

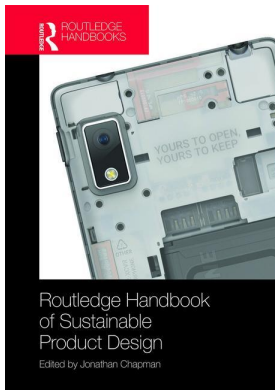
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Sustainable thinking

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PART II

Agents of change

Product design is an opportunist, adaptive process of continual development, innovation and emergence. This persistent evolution responds to shifts in social, cultural, technological and economic norms and trends, and is unrelenting in its forward thrusting. Despite this seemingly progressive character, product design's recent transition from a 'world-making', to a 'world-breaking' enterprise has put it in a position of flux, in which urgent re-examination of the potential of the product designer, as an agent of positive change, continues to gather in intensity.

Comprising six chapters, the contributors writing in this second part draw together previously disconnected scholarship in consumer studies, environmental management, social innovation and design thinking. In doing so, they identify new and radical forms of sustainable product design intervention; reframing product designers as agents of social, ecological and economic change. Their chapters may be summarized as follows:

- 7 Sustainable thinking – *Aaris Sherin*
This chapter introduces 'sustainable thinking', an extension of 'design thinking' that supports designers in navigating the realities of creating market-ready socially and environmentally transformative products, spaces and experiences.
- 8 Engaging designers in sustainability – *Vicky Lofthouse*
Designers have an immense influence on the modern world but are not currently widely engaged in the sustainability debate. This chapter introduces ways that product designers can become more fully engaged in sustainable design, across a broader spectrum of activities.
- 9 Design for sustainable behaviour – *Debra Lilley and Garrath Wilson*
Sustainable product design cannot reach its full potential without targeting user behaviour. This chapter shows how an increased design focus on the behavioural dimensions of the use-phase powerfully alters user interaction with products to leverage sustainable use patterns.
- 10 Mending broken promises in sustainable design – *Alex Lobos*
For sustainable product design to yield the ecological and social benefits it promises, designers must develop a more multi-layered approach, engaging at the levels of: materials and processes; service systems; user experience; and, circular economy.

- 11 Sharing, materialism, and design for sustainability – *Russell Belk*
This chapter examines positive and negative takes on sharing and materialism. Although sharing enhances resource efficiency, much of the ‘sharing economy’ isn’t sharing, but selling access through rental; such ‘sharewashing’ provides a pro-social label for exploitative aims.
- 12 A journey of two designers – *Yorick Benjamin*
Sustainable product design appeals to our need to ‘do good’ but twists our design mind into uncertainty and anxiety. This chapter follows two designers’ quests to develop an everyday product, while attempting to integrate a variety of theoretical models along the way.

During the past 60 years alone we have stripped the world of a quarter of its topsoil and a third of its forest cover. In total, one third of all the planet’s resources have been consumed within the past five decades. Little of what could be referred to as *wilderness* remains. Within the last century and a half, we have mined, logged, trawled, drilled, scorched, levelled and poisoned the earth, to the point of total collapse. Impact assessment tools such as life cycle analysis (LCA) often come in at this stage; providing designers with a formative assessment of the environmental burden of both the manufacture and use of a given product. Anything that provides a more granular picture of the impacts associated with the various stages of a product’s development must surely be a good thing. However, despite the scope of literature addressing LCA methodologies it is still commonly understood that LCA can be a problematic process, and many LCAs often reaching contradictory conclusions about similar, or sometimes identical products. Though useful in developing comparative analyses in product design development, LCA tools are often referred to as hazardous, because they may lead to a false sense of control.

Duped by the illusion of progress consumers continue to spend money they don’t have on things they don’t need and the wheels of conventional capitalism rotate with a familiar ease. This continual making and remaking of the world, ensures that the consumer appetite for fresh material experiences is sustained. Anxious to keep-up, consumers scramble to update their wardrobes, replace their trainers, refit their kitchens and trade in their phones. However, the much sought after experience of being up to date is a fleeting one. It should come as no surprise then that landfill sites, and waste recycling facilities, are packed with stratum upon stratum of durable goods that slowly compact and surrender working order beneath a substantial volume of similar scrap. Even waste that does find its way to recycling and sorting centres frequently ends up in international stockpiles as the economic systems that support recycling and disassembly fail to support them.

When new things are acquired, older things must be ejected from one’s material empire, to make room, so to speak – out with the old, in with the new. This has led to the development of an increasingly ‘disposable’ character in material culture and design. Just over a century ago, disposability referred to small, low cost products such as the Gillette disposable razor or paper napkins, whereas today – largely through the efforts of industrial strategy and advertising – it is culturally permissible to throw anything away from TV sets and vacuum cleaners to automobiles and an entire fitted bathroom.

One doesn’t need to be an ardent environmentalist to see that there is little or no logic to the way we relate to our environment. We clear carbon absorptive forests, to grow methane producing meat, and level vast areas of bio diverse wilderness with ecologically inert urban sprawl, riddled with mazes of oil-dependent highways. Through our drive toward a faster, lighter, brighter and more technologically advanced world, humans have

wreaked havoc throughout all natural systems that support life on earth. If product design lays the basis for the formation of materials, objects, services and systems, then the product designer's influence over the sustainability of production and consumption is nothing short of pivotal.



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7

SUSTAINABLE THINKING

Aaris Sherin

Abstract

As an extension of design thinking, sustainable thinking offers practitioners an opportunity to focus on environmentally and socially conscious outputs while combining strategies traditionally used in business with the creative flexibility and problem-solving long associated with the creative process. Whether one is designing complex systems and experiences or discrete objects, sustainable outputs must meet the needs of consumers and be economically viable. This chapter explores the challenges faced by designers working sustainably and examines areas where specific interventions and strategies can improve the ethical and environmental performance of products. By acknowledging the difficulties designers face, it is possible to identify particular areas of strength and to acknowledge where further improvements are needed. The chapter concludes with a list of touch points for sustainable practice. These provide an overview of the constraints and opportunities designers often face as they navigate the realities of creating market-ready socially and environmentally sensitive design solutions.

Keywords: strategy, sustainability, design thinking, methodology, change agent

Sustainable thinking

Social and environmental consciousness is reshaping the way design is practiced. In addition to being able to solve problems with clearly stated objectives, there is a need for professionals who are able to identify appropriate outcomes in less defined, and more ambiguous situations. Working at the intersections between client and end user, between governments and their citizens and between ideas and realized experiences, allows designers to give voice to the needs of multiple constituencies. Designers now work with diverse stakeholders and are as comfortable identifying objectives that give a company a competitive advantage as they are creating desirable and attractive physical forms or objects. They are transformers and change agents, and these new roles come with greater responsibility. As an extension of design thinking, sustainable thinking offers practitioners an opportunity to focus on developing sustainable outputs while combining strategies traditionally used in business

with the creative flexibility and problem-solving long associated with the creative process. These methodologies provide additional resources to help designers navigate the realities of creating viable socially and environmentally sensitive design solutions.

This chapter is divided into three parts. The first part provides context about some of the most common challenges faced by designers looking to create sustainable products and experiences. The next part examines how interventions including the creation and implementation of project-specific strategies, acknowledgement of divergent behaviour motivators and the use of certifications and fair pricing can improve designers' abilities to produce effective outputs. Finally, the chapter concludes with a list of touch points for sustainable product design.

Ultimately, sustainable thinking requires a holistic, multifaceted approach to problem solving, robust assessment criteria and transparent messaging to consumers and stakeholders. By combining strategy, pragmatism and iterative creative processes, designers can develop memorable and relevant sustainable products and experiences.

Context and early adopters

Early product designers created visually compelling and practical three-dimensional forms while communication designers used visuals and text to entice consumers to purchase these same products. The needs of the client came first and little thought was given to the people who would eventually use designed objects. As the use of design expanded in the first half of the twentieth century some designers became troubled by the role they played in an increasingly commercialized world. In 1964, 22 visual communication designers signed a manifesto called *First Things First* which challenged designers to put their skills to worthwhile use (International Council of Design, 2014). Not long after, industrial designer Victor Papanek wrote *Design for the Real World* where he argued that designers had an obligation to work for the greater good and not just the financial well-being of their clients (Papanek, 1985). In his follow-up book, *The Green Imperative* Papanek focused primarily on environmental issues and he questioned, 'whether designers, architects, and engineers can be held personally responsible and legally liable for creating tools, objects, appliances, and buildings that bring about environmental deterioration' (ibid., p9). At the time, Papanek's ideas were considered too unorthodox for many colleagues but today the underlying principles described in his work have largely been accepted even though designers continue to struggle to balance the profit motive with our obligations to end users and the environment in which we live.

Aligning environmental concerns with business strategy

Toward the end of the 1990s and into the early 2000s, media outlets and governments began to focus on issues like climate change and it became crucial to align the ideas put forth by environmentalists and activists with the needs of market-driven companies and governmental organizations. Third-party certifications and oversight organizations were established to provide some assurance that companies complied with a specific set of standards. Corporate sustainability reports (CSR) and corporate responsibility reports started to augment more traditional annual reports and chief sustainability officers were given status previously reserved for business leaders and upper management (Sherin, 2008). Profit and ethics began to be seen as synergistic, rather than in conflict, as had previously been the case.

In 2007, Valerie Casey (formerly of IDEO, frog and Pentagram) founded the Designers Accord and began a five-year project to specifically address the intersection between business practices, sustainability and design. Casey developed standards and tools for both design firms and companies interested in creating positive environmental and social impact. Her guidelines included a pledge to initiate dialog with clients about environmental and social impacts and sustainable alternatives, educating employees, considering a firm's own environmental footprint and working to advance the understanding of environmental and social issues from a design perspective (Casey, 2008). As a viable organization, Designer's Accord ended at the conclusion of Casey's 5-year mandate, but many of the principles originally put forth by Casey and other early adopters of sustainable design practices have since been endorsed by, and/or folded into, the standards of professional design organizations (Casey, 2016).

Unlike Casey, who advocated for increased engagement with the business community (Casey, 2008), some environmentalists still believe more stringent regulations are the only way to ensure that large multinational companies play by a standard set of rules. Regardless of which side of the debate you fall, the conversation about what constitutes progress and how responsibility should be shared is still evolving and contemporary designers have an opportunity to continue the dialog initiated by Victor Papanek and the signatories of *First Things First*.

Challenges and opportunities

While practitioners agree on many of the basic tenants of sustainability, how they go about realizing specific goals and the areas which they focus their attention are quite different. One size does *not* fit all and designers need the space to explore and to test new ideas. When we evaluate the merits of environmentally and socially conscious products, systems and experiences, we should be rigorous in our critique. Assessment is vital to promote continued improvement. However, even as products undergo thorough testing and evaluation it is important not to fall into the trap of being too prescriptive in our standards. Few products not created by nature can claim to be truly sustainable. Acknowledging progress is as important as evaluating where a product, material or experience falls short. Even small steps are meaningful. When a baby first learns to walk we don't criticize their steps as ungainly. By measuring intent and impact, as well as more concrete aspects of environmental performance, we can develop broader standards for evaluating sustainable products.

Certainly not everyone agrees with the need for more inclusive standards and measures by which to evaluate sustainable products. Environmentalists have long advocated for more stringent reforms to energy policy and corporate regulations. They are not wrong. In the face of unprecedented resource depletion and ever-rising levels of CO₂, a complete overhaul of environmental regulations may be humanity's only hope. However, while it is accurate this position is also unrealistic. And we quickly come up against the *people versus progress* debate. Is air-conditioning a luxury or a human right? Does every member of a growing worldwide middle class deserve the right to own and operate a motor vehicle? And if the answer is no, then who gets to make those choices and where do lines get drawn? In relatively temperate climates it is easy to say air-conditioning is a luxury rather than a necessity and in countries with robust public transportation systems, voluntarily giving up the right to own a motor vehicle is not only tenable, it may have additional positive impacts on quality of life, such as lowering costs and increasing individuals level of fitness. But then there is the rest of the world's population, many of who live in climates where the temperature exceeds 30 degrees

Celsius for months on end, or in cities where a lack of robust public transportation systems reduces the populations' ability to efficiently travel even small distances. If it is possible to understand the urgent need felt by militant environmentalists and climate protesters one also has to consider the rights of people who want to improve their situation today and don't believe they can afford to worry about a distant future.

Empathy is defined as the ability to understand and share the feelings of another (Merriam-Webster, 2015) and empathy is needed at all sides of the climate debate. It is also a key reason why the term sustainable should be used rather than eco-or eco-friendly. Products labelled 'eco-' may be better for the environment but by preferencing the environment we risk ignoring the reality faced by many of the 7.3 billion people sharing those limited resources on this planet. For design to be truly sustainable we have to be sensitive to the impacts that materials extraction, the manufacturing processes and waste disposal have on the environment. We also need to take into account the people who produce and who use a product or service. Finally, the products we develop need to be economically viable. Without this trifecta of achievements a product cannot be truly sustainable though it may still make important progress towards better environmental performance. The next section of the chapter will focus on specific areas where designers can develop successful interventions. Strategy, pricing, certifications, transparency and behavioural motivators will be discussed.

Design strategy

Design strategy refers to a plan of action based on vision, a set of defined goals and objectives and specific criteria for measuring success. Whether working on the redesign of a product or a design-led community engagement, all design incorporates some degree of strategy. Sometimes strategy will be developed as part of an articulated process, which begins with research and later moves on to more iterative creative approaches. At other times strategy becomes the primary focus of a design intervention. Strategy is now its own sub-specialization within the field of design. When working with large teams, strategy is often determined only after collaboration with professionals who have expertise in ethnography, business, social science and marketing.

Design is most successful when creative strategies complement an organization's overall vision and mission. How involved a designer is in analytics, planning and project management will depend on their skills and the organizational structure of the company they work for, or with. In some instances design objectives will be focused exclusively on creative outputs but when a designer is involved more broadly in business strategy she will need to be able to tie creative endeavours into existing corporate strategy. When developing objectives it is useful to consider technical parameters, budgetary guidelines and an organization's existing market position. In addition to establishing realistic goals and objectives, a strategist can help identify who should be part of the problem-solving process and define the specifics about each individual's role. Successful strategies are flexible enough to respond to changes in external market forces such as regulatory intervention, fluctuations in the economy, new distribution channels and evolving consumer preferences.

Design thinking

Tim Brown, CEO and president of IDEO popularized an iterative human-centred approach to problem solving in his book, *Change by Design* (Brown, 2009). At IDEO, design thinking,

Table 7.1 Steps for developing a design strategy

Mission:

What we do /the client does

Vision:

Who we (or the client) want to be

Audience and competitive analysis

Unmet needs

Review:

Internal and External factors impacting design

Create:

Goals and objectives

Evaluate:

What is ideal

What is most important

What is realistic in a given timeframe and with available resources

Develop:

An actionable plan for implementation

Synthesize into appropriate output

Design strategy should:

Be aligned with the client's/company's mission and brand values

Position the client/company in a distinct or unique way against competitors

Put the brand/product in a position of trust with the audience/consumers

Create actionable objectives with a clear plan for implementation

Design strategy can be used to:

Plan how design elements can be used to meet existing business goals

Create a plan of action that leads to a design solution

Help to position a client more effectively in their competitive landscape

Transition objectives into a guiding focus for design-related work

Translate brand vision/mission into actionable design-related goals and objectives

Help steer decision-making

Focus a brand or client towards social and environmentally responsible outputs

Align design deliverables with lifestyle and ethical values of the client or consumer

Source: first published in *Sustainable Thinking: Ethical Approaches to Design and Design Management* (Sherin, 2013)

as the process was known, was used to develop customized interventions and solutions regardless of whether the end result produced objects, experiences or new business strategies. Brown's focus on flexible incremental creative processes wasn't new but its applicability to a wide range of economic sectors and non-visual or object orientated outputs was. In the early 2000s IDEO and competitors like frog became known for their ability to use principles of creativity to solve complex problems. Inventing a new form factor for an organ transplant carrying case, developing systems to improve efficiencies at hospitals and helping companies leverage scale and move into new markets are all now acceptable outputs for design. In the years since Tim Brown introduced the principles of design thinking to a general audience they have been enthusiastically embraced for their flexibility and ability to leverage disruptive change.

Both design thinking and sustainability require a mixture of cognitive, creative and practical interventions. By explicitly linking these competences, sustainable thinking combines

strategies borrowed from business with iterative creative processes and the technical skills to develop human-centred and environmentally preferable solutions. In addition to solving predefined problems, sustainable thinking (like design thinking) can be used to identify opportunities for innovation and work in areas where problems are more complex and, as such, less clearly defined.

Best practices

Continual improvements in technology and production processes can make it difficult to keep up with the pace of progress. The term ‘best practices’ refers to a practical way of describing decisions, which have been made at a specific moment in time while also accepting the reality that external forces may quickly render these same practices obsolete. Rather than adhering to a fixed or absolute set of criteria, designers and the clients they work with would do well to embrace constant improvement and commit to the *best practices* for the moment. In short, the principle allows designers to recognize and plan for change.

The need for *constant improvement* is particularly important as designers react to external changes in consumer preferences and other market forces. Best practices can be included in a broadly defined strategy, which focuses on how to respond to market pressures or changing external contexts. Instead of creating a set of absolute standards or a checklist it is often better to develop short-term objectives which include built-in opportunities for revision and reassessment.

Transparency

Consumers in Europe, North America, Japan and many other industrialized countries are familiar with environmental certifications and labelling. The function of independent third-party and/or government-sponsored certifications is twofold. First, they hold manufacturers to a specific set of standards. These include the need for continued improvements in performance as in the case of the standards used by the International Organization for Standardization (ISO), or they may target materials extraction and production processes such as the ones developed by the Forest Stewardship Council (FSC). Similarly, governmental standards such as the ones established by the European Council of Agricultural Ministers outline production standards in a particular industry (in this case organic farming) within a geographic location. In addition to providing clear guidelines for producers of goods and services, certifications also offer assurance to consumers. This second function can be particularly helpful for people who are confused by non-binding labels such as the recycled mark or the use of terminology like *eco* and *eco-friendly*, all of which are freely used in advertising but are not governed or overseen by any particular body. Certification helps level the playing field and provides a guarantee that the same assessment criteria are being used in multiple situations.

Contradictions in labelling

Whether it makes sense to use certifications or particular labelling will depend on the type of product being developed and the specifics of the market. Even when no appropriate labelling system exists, designers and the companies they work with should try to be as transparent as possible. This means providing information about the entire supply chain of the product from sourcing of materials through to consumer use and eventual disposal.

Using best practices principles can be helpful when determining how to convey applicable information in sectors where certifications are lacking or inappropriate. For transparency to be robust and meaningful it has to be current. Regularly updating information about new aspects of materials sourcing and/or production techniques is often necessary. Independent third-party certifications and transparent messaging do require extra time, energy and in the case of certifications can come with additional costs. Despite the extra work involved they often remain one of the only ways to combat the unfortunate practice of *greenwashing* and misrepresentations made by unscrupulous companies.

The decision of whether or not to overtly label a product as environmentally preferable or ethically produced is more complicated than it may seem. Sometimes environmental labelling (including certifications) won't appeal to a particular audience. In other cases labelling isn't aligned with a brand's image or core strengths. True success will be achieved when the entire category of values-based products is eliminated and all products become sustainable but we are nowhere near achieving that reality. In the meantime, designers, marketing professionals and strategists will have to carefully navigate the world of labelling and messaging. Contradictions are an unfortunate consequence of life. We can agree on the importance of clear messaging and labelling but doing so is only useful if it is relevant in the market where the product is going to be sold.

Fair pricing

Products produced by companies interested in highlighting their environmental and social attributes often command higher prices. In some cases paying a living wage to workers or using specific production practices or preferable materials actually does mean products have to cost more. But this isn't always the case (S. Aplin, interview with author, 9 September 2010). If customers are willing to pay more for products made by companies who share their values there is a temptation to charge more for these products even if there are no increased costs associated with manufacturing and distribution. Since products with environmental benefits so often cost more, consumers may ultimately think all values-driven purchases will be more expensive. This perception inhibits full market penetration and keeps cost-conscious consumers from purchasing sustainable products even though it does allow some companies to profit in the short-term. Regardless of whether or not products are labelled according to their environmental attributes it's important to avoid profiteering by taking advantage of consumers who have committed to making values-based purchases. To do so only increases distrust and scepticism and undermines the work done by individuals and companies who are committed to fairly reflecting the manufacturing costs at the point of purchase.

Behaviour motivators

Whether employed as government officials, CEOs of a company or workers paid by the hour, people have different values and are often motivated by different triggers. Diversity is considered an attribute when it gives rise to unique cultural practices, cuisines and handicrafts but it rarely helps when people try to agree on larger issues. Differences in regional values and cultural norms often exacerbate environmental problems and create barriers to the adoption of comprehensive standards on workers' rights and the environment. People from countries with strong central governments might say it is the government's responsibility to provide clear directives for businesses and citizens alike. Conversely, in a country committed

to free market economics, the focus might be on innovation with preference for solutions originating in the private sector. Just as different triggers drive governments, people and the companies they work for adopt socially and environmentally conscious practices for different reasons. The barriers to ethically driven decision-making are diverse. To stimulate change one has to understand and acknowledge which values are most important to an individual and/or an organization.

Jamie Cloud, founder of the Cloud Institute for Sustainability Education, developed a list of sustainable motivators in the early 2000s. They have been used to help business leaders, schools and governmental organizations understand the differences in individual's interests and to explore the varied and complex reasons why particular companies or individuals may choose to align themselves with social and environmental values. Cloud's organizational motivators include managing brand reputation and value, protecting the right to operate, developing ongoing relationships with customers, pioneering new markets, and finally the ability to attract employees (J. Cloud, interview with author, 15 November 2007, cited in Sherin, 2008, p26). Further examination of each of these areas is useful as it further illuminates the different reasons why designers and their clients may make specific choices.

Managing brand value is key to an organizations success. Consumers are more loyal to companies where there is perceived shared value. If consumers believe a company is dishonest and treats its workers unfairly they are less likely to continue to purchase the company's products. Protecting the right to operate can be seen as an extension of managing brand value. By getting out in front of regulation, by self-regulating or by obtaining third-party certifications a company will be less likely to have to pay regulatory fines and/or defend themselves against lawsuits which are costly to the brand's reputation and to the bottom line. Organizations are also more likely to look for vendors, employees and partners who share values and it may be easier to develop ongoing relationships in networks of similarly positioned industries (J. Cloud, interview with author, 15 November 2007).

There's nothing wrong with an organization whose primary motivation for adopting more sustainable practices is because it pays. Recycling, reducing materials usage and creating modular systems can save money and can be powerful incentives for change. Being a pioneer and innovating also offers opportunities to tap into the growing market for sustainable goods and services. Finally, healthy, productive organizations need talented, committed and flexible employees. Millennials show a greater interest in working with companies that share their vision than previous generations (Rayapura, 2014) but regardless of their age most people would prefer to work for an organization with values and a mission they believe in.

The behavioural triggers described here are not exhaustive but they highlight how varied motivation can be for individuals and companies alike. For designers looking to develop robust and realistic strategies, evaluating the mission and vision of the organization and assessing the behavioural motivators described above provides greater insight into the decisions made by company employees, upper management and even the consumers who will buy a product or use a service. When MIT's Slone Management Review asked 4,000 managers from 113 countries which internal and external drivers had led to changing business practices in favour of sustainability their answers mirrored many of the same triggers described by Cloud (MIT Sloan Management Review, 2011). The strongest motivator was consumer preference but legislative pressure, resource scarcity and owner demands also played a role in evolving business practices. Regardless of whether a company

is motivated primarily by internal or external factors, examining how specific behaviour motivators align with a client's mission and vision makes having conversations about sustainability easier, is almost always better than confronting an organization with their shortcomings head on.

Designers are taught to work within constraints, and this characteristic is one of our greatest attributes. Combined with the use of strategy and iteratively creative processes designers have the ability to produce objects and experiences, which improve people's everyday lives. Reframing constraints can also provide new opportunities for innovation. The real power of design only comes when the designer is understood to be a useful collaborator to businesses, governments and non-profit organizations.

Conclusions

Today the role of the design is complex. It is multifaceted and frankly it lacks a clear playbook but it also offers a greater range of opportunities for success and designers have the chance to be involved in more areas of people's lives than ever before. The following touch points for sustainable design have been adapted from the text *Sustainable Thinking: Ethical Approaches to Design and Design Management* (Sherin, 2013). While they may not be applicable to every project, they are useful markers because they provide an overview of target areas which need to be considered when one is trying to produce a sustainable product or experience.

- **Consumption:** May refer to products or services that reduce the number of objects a person must own overall or can refer to the development of longer lasting products. Some designers suggest we need fewer but better designed objects in our lives and are creating products to fill that niche.
- **Innovation:** Describes the introduction of a new idea, service or product. Innovation may require the development of processes or even in the machinery that is used to make objects and create more sustainable deliverables. In some cases a completely new output or service may be the product of design innovation.
- **Technology:** This may include improvements to systems, manufacturing and production equipment and may require the adoption of new systems or processes and an initial capital investment.
- **Materials:** The sources of raw materials, their method of extraction from the natural environment and their transportation to manufacturing facilities can all be substantial improvements. Additionally, designers should try to use less raw materials and specify those that eliminate or reduce toxicity in a product's lifecycle. Concern for materials should also include the health of people living near extraction or recovery sites.
- **Production:** How an object is manufactured and the various inputs and outputs of production is a key area of focus when improving the environmental performance of a product. This area may require the designer to switch vendors and/or alter their designs so that preferable processes can be used in production. It is important to consider the physical health associated with working in a manufacturing facility.
- **Problem solving:** Often linked to innovation, problem solving examines the ways a designer may approach a problem by redefining what the solution should be or even rethinking the brief. In this area a designer may come up with a completely new product or service or redefine how an existing product is used or manufactured.

- **Reuse/recycling:** One of the biggest problems we face is an overabundance of waste. A key area of focus is the use, reuse and recycling of materials that would otherwise be discarded. Ideally, we should design within a closed loop system thereby transforming waste into useable materials. This target may include making items that are designed to be disassembled, reused, recycled or composted or designing products that are made from recycled or reused material.
- **Efficiency:** One of the most powerful and easy to apply targets of sustainability, efficiency, is often overlooked. It is something that every organization should strive for and an area where at least one improvement is almost always possible. Reducing the amount of energy used in production and/or specifying processes or vendors that use renewable energy is one of the most common ways to achieve greater efficiency.
- **New markets:** Identifying or creating new markets allows designers to create positive links between production and consumption. Identifying new markets is particularly powerful when working in the developing world and trying to find outputs or solutions that can benefit local communities.
- **Storytelling:** Storytelling connects an audience with information. At its core, storytelling provides context and relevance about a product, service or company. It is an undervalued but important touch point for sustainable designers.
- **Fair trade and wages:** Fair trade is a market-based approach that seeks to help producers and workers attain fair wages and equitable working conditions. Fair trade organizations can connect socially conscious designers with producers. Creating opportunities for workers who have previously been exploited to earn fair wages provides benefits for both workers and consumers.
- **Strategy:** Design strategy focuses on successful problem definition and planning rather than traditional visual and object-orientated outputs. Strategists may be part of a larger design team or they may be brought in as consultants to help steer larger projects and help define successful outcomes.
- **Collaboration:** Bringing professionals together from a wide range of disciplines can increase the likelihood that a team will fully understand the problem and will have the expertise to create meaningful and long-lasting solutions. Collaboration also provides opportunities to work on a more diverse set of projects and in different geographic locations serving a broad range of clients and stakeholders.
- **Entrepreneurship:** In addition to working for clients or as part of a larger team, many designers with expertise in sustainability are creating their own companies with the goal of delivering exemplary products and services. Entrepreneurs may start a new business or work to bring a product or service to market using existing distribution channels that haven't been utilized before.

References

- Brown, T. (2009). *Change by design*, Harper Business, New York
- Casey, V. (2008). The designers accord. Unpublished manuscript
- Casey, V. (2016). *In review: 2007–2012*. Retrieved January 13, 2016, from www.designersaccord.org
- International Council of Design (2014) First things first manifesto celebrates 50 years, retrieved 12 October 2015 from www.ico-d.org/connect/index/post/1933.php
- Merriam-Webster (2015) Empathy, retrieved 12 October 2015 from www.merriam-webster.com/dictionary/empathy
- MIT Sloan Management Review (ed.). (2011). *Sustainability: The embracers seize the advantage*, Massachusetts Institute of Technology, Cambridge, MA

- Papanek, V. (1985). *Design for the real world: Human ecology and social change*, Academy Chicago Publishers, Chicago, IL
- Rayapura, A. (2014). Millennials most sustainability-conscious generation yet, but don't call them 'environmentalists', retrieved 10 December 2015 from www.sustainablebrands.com/news_and_views/stakeholder_trends_insights/aarathi_rayapura/millennials_most_sustainability_conscious
- Sherin, A. (2008). *Sustainable: A handbook of materials and applications for graphic designers and their clients*, Rockport Publishers, Gloucester, MA
- Sherin, A. (2013). *Sustainable thinking: Ethical approaches to design and design management*, Bloomsbury, London