society. She is co-author of The New Materialism, and NEF's Clone Town Britain reports. She helped to organise the Green New Deal Group in 2007 and managed the launch of the Group's First report, A Green New Deal, in July 2008. The concept was taken up by UNEP and influenced policy around the globe.

Cameron Tonkinwise, Professor, UNSW Art and Design, University of New South Wales, Melbourne, Australia

Cameron Tonkinwise is the Director of Design Studies at the School of Design at Carnegie Mellon University. Cameron continues to research what designers can learn from philosophies of making, material culture studies and sociologies of technology. Cameron facilitated the School of Design's creation of a new Design Studies sequence of courses that better prepare designers for a wider scope of work and the more interdisciplinary challenges of 21st century societies. Cameron's primary area of research is sustainable design. In particular, he focuses on the design of systems that lower societal materials intensity, primarily by decoupling use and ownership – in other words, systems of shared use. Cameron has published a range of articles on the role of design, and in particular, service design, in the promotion of the sharing economy and collaborative consumption.

Seaton Baxter OBE, Professor/Program Co-ordinator & Senior Lecturer MA Ecological Design Thinking, Schumacher College, Devon, England

Professor Seaton Baxter is a leading figure in ecological design and received his OBE for his services to the Scottish environment. Founder of the 'Centre for the Study of Natural Design' at the University of Dundee he has successfully supervised a wide range of masters and doctoral students, many of whom have gone on to make significant contributions across the ecological design field. A leading thinker and practitioner on the design of agricultural buildings and facilities for animal welfare, waste management and low carbon systems, Seaton has a long standing interest in building conservation and rurality.

More about Transition Design:

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