



The Challenges Affecting the Widespread Uptake of Responsible Design by Commercial Design Consultancies in UK and Ireland

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This paper recognizes and responds to a prior lack of understanding regarding the factors that shape designer's opportunities to engage in more responsible design and identifies a myriad of complex elements at play. Through in-depth qualitative research with 27 design consultants and 4 leading academics in the UK and Ireland, insights into industrial design practice which bridge this knowledge gap and provide a valuable foundation upon which future work to engage design in responsible design practices, have been generated. Multiple priorities; acting predominately in response to the requirements of their clients; and the fact that consultants are not the final decision makers, all limit the opportunity for designers to engage in responsible design. However there is also a clear value-action gap that appears to be driven by widespread lack of understanding as to how to undertake responsible design; a lack of recognition of the commercial benefits it can bring; and a general lack of confidence in engaging with these topics. If commercial community of United Kingdom is to capitalise on the enormous potential that design has to enact responsible design, more sophisticated understanding and examples which relate to business objectives and metrics are required.

Keywords – Design Consultancies, Design Practice, Sustainable Design.

Relevance to Design Practice – This research addresses shortfalls in understanding regarding the full realities of design's commercial context and its impact on designers' shortfalls in delivering responsible design solutions.

Citation: Lofthouse, V., & Stevenson, N. (2021). The challenges affecting the widespread uptake of responsible design by commercial design consultancies in UK and Ireland. *International Journal of Design*, 15(2), 37-54.

Introduction

Historically the role of Industrial Designers has been to assist in growing profits for companies by designing distinct products which are appealing and desirable to consumers, and which entice purchase (Cooper & Press, 1995; Meikle, 2001). However, a growing recognition of profound issues affecting modern society; ageing and expanding populations, environmental crisis, social inequalities, and diminishing quality of life, calls for designers to address additional goals beyond those associated with profit-making. In the last 25 years research has established that given the opportunity, industrial designers have great potential to positively influence the environmental and social impact of the products, services and systems they design (Bhamra & Lofthouse, 2007; Cooper, 2005; Sherwin & Bhamra, 2000; Whiteley, 1994). This opportunity reflects in part the fact that much of their influence is at the early stages of the product development process, where the design brief is more flexible and the most critical decisions with respect to cost, appearance, materials selection, innovation, performance, and perceptions of quality are made (Bakker, 1995; Bhamra et al., 1999). Designers are attributed with having great influence over values, attitudes, and perceived consumer needs which means they are well positioned to help change culturally dominant value systems (Wahl & Baxter, 2008). It is also widely recognized in the literature from as far back as Dreyfuss (1955) and Papanek (1971) that designers have a responsibility to engage in responsible design practice. However, despite this, it

is also widely documented that there is little widespread uptake of responsible design practice in the UK (McCormack, 2006; Nussbaum, 2007; Thackara, 2007), there is little, if any, formal guidance on what engagement in responsible design means, and no immediate repercussions, if they don't engage. Instead, the perception all too often held by business, is that the role of designers is to *translate and communicate the value of a business idea to consumers* (Sawhney, 2010). Research has shown that for the most part larger societal issues are still extraneous to the daily activities of most industrial designers (Andrews & Robbins, 2010; Dong & Clarkson, 2007; Stevenson, 2013). If industrial design is to extend its reach to incorporate society's greater needs, a deeper understanding of what is currently preventing it, is required. The designer's circumstances and the realities of their commercial context are seldom regarded or accurately accounted for in the discussions surrounding the topics. Having a greater appreciation of the factors shaping their opportunities and behaviour would provide a valuable foundation upon which future work to engage

Received July 15, 2019; Accepted March 20, 2021; Published August 31, 2021.

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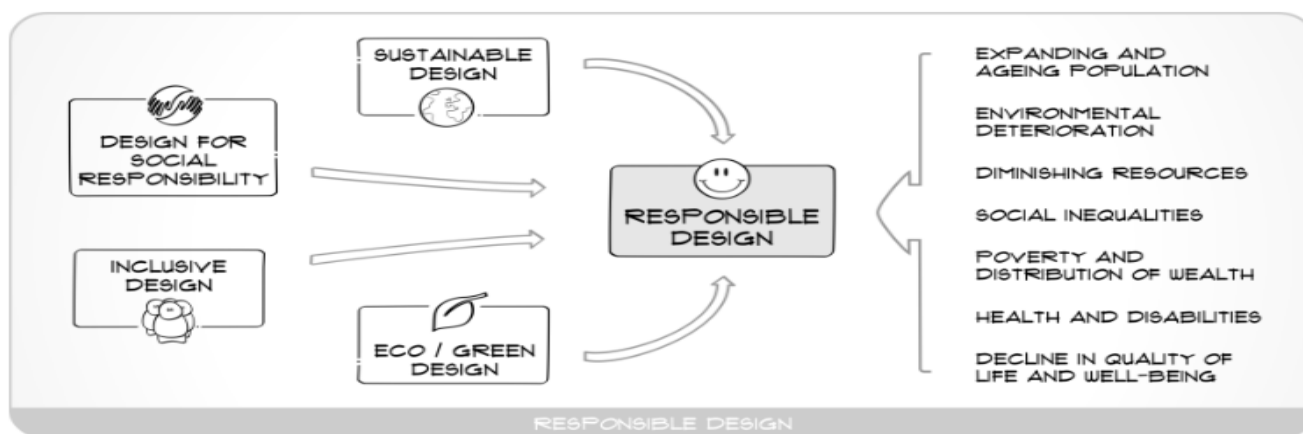


Figure 1. Explanation of responsible design (Stevenson et al., 2014).

design in responsible design practices, can be built. Addressing that gap in knowledge is the focus of this research provoking the key research question upon which this paper focuses; *What factors determine the possibility for industrial design consultants to achieve responsible design within their commercial remit?*

This paper draws on the findings of a 3-year Engineering and Physical Sciences Research Council (EPSRC) funded doctoral study (2013-2016) which set out to better understand the challenges faced by industrial design consultants regarding the implementation of responsible design in the UK and Ireland. Within this paper Responsible design is defined as design that aims to incorporate broader societal issues; such as our ageing population, environmental crisis, diminishing quality of life and social inequalities. The term encompasses the key design movements directed towards those topics; including sustainable design, inclusive design and design for social responsibility, and is intended as an umbrella term for succinctness. Responsible design is used as a single descriptor to represent design which effects a positive change on the greater needs of society (see Figure 1).

This paper addresses 3 research objectives:

1. To critically review existing knowledge relating to: the nature and role of commercial industrial design consultants; the requirement for design to address larger societal needs; and the relationship of the industrial design field to those needs.

2. To identify what determines the possibility for the industrial design consultant to undertake responsible design.
3. To provide a representative portrayal of the industrial design consultant’s circumstances and what potentially affects them enacting responsible design within their commercial role.

The next section will provide an overview of the methodological framework for the project before a synthesis of the key findings from the literature are presented. Key findings from the study will then be presented and pertinent issues arising from these findings will be discussed and reflected upon.

Methodology

The research presented in this paper takes a qualitative exploratory approach, which borrows from grounded theory. Grounded theory seeks to generate a general explanation of a process, action, or interaction, which is inductively derived, and therefore grounded in the data obtained from the study (Strauss & Corbin, 1998; Robson, 2000). Ground theory is particularly relevant as it advocates that resultant theories should be inductively derived from the data; and although this study does not strictly adhere to other requirements of grounded theory (e.g., strict systematic procedures), this notion was adopted in the research process to guide the data collection, analysis, and formation of theory.

The study consisted of iterative four phases which aimed to address the main research question. The first stage involved a comprehensive investigation of the literature and existing knowledge. This was followed by two stages of primary data collection: an explorative multidisciplinary workshop, and a series of semi-structured in-depth interviews. Succeeding from this, the fourth stage involved the analysis of the data and a period of review, reflection and abductive reasoning to complete the generation of theory (see Figure 2). This will be described in detail below.

Stage 1 of the study comprised a literature review, which served three purposes: to locate the research within the field; to identify a gap in current knowledge; and as a form of data collection to identify aspects that influence or affect designers addressing responsible design goals (Flick, 2009). Through a systematic review of the literature, coupled with thematic organisation of the findings, an initial set of factors influencing the consultant were identified,

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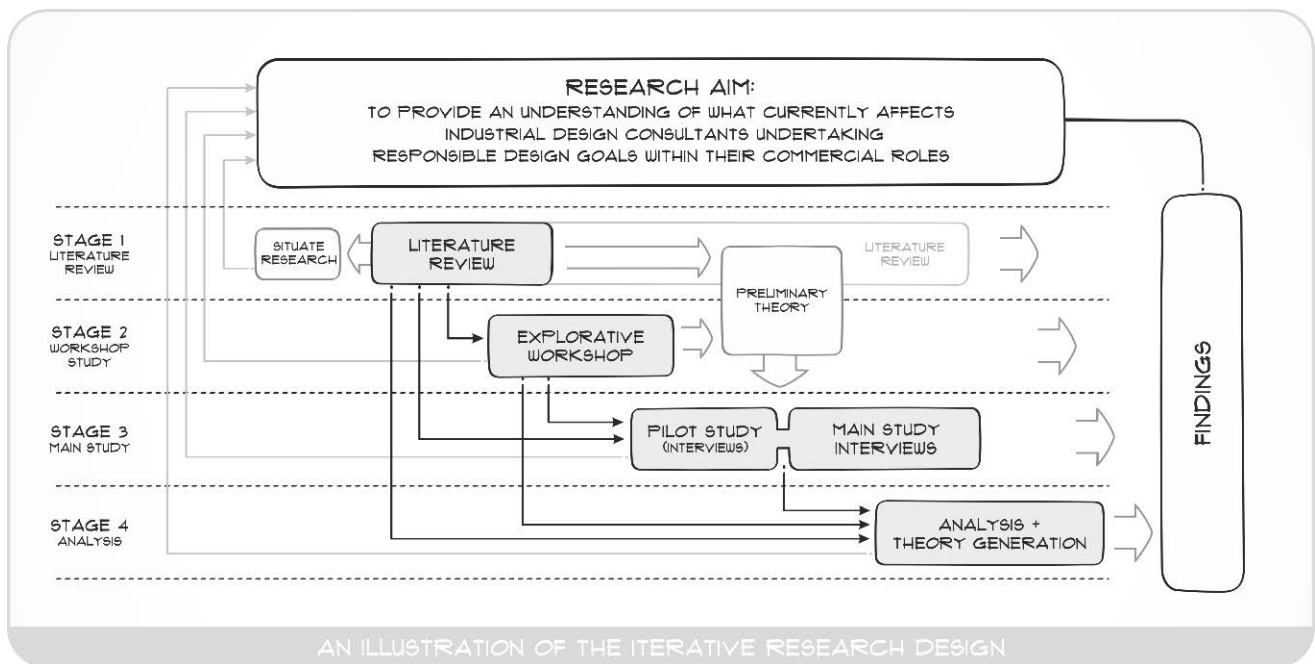


Figure 2. The research design indicating the stages of the project and the research studies involved.

and a preliminary description of the design consultant's context was created. The set of observations identified (and presented in the following section) contributed to the primary data set and provided a tentative understanding to inform the subsequent studies. For more information, see Stevenson (2013).

Stage 2 sought to expand and verify the data obtained from the literature review (see Stevenson, 2013), through an Explorative workshop. The workshop was run as part of a seminar organized by the Sustainable Design Network in the UK as part of an event themed around Social Sustainability. It attracted nineteen participants from academia and design practice, working in inclusive design, sustainable design, social sustainability and ecodesign (see Appendix 1). The attendees were arranged into three pre-determined groups to avoid domination more authoritative participants (Flick, 2009). This resulted in one group of *experts*, one of *designers* and a third *wild card* group. Participants completed a set of individual and group tasks designed to address different elements of the research enquiry as summarized in Table 1. Transcribed audio recordings from the activities supplemented the deliverables from the tasks. Following thematic analysis of the data (Boyatzis, 1998) the findings were combined with those from the literature review to form a preliminary construct of the emergent themes, that directed the format and line of enquiry for Stage 3.

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Stage 3 involved a series of hour long semi-structured in-depth interviews with 31 participants in the UK and Ireland (see Appendix 2). A purposive sampling strategy (Robson, 2002) was used. Firms were sourced from personal contacts, referrals and the British Design Institute database. The initial list of possible candidates was reduced through an evaluation of websites and online portfolios which aimed to sift out less established firms or those whose work was less typical of industrial designers (e.g., graphic design, product manufacturing). Potential participants also needed to show examples of work with recognisable brands to indicate a reasonable calibre of work undertaken. Topics and questions which built on the findings from the literature review and the outcomes of the workshops were incorporated into interview sheets to guide each set of semi structured interviews (see Figures 3-5).

Table 1. Overview of the activities involved in the Explorative workshop.

Activity	
Introductory presentation	All
Task 1: What factors have an effect on industrial designers achieving more responsible design?	Individual
Task 2: Create a diagram or description of an industrial designer's role.	Group
Task 3: Focuses around a representative image of a designer groups considered—What factors have an effect on [their designer] achieving more responsible designs?	Group

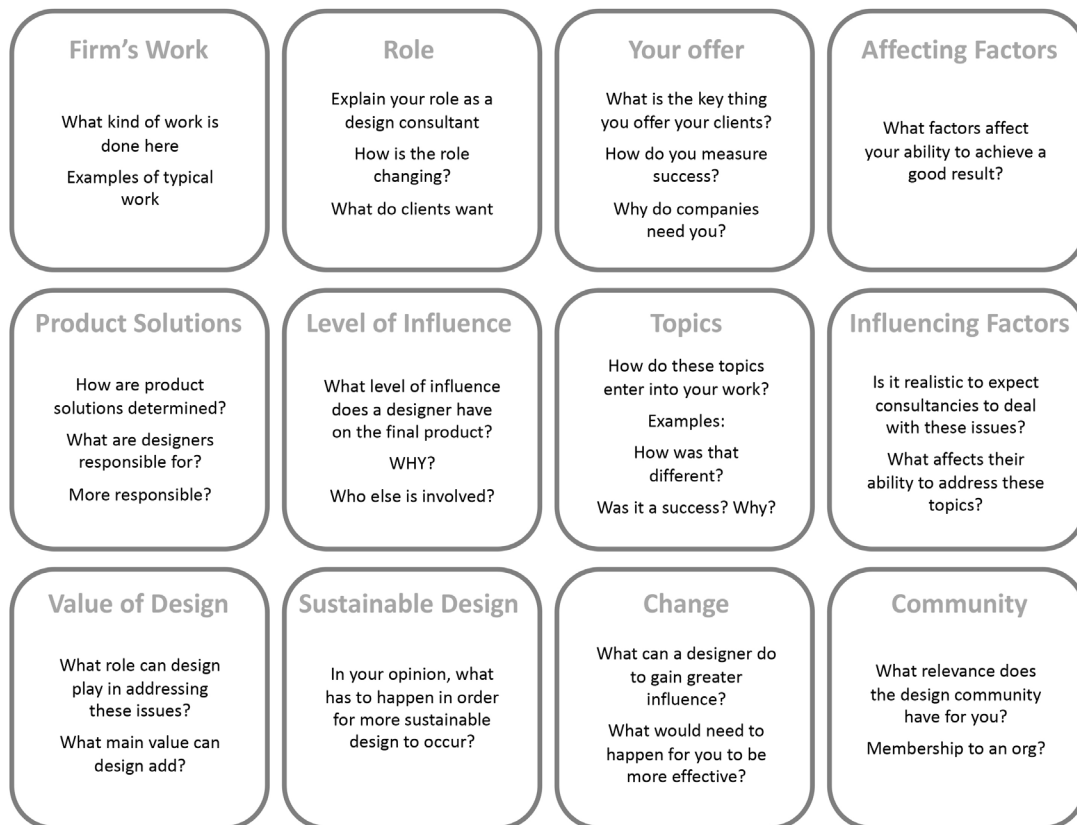


Figure 3. Key questions forming the basis of the semi structured interviews with the design consultants.

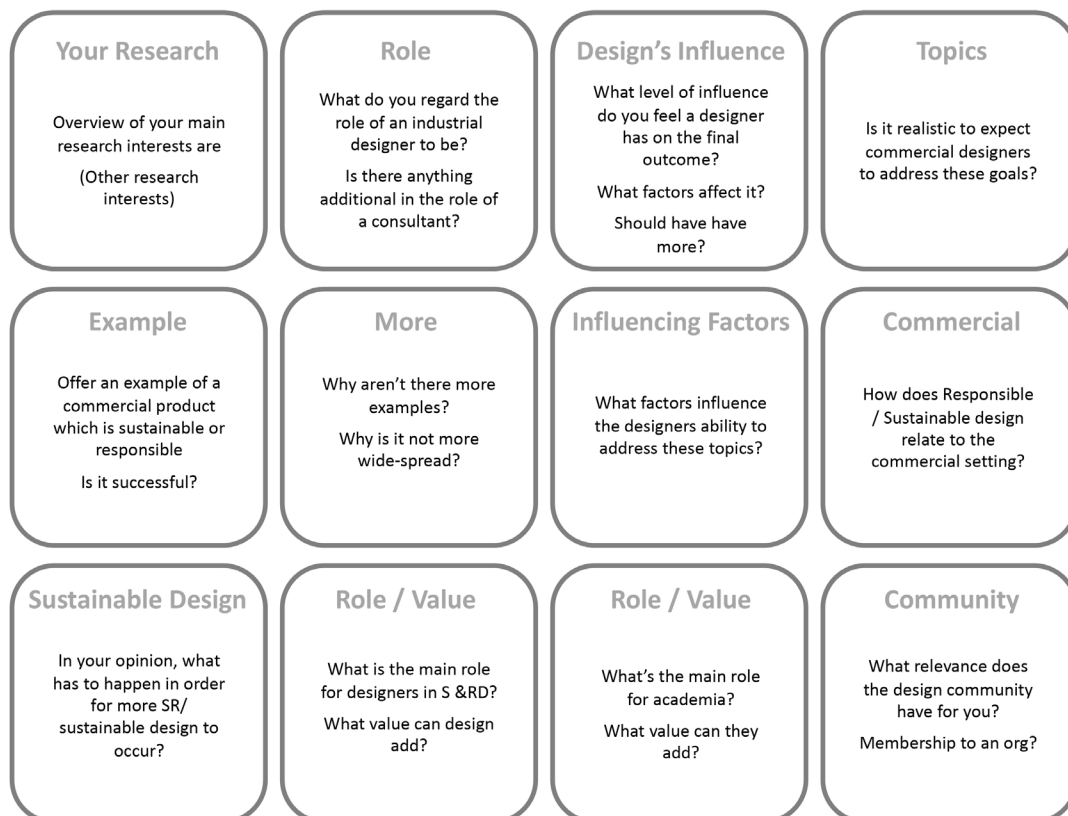


Figure 4. Key questions forming the basis of the semi structured interviews with the academics.

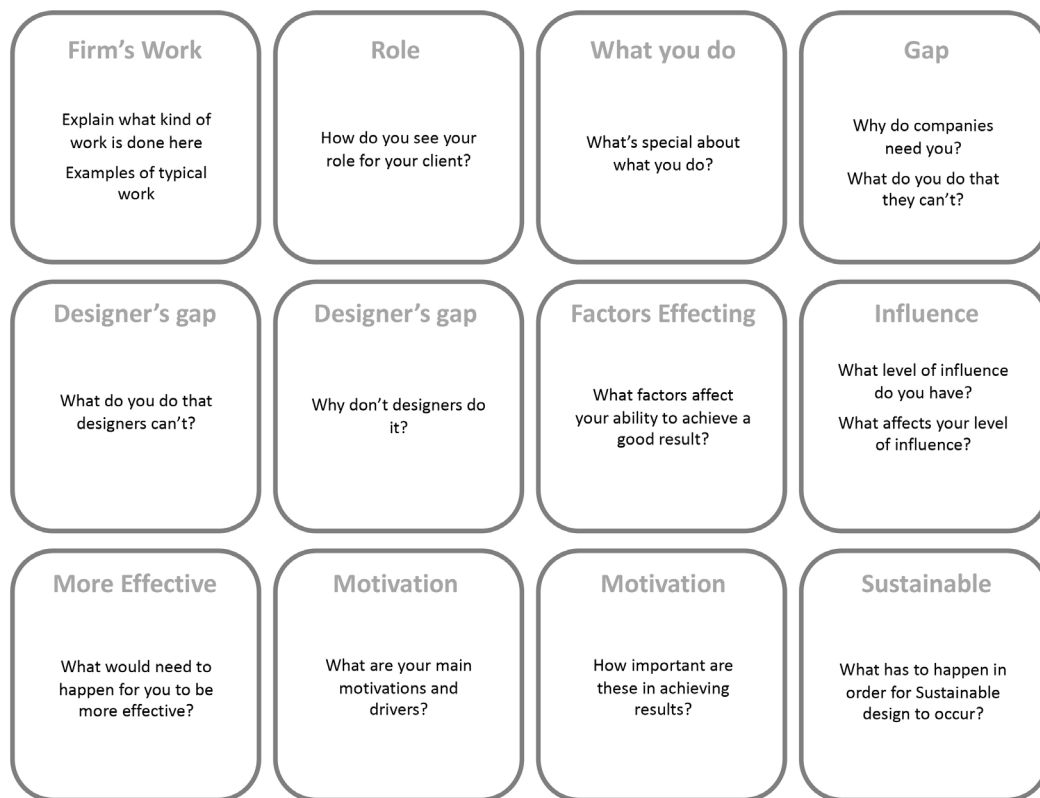


Figure 5. Key questions forming the basis of the semi structured interviews with the design related strategic consultants.

All interviews were recorded and transcribed in NVivo software. The thematic data analysis process involved four stages: a line by line initial coding of the data in place; *course coding* into provisional groupings; *fine coding* using descriptive and thematic coding; and clustering to form constructs and themes (Boyatzis, 1998; Ezzy, 2002). As content analysis was not an objective of the data analysis, a topic raised by a single participant was given the same consideration as those repeated by a number of respondents. Using the framework derived from the analysis, and drawing on interview data for empirical backing, six key determining factors which influence the consultant designer's potential to engage in responsible design were identified. These are presented in the Findings section of this paper. To ensure validity, multiple methods and different sources were used to triangulate the findings and enhance the rigour of the research (Robson, 2002). The work was carried out in accordance with the University's Ethical Guidance.

Observations from the Literature

From the Literature review carried out in Stage 1 of the project a key research question emerged—*What factors determine the possibility for industrial design consultants to achieve responsible design within their commercial remit?* The following section is not intended to be a holistic literature review but a summary of the synthesized findings which were most pertinent to addressing the research question above. It presents the key observations from the literature which underpinned and informed the subsequent stages of the study (as described in the methodology).

Industrial Design Consultancies

Industrial designers offer a broad set of functions and typically have to resolve multiple aspects of the product which frequently clash or compete (Austin et al., 2007; Kotler & Rath, 1984). Their core activities are regarded as resolving both the requirements of the user, and those of the client company (IDSA, 2010; Kotler & Rath, 1984); however, these requirements are typically dominated by secondary needs such as aesthetic appeal, representing lifestyle values, meeting cultural and emotional expectations and enhancing experiences (Shove et al., 2005; Whiteley, 1994; Zaccai, 1990). In recent years, the services provided by consultancies have evolved to focus on innovation (Feldman & Boulton, 2005) and they are gaining greater strategic involvement with their clients (Cooper & Press, 1995; Lorenz, 1994; Olsson & Holm, 2009).

Consultancies and the Client

In the last couple of decades there has been increasing recognition of design's value for business (Cox & Dayan, 2005; Design Council, 2008). Commercial industry typically sees design's role as communicating the value of a business proposition to the consumer (Sawhney, 2010); and its main perceived value is in creating meaningful distinction (Mattus, 2008; Pine & Gilmore, 1999).

Consultancies offer the advantages of broad knowledge and skill sets, as well as insights from exposure to different product sectors, and they are typically acquired due to a lack of internal resources, or as a matter of company strategy (Hargadon & Sutton, 2000; Stevens et al., 2008).

The consultant's relationship with its clients is often cited as the most important aspect of running a design consultancy, and constitutes a central factor in what they can achieve (Design Council, 2009; Lawson, 2005). In general, long term relationships with clients are desirable for consultancies, as they provide more security, opportunities for better insights, as well as the possibility of earlier involvement; and accordingly, the opportunity for better quality design work (Bruce & Docherty, 1993; DeCesare, 2003; Feldman & Boulton, 2005; Tennity, 2003). A main factor contributing to building a reputable consultancy is a client-oriented rather than product-oriented approach which reinforces the dominance of the client in determining consultants' actions (Foote, 2003; Friis, 2004).

Characteristics of Design Consultants

Creativity dominates as the designer's main quality (Durling, 2003; Marina & Cooper, 2003; Mattus, 2008; McCormack, 2006). They are problem solvers (Foote, 2003) who crave new experiences and sensations; have a heavy reliance on intuition and abductive thought; tending to be less accepting of norms and convention; they are driven and impulsive (Davies & Talbot, 1987; Durling, 2003; Feist, 1999). Durling et al. (1996) reflect that this may explain why rigid methodologies are a poor fit.

Design and Broader User Groups

Designers serve as the main representative of the user in the product creation process; however, extending the profile of that user beyond the client's targeted consumer has proven a difficult challenge (Dong et al., 2004) as most target their primary products towards the middle of the market (Vanderheiden & Tobias, 2000). Formosa and McDonagh (2005) reflect that the vast majority of designers are not representative of the sectors of society which need design's consideration, and so may struggle to relate to some responsible design topics. For example, despite the size and consuming power of the older population, their real requirements are not yet adequately met (Coleman, 1994; Thackara, 2005). From the literature the main barriers to inclusive design are: a lack of business case; a clash with marketing strategies; and client perception that it will slow time to market, increase costs, and impact aesthetics, whereas potential drivers are market opportunities, customer satisfaction, and possibly legislation (Dong & Clarkson, 2007; Dong et al., 2004; Keates et al., 2000).

Design and Sustainability

As outlined in the Introduction, despite apparent advantages for business, sustainable design practice has not yet been widely adopted. A lack of knowledge and skills; time and costs; market pressures; company ethos; government policy; and designers not feeling it is valued by clients; have been identified as significant factors affecting the enactment of ecodesign and sustainable design (Flood et al., 2010; Mawle et al., 2010). Sustainable design requires radical action; however, few companies grasp the social and ethical aspects (Tischner & Charter, 2001) and there has been little evidence of opportunities for holistic sustainable

thinking in the commercial design industry (Andrews & Robbins, 2010; Bhamra & Lofthouse, 2007). The consultant's ability to attain autonomy and use it has been highlighted as an important enabler for sustainability (Margolin, 2007); however, the scope of knowledge required due to the range of projects they are involved in is considered a likely barrier (Andrews & Robbins, 2010).

Design and Social Responsibility

Growth in the relevance of CSR (Blincoe, 2004; Porter & Kramer, 2006) suggests business may be more responsive to incorporating responsible design goals; however, further understanding of where design can make an overall contribution is required (Cooper, 2005). Much of design's past involvement with social development had been set aside from the commercial world (Davey et al., 2005). In recent years a number of commercial design firms have been involved in social impact (Burns et al., 2006; IDEO & Bill and Melinda Gates Foundation, 2011), however, this has been reliant on NGOs or the public sector involvement. Some of the relevant factors influencing a design firm's effective involvement with social change are: the need for special expertise; the importance of credibility; effectiveness of collaborations; along with motivation and commitment (Stevenson, 2013).

In theory, the market model and the social model are not opposed, but form two poles of a continuum (Margolin & Margolin, 2002); however, it is not clear where commercial design can position itself (Morelli, 2007). It is suggested that the majority of designers see their social role as complementary to business strategy, and that this *economic rationalism* contributes to the separation of market-based design and socially (Morelli, 2007).

Findings

Following the transition through stages 1-4 of the research methodology, six key determining factors which influence the consultant designer's potential to engage in responsible design were identified and pictorially represented (see Figure 6), these will be reported on in turn:

1. Understanding of how to address responsible design goals
2. The consultant's motivations
3. The consultant's capabilities
4. The opportunity available
5. The level of influence the consultant has
6. What is implemented

Understanding of How to Address Responsible Design Goals

If design consultants are to be able to address the needs of society, it is critical they have knowledge and understanding of what is required to make a positive and realizable impact. However, interviewees indicated that this is something which is not yet established, and portrayed uncertainty and frustrations as to how to direct their efforts. Even designers demonstrating a keen interest in addressing responsible design goals were unsure as to where best to start, and how to be most effective.

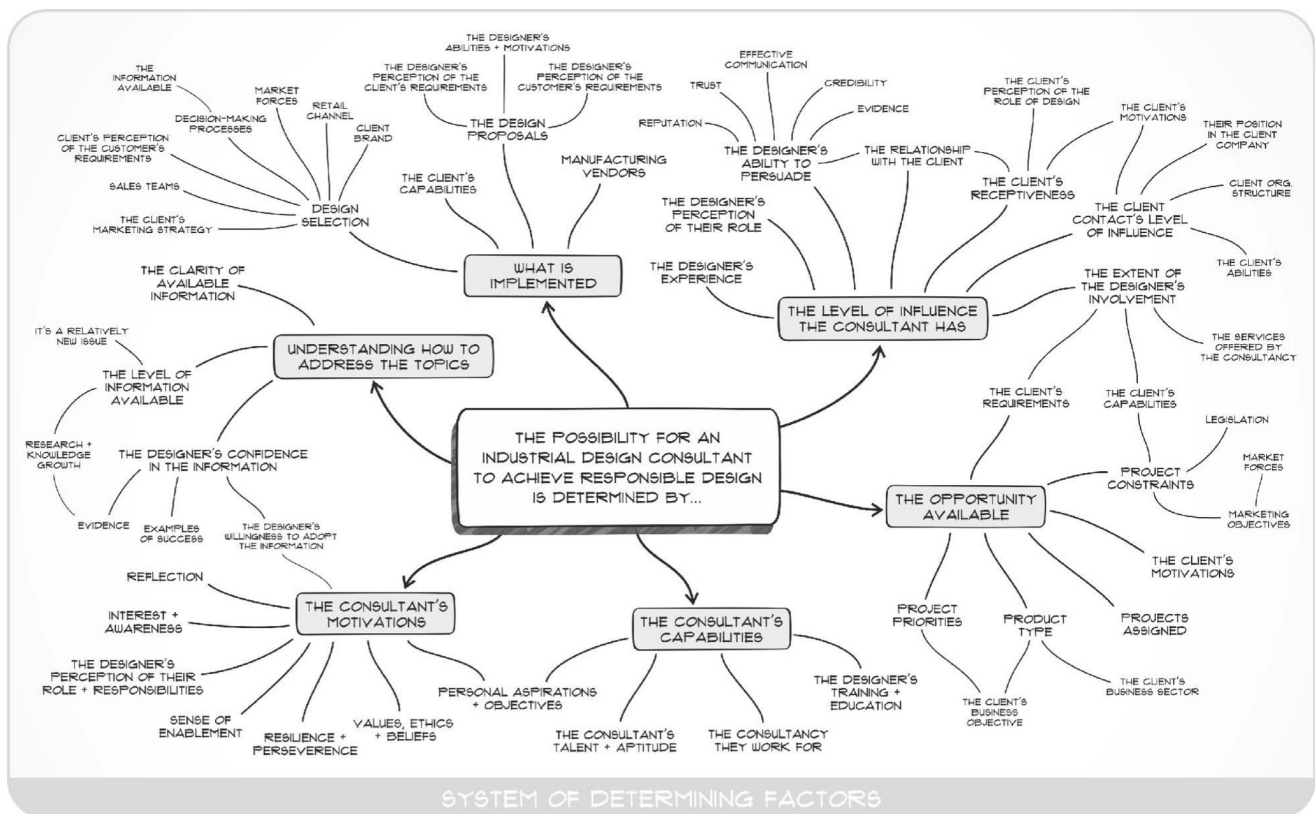


Figure 6. The system of determining factors.

The Need for Clear and Appropriate Information

Echoing findings from an earlier study (Lofthouse, 2004) a central aspect identified in the research was the need for guidance and information which is clear, consistent, and useful. While respondents were confident that they had the design abilities to deal with the issues, they frequently commented that there is a lack of appropriate and robust knowledge to assist them. Several respondents explained that suitable information is not readily available, and that looking into the topics can be like entering a minefield. The diversity of consultancy work, combined with the complexity of the topics to be considered, were seen to add to these difficulties. Designers widely remarked that when information does exist, for example around material choices, it can often be unclear, contradictory, or insufficient for their needs.

Despite existing efforts towards providing aids for designers, consultants were still repeatedly requesting tools which are efficient, less complex or overbearing to use, and which are appropriate to the way they work. They were looking for quick ways to generate effective and viable proposals. One consultant explained how he would rather have a *ready reckoner* over a tool that can provide more accuracy, but with greater effort. Another spoke about wanting objective measures which reliably aid decision making, commenting guidance should be based on the “greatest upside for the smallest downside.” In addition, suitable ways to assist framing proposals, and defending them to clients, were also sought.

At the core of the consultant’s requirements was the need for credible, robust and dependable information which they can have confidence in (see also Lofthouse, 2004). Respondents expressed doubt regarding the reliability of available information, and many of their intentions seemed undermined by these rocky foundations.

Knowledge is still Evolving

A key aspect expressed in the interviews was the feeling that knowledge is still evolving, leading to the feeling that contradictory advice is being provided. Respondents reflected that many of the topics within responsible design do not have a consistent shared understanding or definition, and are *open to interpretation*. In addition to the obvious confusion and misinterpretation which can result, participants explained that this facilitates disparate and varied approaches as well as the possibility of spurious claims. For example, it was felt that declarations of sustainability rely as much on the definition and interpretation of the term as they do on the details of the solution. Furthermore, it was highlighted that there is a lack of alignment on what constitutes an actual improvement.

Unattainable Goals

The existence of different measurements towards environmental impact, was frequently referenced with frustration. There was a feeling that as 100% *sustainability* is not a real concept, nor is *sustainability*, an attainable goal (see also Chapman & Gant, 2007),

this makes it a difficult concept to quantify. Several respondents expressed that there needs to be a single, consistent and common means of assessment, to enable much clearer communication with clients. Further to this, it was felt that the various information and tools that are available seldom connect or relate to each other. The notion of making comparison between or across the different aspects of responsible design creates further complexity.

The Consultant's Motivations

Values, aspirations and objectives, along with the sense of responsibility and enablement they feel, filter designer's perceptions; affect their actions; and will determine the extent to which they consider responsible design goals within their work. Three discrete aspects relating to the consultant's motivations were recognized: the designer's personal motivations; their professional obligations, and their attitudes towards responsible design goals.

Personal Motivations

Typically, the driving motivation of those interviewed was to gain fulfilment and pleasure from their work. This varied from the attraction of the variety of work and challenges which consultancy design presents, to the desire to design great products. Great products were typically characterized as designs which are: simplified and free of superfluous details; authentic and meaningful; and which would be valued, have longevity and make life easier for the user. There was a strong suggestion that consultants place their own motivations below those of the consultancy and, more so, those of the client.

Professional Obligations

Consultant's motivations tended to reflect those of the firm that employs them. This is not surprising given an alignment is required both for the designer to fit in well, and for them to perform their job easily. Furthermore, the culture and ethos of a consultancy plays a significant influence in a designer's development, and therefore, their motivations.

Throughout the interviews, consultants asserted a strong wish to meet the requirements and expectations of their clients, and it was evident that this was a principal motivation. Most perceived their role as that of advising, directing, or supporting clients; however, some expressed it as being a *gun for hire*. In general, it was apparent that consultants are willing to tailor their offer to suit the client.

It was also emphasized that *challenging the client* and *pushing boundaries* were vital to their role, and that providing these functions is often why they are commissioned. Importantly, however, there was a caution as to what level of challenge is appropriate. In regards to sustainability issues, for example, one respondent felt that "if you do come in too hard, you... scare clients off..."; while another commented: "You can offer all those things and you can influence that, but how far they're prepared to take it is a tricky one to push". In this respect, the research indicated that consultants will make allowances for what they perceive the client would be willing to consider.

Attitudes towards Responsible Design

Most of the participants acknowledged that it was incumbent on them to address the needs of society; however, sentiment ranged from deep commitment *to do the right thing*, to an attitude of not wanting to make matters worse. One director asserted that there is no real discussion about the topics as there is no demand from clients. These attitudes indicate how consultants have a strong tendency to adopt similar objectives to those of their clients (see also Maciver & O'driscoll, 2010).

For some, societal issues were mainly considered in business terms, for example, as positive differentiators in the marketplace or a means to increase sales. For others, aspects such as inclusive design, were considered integral to how designers should work; although it is evident that even here, perceptions were influenced by a commercial viewpoint.

Participants expressed strong sentiments that they are heavily restricted in what they can achieve and in how they can have effect. Numerous participants remarked that they are not sufficiently empowered to act on these topics, or that most of the issues require top-down influence and depend on factors far outside their role and remit. Such opinions express a separation from the issues and may account in part for why consultants do not typically address them more in their work. In addition, consultants were very conscious of the complexity and scale of the topics, and it was evident, that they struggled with the moral ambiguities and dilemmas of their actions. For example, some of participants recognised that actions do not simply have a positive or negative consequence, but can impart both, and that even positive actions can have negative unintended outcomes.

The Consultant's Capabilities

In order to progress towards the realization of responsible design, designers must be able to generate compelling options and proposals, and this is determined by the skills, abilities and knowledge they possess.

Creativity and Visualisation

At the center of the consultant's capabilities is the high level of creativity which they typically boast. Designers demonstrate a distinct mindset of exploration and idea generation, which includes challenging existing notions and asking *what if* questions. This offers the potential for different thinking and new directions to be introduced into clients' products. The consultant's ability to think holistically and look at the big picture whilst simultaneously paying attention to finer details was also underlined in the interviews; with some participants distinguishing this as a key feature of being a good industrial designer. This suggests that consultants have potential to not only incorporate larger topics into the products they design, but also to widen the perspective of their clients so they may also view their products in a broader, more responsible, context.

Designers are also adept at visualizing and representing ideas and several respondents stressed the importance of this in helping to give form to more responsible alternatives so that people

can contemplate them. In addition, one director commented that designers contribute to trends, and that if they can set a trend of sustainability or inclusivity, for example, it may bring publicity to it and broaden awareness. However, it was acknowledged that these capabilities can equally be applied to making less responsible options appealing.

Resolving Requirements

Designers operate in a space occupied by constraints, variables, and contradictions, and to create proposals, they need to resolve or balance those aspects with the requirements of the project. The crux of being an industrial design consultant, therefore, could be considered in terms of two key aspects: the ability to recognize the elements of a project that are going to have the most influence on the outcome; and being able to combine those elements to produce effective and compelling options, despite the restrictions. Respondents explained that just being able to marry a technically challenging requirement with a consumer insight, for example, is significant, and that these are skills design consultants are very strong at.

It was also felt, however, that this is already very demanding without the inclusion of additional objectives, such as responsible design goals. One director summarized that it will always be about getting the best possible outcome rather than the ideal. Importantly, this highlights that tradeoffs and judgements are an integral part of designing; and that how they are undertaken is a key influence on the outcome, and the level of responsible design incorporated.

Broad Skills and Varied Experience

Industrial design consultants are unusual in the breadth and diversity of their work (e.g., motorcycles to medical devices). Their diverse exposure affords consultant's broad knowledge in different materials and processes for example; along with rich insights into social trends and market behaviour. The consultant's experience with client companies also makes them privy to an understanding of business strategy; and it was evident that numerous firms blur the line between design and business or strategic consulting. This is also beneficial to responsible design as it was acknowledged that consultants will need a commercial outlet if it is to have effect, and this requires an understanding of the commercial context.

Constantly changing circumstances and level of variability of the role mean that a consultant designer's ability to adapt and be flexible is one of their key capabilities. Respondents discussed how they tailor their approaches to suit the requirements of a situation. This adaptive nature coupled with their broad knowledge, and good communication skills, enables consultants to interpret and cross-communicate between the different groups involved in product creation (e.g., marketing, engineering, production). This enables designers to promote their intentions and potentially encourage action such as responsible design, across disciplines. Moreover, as an outside party, they are ideally positioned to challenge and query the requirements and underlying assumptions informing new product solutions, enabling new directions and alternative thinking to be introduced.

Missing Strengths

Several areas which are not typically strong in designers were also recognized in the data. Designers are often poor at literacy or discourse skills, and do not display strong tendencies towards formal reflection or reporting. It was felt that this impacts the development of the industrial design field, and if overcome could benefit knowledge development, and responsible design goals. Similarly, designers do not often manage their design process in any formal manner which can prevent them from achieving a more effective interaction with their clients. Further to this, the method of arriving at solutions is often innate, making it difficult to communicate.

One firm with a strong background designing medical devices was unusual in that they adopted a strong degree of rigor across their approaches. They reported that where this was applied with clients outside the medical industry, it was greatly valued and seen as distinctly different from how conventional firms operate. It was also felt that more explicit explanation of process and backing would aid the dissemination of responsible design by making its benefits more understandable and accessible to clients.

The Opportunity Available

On the whole consultant's opportunity to address responsible design is predominantly determined by the characteristics of the client; the project; the product; and the market; as well as the phases and duration of their involvement.

Characteristics of Clients

Respondents reflected that clients can vary not only in terms of their objectives, interests, and capabilities; but also, in their willingness to adopt new directions or risks, as well as in their attitude to the design consultant's involvement. While some clients offer lots of freedom to explore, others have set agendas and are simply looking for a means to realize them. Similarly, many clients have an aversity to risk which limits the opportunity available, particularly where the introduction of new ideas or directions is involved.

It was clear that the client's focus is typically dominated by commercial interests, and that other objectives; such as those relating to responsible design; are greatly overshadowed, unless they evidently benefit the business goals. Participants reflected that responsible design goals, such as sustainability and inclusivity, get very mixed receptions from clients, varying from a complete absence of interest, to enthusiastic embrace. The key aspect highlighted from the interviews is that ultimately a client company's approach to responsible goals is dependent on the priorities and attitudes from the top down. As such, the opinions of the decision makers is one of the critical aspects dictating what designers can achieve.

Project Characteristics

The priorities and constraints of each project are another key aspect in determining the opportunity available. Design projects can vary greatly, including; *blue sky*, incremental revision, or cost

reductions. They can also serve different business objectives, e.g., cement a current market position or showboat a new technology. In each case, the potential for the designer to include responsible design differs substantially.

At an obvious level, if the brief requests action towards responsible goals, this presents a significant opportunity for the designer. Several participants quoted such cases, explaining that when a project is formulated around an accommodating premise, they can have notable effect. However, this is not often the case.

An increase in broader or more open briefs, typically occurring as clients seek deeper insight and direction, were recognized by participants as providing a better opportunity to include responsible design goals in the project. However, the priorities for a project are typically determined by the client's objectives and motivations; and these, along with their interest in responsible design topics; have a greater impact on the actual level of opportunity available. In addition, the constraints typically associated with commercial work; such as time to market, price point and legislative requirements each impact the level of opportunity available, along with the tight timescales and demanding workloads inherent in consultancy work.

Product Characteristics

The category and type of product to be designed are also crucial factors. Participants highlighted the different product sectors they are involved in; which included: medical, transport, consumer, industrial, and fast-moving consumer goods; and how the priorities and characteristics, and thus the form of the opportunity available, varied for each. For example, the medical sector tends to be more regulatory driven; while other sectors are more consumer-led, driven by fashion and trends. In addition, it was evident that other factors; such as the life expectancy of a product, the frequency of its redesign, or the level of complexity and technology included in it, were perceived to affect the level of opportunity available to incorporate responsible design goals in its design.

Target Audience and Market

Respondents also highlighted that the intended market for a product was an influencing factor as some user groups have a stronger interest in responsible design than others. However, at the time of the study, consumer pressure was felt to only have an impact where it had a perceivable effect on sales figures.

The activities of the market, and the competitors operating there, can have a large effect; both on what is acceptable to users, and on the client's perception of what is appropriate. However, participants also recognized that some larger brands can be effective in leading their audiences, particularly if consumers trust or subscribe to that brand's values.

The Stage and Duration of the Consultant's Involvement

If consultants are commissioned towards the end of the product's development to add styling to an already fundamentally designed product, this will minimize their opportunity to incorporate

responsible design goals into the product solution. Several participants reflected that early involvement on a project can be valuable for gaining greater effect on the final outcome, but some remarked that further on in the process is where the compromises tend to occur, so a longer involvement is also of benefit. Conversely, consultants who operate in frontend projects explained that in the early stages of projects; when the requirements are still undefined; it can be difficult to successfully introduce additional targets (e.g., responsible design goals) because there is less structure or understanding of the project direction.

The Consultants Influence

One might assume that the decision to commission a design firm indicates the client will be open and receptive to the consultant's opinions and influence, however, it was apparent from the research that this is not necessarily the case. How a client perceives the involvement of the consultancy and the value they give design vary with each arrangement and can significantly impact the consultant's influence and effectiveness. The value of design must be recognized at the higher levels of a company for any real effect to occur. Respondents reported that this is not widely the case, and often in small and medium sized enterprises, consultants are challenged with just getting people to understand the value proposition, i.e., that there is a cost for design, but it brings a value to the business.

The potential influence the consultant can have is also directly affected by who they are working with in the client organization, and the level of influence that person (or team) has. The main contact's effectiveness at decision making and dealing with risk, change or new ideas; was reported as an issue on many occasions. The benefit of a client champion was also clearly identified as having particular significance for responsible design goals. Many participants stressed the importance of cutting through the layers of management and getting in at a higher level within the client organization.

It was evident from the research that the core of the consultant's influence is their ability to be persuasive, and to get people to share their enthusiasm for the visions they create. The findings from the study indicated that the communication approach adopted often formed a central and defining aspect of their consultancy's design process. For example, one consultancy employed semiotics as their core methodology because it provided a vocabulary and helped to generate more robust and risk averse proposals; another took an evidence-based approach; another created stories based on trends and customer insights to support their design work. Throughout the interviews, consultants discussed numerous tactics for backing up their proposals and presenting a convincing argument, including: *seeing through the client's eyes*; having evidence, research or back-up; *bringing the client along*; and relying on reputation and credibility.

What is Implemented

The extent to which a designer can address responsible design goals is ultimately linked to the final outcome of the project and what reaches the user. From the research, it was apparent that

there are several significant hurdles in this process. The first key requirement is getting the (responsible) design selected by the client. To achieve this, the proposition must be manufacturable and saleable within suitable costings; appeal to the selectors and their ideas of what is appropriate for the market; and be the best option in contention (according to the priorities of the project). Ultimately, the design selection comes from the client side, and as such, their interests and objectives constitute the crux of the process. Each aspect of a design will need to appeal to the client and be recognizable to them as something of value, if it is to contribute to its selection. For the proposal to be produced, company decision-makers must approve the investment required for tooling and manufacturing. Given this can be substantially more than the design and development budget (particularly where a client will involve external manufacturers) it is a key stage gate in the process, which is typically driven by evaluations of costs, market opportunities, viability and risk. The emphasis tends to be on quantifiable measures, so the (responsible) product will need to be considered beneficial (directly or indirectly) to the business goals and potential profitability. In this regard, CSR, brand image and customer opinion can be avenues to support responsible design proposals, but these are relatively minor enablers.

Next, the design must reach the market. Where a client company is reliant on third party retailers or distributors, those parties will have to recognize the product as something they can sell and make profit from if it is to gain *shelf space*. This depends on the product offer and mark-up, but more significantly, on their perception of the customers' requirements and whether they feel the product will appeal to them. Once a design reaches the market, it will need to be acquired and used, if it is to have effect. Ultimately it is the customer who determines whether the product is purchased. As with any product, the decision can be influenced by aspects such as the features, price, performance, ease of use, semantics, and aesthetics; as well as the influence of trends, advertising, competitor product offers, and the psychology of the customer. Many of these elements lie outside the influence of designers. In summary we can see that successful responsible design hinges on collective action and an alignment of perceptions by customers, users, retailers, manufacturers, designers and the client.

Discussion

This paper set out to answer the research question, *What factors determine the possibility for industrial design consultants to achieve responsible design within their commercial remit?* and to respond to three objectives. These have been addressed, a heuristic model has been developed and presented and a wide range of interesting observations, insights and findings have been identified. The following sections reflect on and discuss key issues arising from the work.

Changing Values and Priorities

The findings endorse the current stance in the literature that designers' skills and their position in the product development process, mean that designers have enormous potential to affect

responsible design. Participants were confident that they had the capabilities to tackle responsible design goals, and that many of their proficiencies such as; creativity, communication skills, and the ability to envision alternatives, support this position. However, this is only one aspect of fulfilling this potential.

If responsible design is to gain a wider footing, there needs to be a shift in the value and priority responsible design goals receive in comparison to the other aspects of product design; such as aesthetics, novelty, innovation, or technology. In many ways, this relates to what is considered *good design*, and it also links to the different evaluators of industrial design, such as awards, advertisements, and media. The Red Dot Award–Product category has recognized for several years, the importance of environmental criteria such as durability and ecological compatibility and social issues such as what a product offers beyond its immediate practical purpose, specifically noting *emotional attachment* and product longevity as a positive criterion. However, a consultant's motivation and interest in responsible design needs to be sufficient enough to elevate it to a level of priority that can contend with the other facets of design. One possible route could be to capitalize on participants evident desire for their work to have meaning, something they recognise is not widely obtained in commercial practice. Responsible design could be encouraged by demonstrating to designers the gratification that can be gained from adding greater value through their work.

Building a Knowledge Base

Participants highlighted the need for clear, consistent, and useful information which is appropriate to how they work; and more importantly, which they can have confidence in. For nearly 20 years designers have been complaining that there is a lack of information available on these topics (Lofthouse, 2001), which suggest that the status quo isn't working. Whether this is due to a lack of information, however, is questionable. Across all sectors there are many examples of In-house design teams demonstrating that there is appropriate information available. Philips Design (2015) for example, identify sustainability as a priority, and benchmark for continuous improvement against their own products. They have built a knowledge base of design practices which help them to achieve better environmental performance. IKEA repeatedly demonstrate that there is plenty of high quality information available on alternate materials (Edie newsroom, 2018). Companies who manufacture *alternate* materials are typically are very clear on their technical capabilities (Anam, 2020). Additionally, the authors have observed year on year that industrial design degree students, who have been tutored in Sustainable design, consistently identify and utilize appropriate information on more sustainable materials. As such, it is hard to believe that professional designers would have any problem.

That design consultants work across a broad range of product categories, could be a possible barrier to building up a knowledge bank related to responsible design challenges. However, in other areas of practice, consultancies demonstrate excellent competence in building up cross sectoral knowledge, e.g., around topics such as materials and manufacturing processes.

Their ability to do this is a selling point when they are bidding for work in new sectors. Expertise in responsible design related topics could similarly be collated, drawn upon and leveraged. This suggests a broader set of issues are at play.

Understanding How to Address Responsible Design Goals

A clear frustration emerging from the participants related to uncertainty as to how to best direct their efforts. Even designers keen to address responsible design goals were unsure as to where best to start, how to be most effective and what constitutes *actual improvement*. As well documented processes clearly exist, this suggests that these designers do not have a fundamental understanding as to *how* to design in a more responsible manner. Within the field of sustainable design for example, this requires understanding the basics of lifecycle thinking, identifying the most appropriate opportunities for a given product, and addressing these. Those skilled in addressing sustainability challenges, would typically recognise that it is not possible to address every aspect of responsible design within a solution and that there will always be trade offs. This requirement to resolve multiple competing requirements and use judgement to manage tradeoffs, closely reflects standard design practice and should not be a challenge for informed, confident designers.

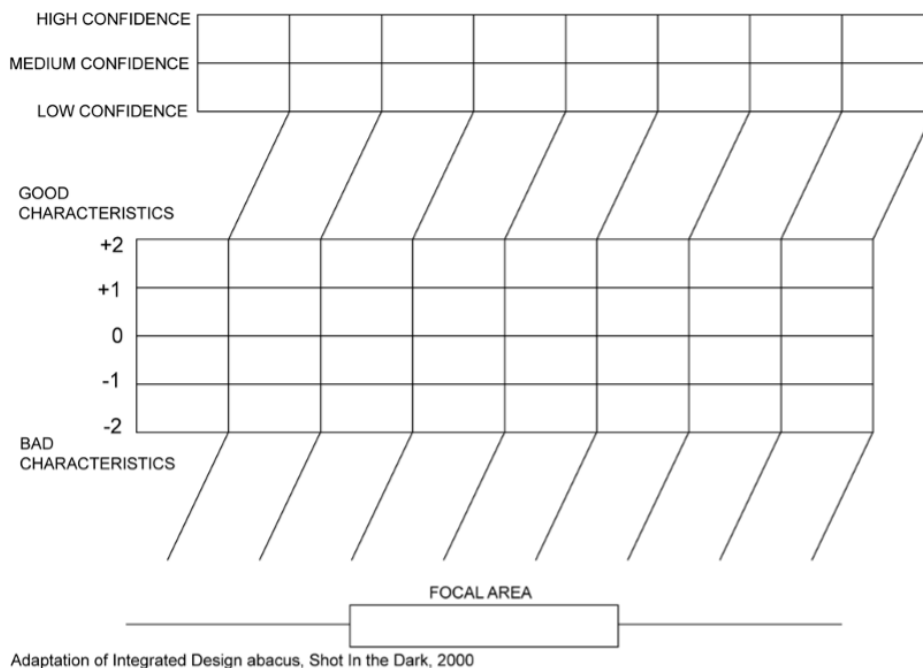
There also appears to be a mismatch between what consultant designers say they are looking for from tools, and what is available. They state a need for tools which are *less complex or overbearing to use, and which are appropriate to the way they work*, however the design abacus (see Figure 7) is exactly that. It freely available and widely used by student designers. It is quick

and easy to use, enables teams to identify the biggest challenges for the product category, assess their confidence in their assertions and visually illustrates the trade offs. Either consultants are unaware of these tools or they feel they are not appropriate to their needs. This is something that requires further investigation. A number of participants also asserted that they were looking for a suitable way of framing proposals, and defending them to clients. This is an interesting request that seems to not be addressed by contemporary work in the area and so would also benefit from further investigation.

Activating Responsible Design

It is apparent that the way in which responsible design goals are incorporated into the designer’s thought process greatly affects the way that they will approach problem solving. For example, if they are incorporated at a foundational level, they will likely have a more fundamental impact. This highlights the importance of nurturing more responsible thinking as early as possible in an individual’s development.

However, whilst educators have a crucial influence in the early stages of a designer’s development, their effect can dwindle as careers progress and views alter within the commercial world. Reflecting on the research, it was apparent that there is a shortfall of devices to activate designers’ sense of responsibility. Many of the mechanisms that do exist; such as conferences and publications, rely on voluntary uptake (requiring a pre-existing interest or concern) or tend to occur more in the academic sphere, which typically sits apart from professional practice. In the documentary film *Objectified* (Hustwit, 2009); Casey, while discussing the formation of The Designers Accord, relates an anecdote of discovering a toothbrush they had designed washed



Adaptation of Integrated Design abacus, Shot In the Dark, 2000

Figure 7. An empty design abacus template.

up on a holiday beach in Fiji. Without comparable moments of realization, it is questionable whether many designers will contemplate or revise their standpoint, especially as most daily drivers emphasize business targets. Without these drivers changing, or an interjection by another party, it is difficult to anticipate how significant advance towards more widespread responsible design will occur.

In 2017 the UK experienced what has been coined as the *Blue Planet effect* (Kelliher, 2018), when BBC One's (2017) *Blue Planet II* televised the damage that plastics are doing to our oceans. The impact of this program has been wide reaching. A call for evidence by the UK government on *Tackling the Plastics problem* (HM Treasury, 2018b) saw an unprecedented response rate of 162000, which has since driven policy change, with a proposed tax on single use plastics (which do not include 30% recycled material) due from 2022 (HM Treasury, 2018a). Changes in consumer mindsets and behaviors have also been widely reported, which will likely affect the design industry. For example, Calderwood (2018) reports supermarkets receiving many more questions from customers about the plastics they use, substantial increases in the use of refillable cups and reusable water bottles, and an increase in customers buying unpackaged fruit. Though the consumer choices being reported may not always be the best-informed decisions, they are a clear demonstration of concern which are leading to action. It may be that the *Blue Planet effect* has a similar springboard effect for single use packaging as Carson's (1962) *Silent Spring* had for pesticides.

Incentivising the Client

The research has shown that a key hurdle to the implementation of responsible design is the client. This creates a dichotomy of conflicting drivers where the designer's core desire is to satisfy the client in order to continue the relationship and grow their own business, but that they also feel a responsibility to push a more responsible agenda. If the clients that employ design teams are such powerful gatekeepers in the process, it follows that they need to be better incentivized to actively engage in more responsible design. This is a key challenge for society that this research does not even begin to address. However, it may be that greater strategic involvement from design in conjunction with the consumer and legislative changes that have come about in response to the *Blue Planet effect* could help drive this. There is already evidence of companies responding to this pressure, with Proctor and Gamble selling a limited run of detergent bottles made from ocean plastics (Grover, 2017) and the coming together of over 12 big brand owners to pilot LOOP—a largescale refillable packaging, door to door delivery service (Munford & Sykes, 2019). The combination of consumer pressure and a changing legislative landscape may be the driver that is needed to put responsible design (in part) on the agenda.

Value-Action Gap

Whilst the findings from this study reflect genuine reasons why there are challenges to industrial design consultants engaging in more responsible design practice, one could also argue that

there is persistent pattern of designers not taking responsibility for engaging in responsible design practice. In a field with huge potential to elicit change, there is persistently very little uptake of responsible design. This is known as a *value-action gap* (Kollmuss & Agyeman, 2002) and has been widely observed within the field of environmental behaviour in businesses environmentalism (Tilley, 1999), environmental behaviour (Hargreaves, 2011), sustainable behaviour (Hobson, 2001; Santamaria et al., 2015).

One potential explanation may lie in the fact that a number of the findings from the participants indicate that there is an underlying assumption that sustainability will be seen as a negative attribute by the client. However, the work of the EMF in signing up many leading industry partners such as H7M, IKEA, Unilever, SC Johnson, and Google suggests otherwise (Ellen MacArthur Foundation, 2020). Perhaps work is needed to help designers to better communicate the opportunities that more responsible design can bring.

The other key challenge which is hidden in the subtext of the findings, is that consultant designers in this study appear to have an underlying lack of confidence when it comes to responsible designability. Though not always overtly acknowledged, statements such as a *lack of knowledge*, *lack of empowerment*, *open to interpretation*, *unobtainable goals* suggest otherwise. That respondents felt that topics within responsible design do not have a *consistent shared understanding* and were *open to interpretation*, something which does not stand up to scrutiny in a field of research spanning 25 years, supports this assertion. Interviewees reported that they often rely on their reputation and credibility to back up their proposals, so it follows that anything which threatens their demonstration of expertise is likely to be uncomfortable. They understandably don't want to be *caught out*.

It seems that we have created a perfect storm. Responsible design is not driven by the client. Designers aren't confident enough to push it; aren't familiar enough with the business positives it can lead to; and want to please the client, so they align themselves with their beliefs.

Conclusions

The findings from this research project have built on knowledge in three ways. They have confirmed there is little in the way of wide spread commercial responsible design practice; consistently demonstrated the vast potential that designers could enact within the responsible design field; and most importantly provided a deeper understanding of the realities of consultant designers' commercial context and the factors shaping their opportunities to engage in responsible design practice. Developed understanding of knowledge in this last area will help provide a valuable foundation upon which future work to engage design in responsible design practices, can be built.

Multiple priorities; acting predominately in response to the requirements of their clients; and the fact that consultants are not the final decision makers, all limit the opportunity for designers to engage in responsible design. However there is also a clear value-action gap that appears to be driven by widespread

lack of understanding and education as to *how* to undertake responsible design which is effecting designers confidence to propose and champion more responsible routes. Additionally, even when consultants are willing to challenge briefs or question assumptions, they still tend to do so for the good of the the client. For responsible design to flourish, more sophisticated understanding of the commercial benefits that responsible design can generate and examples which relate to business objectives and metrics are required. The effort that designers apply to influencing product outcomes will have to expand to represent other interests, outside of those of the client if they are to genuinely champion responsible design goals. Developing new mechanisms to help consultant designer to better communicate responsible design to their client could be an interesting future areas for exploration.

There were of course limitations to the study. The 3-year funding period of the Ph.D. project limited the scope and scale of the research. As such participant sample represents only a small portion of industrial design consultants within the UK and Ireland, which means there are limits to the generalizability of the findings. However, despite these limitations the study generated rich data and expanded theory regarding the factors shaping design consultants opportunities and behaviours regarding responsible design practice. It also provided further evidence that at the time of the study responsible design goals were typically a low priority in the commercial setting (if at all) and UK's commercial community was not incentivised to recognize the importance of producing more responsible design outputs. This has had a significant effect on the designer's motivation to consider and champion these issues. Only time will tell whether the situation will change with this new wave of consumer awareness. However, by understanding the complexity of the challenges and realities of practice, they become better understood and easier to respond to.

Acknowledgments

This work was supported by a 3-year Engineering and Physical Sciences Research Council (EPSRC) studentship (2009) jointly held by Loughborough Design School and Loughborough School of Business and Economics. Dr. Norman Stevenson was the principle researcher on this project supported by his supervisors Dr. Vicky Lofthouse, Dr. Debra Lilley, and Dr. Alistair Chenye. Publication was made possible by support from Loughborough University's School of Design and Creative Arts.

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Appendix

Appendix 1. Details of the Workshop Participants.

Position Held	Additional Information
Professor /Sustainable Design Consultant	MA Programme Leader Author in Sustainability
Senior Lecturer in Design Ecology	Ph.D., Design and Sustainability
Lecturer in Sustainable Design	Ph.D., Sustainable Design
Senior Lecturer /Sustainable Design Consultant	MA, Sustainable Design
Lecturer in Sustainable Design / Ph.D. Candidate	Ph.D., Sustainable Design
Principle Research Fellow	Ph.D.
Ph.D. Candidate	MA, Management Research / MA, Industrial Engineering
Ph.D. Candidate	
Ph.D. Candidate	MA, Design for Development
Senior Research Fellow	Ph.D., Design
Senior Lecturer / Course Director	Ph.D.
Ph.D. Candidate	
Professor	
Ph.D. Candidate	MSc, Innovation and Design for Sustainability
Design Facilitator / Environmental Innovator	
Freelance Designer	Visiting Lecturer
Freelance Web Developer	
Strategy Director	
Strategic Analyst	

Appendix 2. Details of Interview Participants.

Position held	Size of Firm	Professional experience
Junior Ind. Design Consultant	21 - 25	0 - 5 years
Junior Ind. Design Consultant	21 - 25	0 - 5 years
Mid-Level Ind. Design Consultant	21 - 25	5 - 10 years
Senior Ind. Design Consultant / Associate Director	21 - 25	15 - 20 years
Senior Ind. Design Consultant	21 - 25	5 - 10 years
Design Director / Partner	21 - 25	20 - 25 years
Co-Founder and CEO	21 - 25	30 - 35 years
Technical Director / Partner	21 - 25	20 - 25 years
Managing Director	1 - 5	20 - 25 years
Managing Director	6 - 10	20 - 25 years
Creative Director	(26 - 50) 6 - 10 ID	20 - 25 years
Co-Founder / Managing Director	6 - 10	40 +
Founding Partner / Director	6 - 10	35 - 40 years
Owner / Managing Director / Professor	(101 +)	25 - 30 years
Chairman / Founder	16 - 20	25 - 30 years
Head of FMCG Design	101 +	25 - 30 years
Creative Director	26 - 50	10 - 15 years
Owner / Director	26 - 50	25 - 3 years
Director	101 +	15 - 20 years
Sector Manager - Medical	101 +	5 -10 years
Sector Manager - Consumer	101 +	10 - 15 years
Owner / Director	6 -10	25 - 30 years
Director	1 -5	5 - 10 years
Owner / Director	1 -5	10 -15 years
Co-Founder / Director	1 -5	5 - 10 years
Snr. Human Factors Specialist / Design Strategist	1 -5	0 - 5 years
Director of Semiotics	(26 -50) 6 -10 ID	0 - 5 years
Professor / Associate Dean	-	-
Professor / Co-Director	-	-
Professor / Chair	-	-
Teaching Fellow / Author	-	-