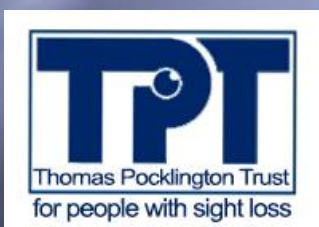


Inclusive Design: manufacturing, design and retail views



May 2016
www.rica.org.uk



Contents

Executive Summary	3
Acknowledgement.....	4
rica	4
Introduction	5
Background	5
What our interviewees said.....	6
Awareness.....	6
Barriers.....	7
Marketing.....	7
Perception.....	8
Cost	9
Understanding	9
Language	10
Comment.....	11
1. Accessible designs are not always inclusive	11
2. Marketing of products is never inclusive.....	12
3. Knowledge transfer is important	13
Conclusions	14
Bibliography	15
Appendix A: List of Interviewees	16
Further reading	17

Executive Summary

This report provides the findings of interviews with 20 experts to uncover how the values of Inclusive Design are being promoted by those involved in the design, build and retail of white goods.

In terms of awareness, the interviews uncovered examples of inclusion in some parts of the design cycle but no evidence of systematic inclusion of disabled and older people throughout the design process.

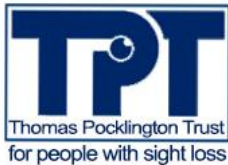
Various barriers were identified by interviewees and three themes emerged to our discussions: accessible designs are not always inclusive; marketing of products is never inclusive, and knowledge transfer is important.

The study concludes that there are reasons to be cautiously optimistic about the increase in inclusively designed kitchen appliances. This view is supported by greater use by designers and design students of tools and methods that support inclusive design; increased consumer product awareness and trends towards connectivity, thereby enabling potential personalisation of control interfaces. Pressures to cut product costs however can work against these trends, as can a confusion over language - inclusive design is neither a term consumers use when buying products, nor retailers selling them.

Acknowledgement

Rica would like to express our appreciation to all the experts we interviewed in the course of this work. Their insight and openness has been instrumental in producing this review and assessment of some of the current challenges in ensuring Inclusive Design.

We would also like to thank Thomas Pocklington Trust for their support in funding this report.



Rica

Rica (Research Institute for Consumer Affairs) specialises in consumer research with older and disabled consumers. Founded through Consumers Association, publishers of Which?, Rica became independent in 1991.

It has its own [Consumer Panel – the RicaWatch panel](#) – of over 600 people and is a disability led organisation. Ten of the charity's twelve Trustees have a disability.

Rica carries out [commissioned research work](#) with industry, other charities, service providers and policy makers to improve products and services. With grant funding it also publishes free [consumer reports](#) based on independent research.

www.rica.org.uk

Introduction

We are interested in uncovering how the values of Inclusive Design are being promoted by those involved in the design, build and retail of white goods and heating controls. To explore this we interviewed around 20 experts from manufacturing, design, academia and retail backgrounds. A full list of the interviewees is given in Appendix A. These interviews form part of a broader investigation into Inclusive Design carried out by Rica and funded by Thomas Pocklington Trust.

Background

The term 'Inclusive Design' was first used by Roger Coleman in 1994 (1). This paper was published at a time when there was a shift in thinking about design and disability from a medical model of people being disadvantaged by their disability to a social model where products, services and environments disadvantage people through poor design.

It is worth noting that this terminology appeared at a time of reflection and shifting perspectives from the design community and was not in itself alone in affecting change. The thrust of this change in thinking was to encourage designers and manufactures to produce products that can be used by as much of the population as possible. Other terms such as 'Design for All' and 'Universal Design' have the same ethos underpinning them but have subtle and important differences in their perspective and application (2).

The British Standards Institute (3) defines Inclusive Design as "The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible, without the need for special adaptation or specialised design". It is at the heart of the Inclusive Design process to start with designing for everyone, of all abilities. There is recognition within the British Standard, by the use of the expression 'reasonably possible', that some designs might not be all-inclusive.

It is now common for schools and colleges to teach human-centred methodologies that can be used to actively support the design of product inclusivity. Central to these approaches is the engagement of older and disabled people throughout the whole design process from ideation through to prototyping and on to user testing of beta releases.

What our interviewees said

Awareness

We asked our interviewees about the level of awareness of Inclusive Design within their organisations and further probed them to uncover if and how it is practiced.

Inclusive Design was a topic all of our interviewees, without exception, took very seriously. The underlying aim of making products and services usable by as many people as possible has clear advantages and was universally recognised. This was not surprising since we either talked to an expert in the field of Inclusive Design or were channelled to the person within an organisation responsible for product inclusivity.

Although awareness of Inclusive Design was high, it was not clear as to what extent inclusive user-centred design practices were being used. These interviews uncovered no evidence of manufacturers or design houses systematically including older and disabled people throughout the design process. While there were examples of inclusion in some parts of the design cycle, overall the picture was patchy and inconsistent.

“No, we don’t do much user testing any longer, we test to the standard... the trouble is where would you get the representative user?” – AMDEA

Differing names for Inclusive Design, such as ‘Design for All’ and ‘Universal Design’, did not cause any confusion with the interviewees who largely viewed them all as meaning the same thing and having the same goal. As stated earlier, this was not surprising since we were talking to people with a particular interest or responsibility in this area. However, it is interesting to note that ANEC (The European consumer voice in standardisation) had seen fit to change the name of their ‘Design for All’ working group to the ‘Accessibility’ working group.

“We are responding to the standards community who are confused about the term Design for All” – ANEC

Whereas the awareness of design and inclusivity within the white goods sector is patchy, the situation is slightly different in the heating controls industry. The heating controls sector largely trades under a business-to-business model and the associated energy suppliers are guided by ‘vulnerable customer’ service obligations.

“In terms of design we don’t design products historically, we buy in boilers from someone else ... so for us ‘vulnerable customers’ is around the service element” – British Gas

“One of them [Ofgem’s three priority policy and delivery areas] is inclusive markets and services ... our aim is to ensure that all consumers can access key services and the market and are not at a disadvantage because of their circumstances ... we encourage the suppliers to ensure their services are accessible enough” – Ofgem

“If it’s just about supporting a particular group that are vulnerable, somehow people think well that’s a social service agenda then” – BRE

There are currently changes being felt in the heating controls market, with the introduction of products such as ‘Hive’ and ‘Nest’ moving it to a more consumer led market place.

Another factor that is increasing awareness of inclusive appliance design in the home is the growing number of connected products often labelled the Internet of Things (IoT) or smart appliances. All the issues of digital inclusion and exclusion are now extended to the home. These connected device networks broaden the scope and interaction with appliances, which can have both a positive or negative impact on inclusivity.

“We are seeing [from the manufacturers] there is an increase in smart appliances ... there seems to be a race at the moment to get something out there” – Which?

Barriers

We questioned our interviewees about what they saw as barriers to producing Inclusively Designed products. The following represent some of the main points made during these interviews.

Marketing

Manufacturers and retailers take great care in how they pitch their products and are sensitive to how they are perceived by the larger proportion of consumers. Products that are identified as being ‘older-friendly’ can have a stigma attached to them that might affect sales volumes. This is not to say that products designed to be inclusive and sensitive to the needs of older people don’t exist; they do. They are just not marketed in that way. Dr Gerhard Fuchs goes further and suggests that products which are designed with the needs of older people in mind should be labelled as ‘traditional’.

“We cannot say there is a washing machine for elderly people; we cannot sell these washing machines in this way. So we have to do it a little bit differently - this is a more traditional washing machine” – BSH

“There is one manufacturer out there that has accessible appliances [Neff], but they don’t market them as such” – Design Matters KBB Ltd

There was a difference of opinion on how to achieve product inclusivity, with many people backgrounding the process of Inclusive Design whilst foregrounding inclusivity in what they prefer to call ‘Good Design’. This appeared to be a marketing device to prevent products from getting a perceived stigma often attached to products labelled as being designed for older or disabled people.

“Marketing, how we talk about things, we almost can’t talk about it. If something works really well then we say ‘it’s great!’ and you have to very subtly promote it to the various market segments you might want it to work for. You can’t say ‘hey this works for old people’ and then expect the young people to want it too, and probably, visa-versa” – Design Council

“If anything makes a product less appealing on the shelf, that’s a massive threat” – Cantab

The sensitivity of marketing departments to the labels ‘older’ or ‘disabled’ finds a solution in the principles underpinning Inclusive Design, in which products are designed for everyone and not specifically for one group or another. Products are increasingly marketed as being well designed. This adds value to the brand, which in theory becomes known for being inclusive and suitable for a wide range of people of differing ages and abilities. This is discussed further in the next section.

Perception

There has been a perception that accessibility and inclusivity are one and the same thing and, as such, are part of a niche market. Although this view is changing there still seems to be work to do in education and knowledge transfer.

“Manufacturing are starting to ... but not necessarily fully understanding the purchasing power of people who have different ages or different abilities ... they’re still seen as niche markets” – Helen Hamlyn

This niche view of design for accessibility is further compounded when considering potential differing needs by people with different abilities.

“There are perhaps conflicts between requirements for wheelchair user and for a blind person it’s very different ... you could do positive for the one group then it’s negative for the other” – BSH

“There are as many disabilities as you can think of, so covering them is difficult” – AMDEA

Cost

Cost is not seen by some white goods manufacturers as an obstacle to producing new inclusively-designed products. However, when considering products whose design evolves, the inherent cost of change to component parts can have a significant impact. These costs are seen in inventory, parts management and tooling.

“They [manufacturers] carry on providing different models of widget one after the other that have slight differences but with all the same type of tooling, to change any of that tooling is expensive” – ANEC

The significance of cost is more evident in the design of home heating thermostats, which has been predominantly a business-to-business (B2B) market. This market’s sensitivity to price has the effect of squeezing sales margins and reducing product variants.

“I think one of the biggest barriers for controls is cost because of the way the market works, because largely it’s the installer making the decisions” – BEAMA

“Commercial pressures, assistive products or adaptations to design are seen as niche markets” – Design Council

“We could put a voice chip in it but then that significantly puts up the price of the unit” – British Gas

It will be interesting to see if changing to a consumer-driven market in the more expensive thermostat products such as Hive and Nest leads to more accessibility options and consumer choice.

Understanding

Although our interviewees were all aware of Inclusive Design and the need for products to be usable by as wide a range of people as possible, the application of design methodologies to support this goal was not always present.

“The person sitting there designing it, isn’t in the person’s shoes whose going to be using it, one of the barriers is all about getting that input into that design process” – BEAMA

The response to the question “What mix of people do you use during user testing?” gave differing answers. There seemed no unified or systematic answer here, with designers and manufactures including different sets of users to inform design at differing points in the design cycle. One manufacturer reported they screened their users by a number of demographics such as: age, gender, life stages, household sizes, and family size, but not by ability or by older age.

“No explicit tests for old or disabled people ... the screening of ages is from 25 to 65” – Electrolux

Another commonly used technique to inform product design is the use of personas. These are fictitious composite descriptions of typical consumers created to provide richer information about a product’s context of use. Personas are often segmented to represent particular groups of users. However this method is not without criticism, especially when considering older and disabled people whose diversity can be difficult to capture.

“One of the powerful questions I ask when I go into companies and they present four personas is ‘Can you introduce me to this person?’ and I never have been It doesn’t replace talking to a real person” – Helen Hamlyn

Language

The term Inclusive Design is not something that consumers use when buying products from retailers. Consumers are more likely to ask about features of appliances that are helpful for them, depending on their needs.

*“We found that some customers find it difficult to open large freezer doors. On our tall freezers we designed a quick release catch. The sales of that have been pretty good, but we don’t know if we are selling them to over 75s”
– John Lewis*

“We don’t use ‘inclusive’ as a terminology. It’s about having a breadth of range that will include something for everyone. For example, an older lady who ordered a table top mini fridge had a perfectly good fridge but struggled to bend down anymore. She wanted to be able to get to the regular items like milk more easily” – Dixons Carphone

Comment

It has long been recognised as beneficial to both consumers and producers to make products, services and environments usable by as much of the population as possible. People get the products they want, the design is improved, and the size of the market for business is increased. What is less clear is how to ensure older and disabled people are properly represented when designing and marketing these products.

The following three themes were discussed by many of our interviewees:

1. Accessible designs are not always inclusive
2. Marketing of products is never inclusive, and
3. Knowledge transfer is important.

1. Accessible designs are not always inclusive

The goal of Inclusive Design is to design for all abilities and thereby make products, services and environments accessible to everybody. Designers have the tools (if not the time) to rise to this challenge. User-centred methodologies supported by rapid prototyping tools and methods can all be used to inform an iterative exploration of design inclusivity.

These techniques make the possibility of producing inclusive products greater but not a certainty. Many barriers still exist in translating the ideal of inclusivity into reality.

Sometimes design solutions that meet the needs of a particular type of ability can be at odds with another person's requirements. This is seen with tactile pavements. These help inform people who are blind or partially sighted that a junction or traffic crossing is imminent. Some wheelchair users can find these surfaces problematic, affecting their steering and comfort. At other times the solution for an accessible design is an assistive technology that is effectively exclusive to a particular population, for example the use of Braille or a screen reader.

As with competing needs from different ability groups there can also be conflicting design pressures brought about through satisfying legislation. An example of this is the top-loaded washing machine. People who have difficulty bending over or crouching down prefer top-loaded machines to front-loaded machines. Front-loaded machines use significantly less water than top-loaded machines and consequently achieve better energy efficiency rating scores than their counterparts.

In a similar way food packaging requires so much information on the product that it is often not possible to have all the information large enough for everyone to read whilst at the same time completely satisfying legal requirements.



There are of course further compromises placed on design from pressures of cost, space and environment. These constraints are often named as reasons why a particular design cannot be fully inclusive.

2. Marketing of products is never inclusive

A commonly used tool of marketing is market segmentation and the creation of personas. A lot of time and effort is spent identifying and understanding the target consumers. The personas, typically five to eight of them, are fictitious composites of target consumers and are used to inform choices about the product within a business.

Many products are designed to be aspirational, thereby making them desirable. Personas are constructed to support these qualities such as 'Twenty-something Spanish lady who works as a junior producer in a Madrid media company. She is thinking about starting a family and accepting a promotion in Barcelona.' Personas constructed for mainstream products will probably not include disability, especially if the persona is value-driven as aspirational. Who aspires to be disabled or old?

The ubiquitous use of the persona can make this a problem, though. Where personas inform design without representing a range of ages and abilities, the inclusivity of the designs can be negatively impacted. Inclusive Design needs the tools and methods to actively support its goal.

The promotion of products can also obscure the message of Inclusive Design. Promotional material will typically be in step with the product's marketing message. For mainstream products this message is unlikely to be about its inclusivity or being suitable for people who are older or disabled. This is not to say the product has not been designed using Inclusive Design methods.

An example of this is the recently launched Hive Thermostat by British Gas. They undertook extensive usability trials within their design cycle, which included using people with disabilities (4). This work informed the product design making it more inclusive. However British Gas market the product as 'connected' and its inclusiveness is not publicised. Companies are more willing to be known as a brand that has 'Good Design', which often includes producing products that are designed inclusively and are suitable for older and disabled people. This approach is exemplified in the design of an opening mechanism for a fridge door which relieves the internal pressure about the seal. One retailer of this fridge highlighted this feature but told us it is not promoted as being suitable for people with reduced dexterity or strength.

An effect of this reluctance to advertise products as suitable for older or disabled people is that they often go undiscovered by the people who would most benefit from them.

3. Knowledge transfer is important

Another theme that emerged from our interviews is the role that education has in sustaining and furthering the Inclusive Design agenda. The principles of design inclusivity have been taught in design schools for some years now. However it is only recently that students from these institutions are being employed at all levels of design and marketing departments, and the impact of this education is now being felt.

Inclusive Design is also being communicated through the support of national and European government funding. There have been many initiatives supporting information networks, research investigations and centres of excellence. A feature of much of this activity is its desire to engage with industry and work collaboratively to transfer knowledge between partners. This work not only focuses on methods and tools but also looks at understanding the business case for Inclusive Design.

Government funding for such work can mean it is short-lived, with most projects having a span between three to six years. Keeping the outputs of these projects present and relevant after the funding has finished can be a challenge. The European Design for All e-Accessibility Network (EDeAN) is a case to point. This is an excellent place to find resources about accessibility and Inclusive Design; however, without funding to update and maintain the content, the portal loses some of its relevance. It is worth noting that a lot of the resources currently available are still relevant, but the repository is not current.

This problem of legacy and sustainability is to some extent addressed by having centres of excellence in Inclusive Design, such as: the Helen Hamlyn Centre for Design, the Inclusive Design Group at Cambridge University and the SURFACE Inclusive Design Research Centre at the University of Salford.

Finally, the role policy can play to promote and support Inclusive Design through developing Standards (national, European and international) that underpin compliance to statutory requirements can have a significant impact (5). The effectiveness of this approach is most visible in building regulations, where access is required by law to be inclusive.

Conclusions

There are many reasons to be cautiously optimistic about seeing more and more inclusively-designed appliances in the kitchen:

- Tools and methods taught in higher education that support Inclusive Design are increasingly being used by designers and agencies.
- An ageing population giving political impetus to supporting Inclusive Design policies.
- Increased consumer awareness of products creating more choice.
- IoT enabling personalisation and interoperability of control interfaces.
- Brand awareness promoting the values of 'Inclusive Design' with 'Good Design'.

There is a note of caution to be placed alongside this positive outlook. Firstly, where the name of Inclusive Design is replaced with another more 'agreeable' name, there is a danger of the message being lost both *to* the designers and *from* the consumers. And secondly, when product cost is being scrutinised, it is a common approach to marginalise the groups that exist on the ends of the age and ability scales. This false economy is easier to make if the business case for Inclusive Design is not visible.

Bibliography

1. **Coleman, R.** 1994. The Case for Inclusive Design – an Overview, 12th Triennial Congress. International Ergonomics Association and the Human. P John Clarkson, Roger Coleman Factors Association of Canada, Toronto, Canada.
2. **John Clarkson, P, Coleman, R.** History of Inclusive Design in the UK, Applied Ergonomics (2013). [Online] <http://dx.doi.org/10.1016/j.apergo.2013.03.002>.
3. **BS 7000-6, 2005.** Design Management Systems: Managing Inclusive Design, BSi, London, UK. [Online] <http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030142267>.
4. **Rica.** [Online] <http://www.rica.org.uk/content/rica-news>.
5. **ISO.** Guide 71 Addressing accessibility in standards 2014. [Online] http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=57385.

Appendix A: List of Interviewees

INTERVIEWEES	
<p>Engineering Design Centre University of Cambridge (Cantab) Trumpington Street Cambridge CB2 1PZ</p>	<p>British Gas 19-22 Rathbone Place London W1T1HY</p>
<p>Dixons Carphone plc 1 Portal Way London W3 6RS</p>	<p>European Association for the Co-ordination of Consumer Representation in Standardisation (ANEC) 32, box 27, Av. de Tervueren B-1040 Brussels</p>
<p>Bosch und Siemens Hausgeräte (BSH) GmbH Corporate Technology - Liaison Associations, Standardization CTE-LA, Carl-Wery-Straße 34 81739 Munich</p>	<p>The Helen Hamlyn Centre for Design Royal College of Art 4 Hester Rd London SW11 4AN</p>
<p>Design Council Angel Building 407 St John Street London EC1V 4AB</p>	<p>AB Electrolux S:t Göransgatan 143 SE-105 45 Stockholm, Sweden</p>
<p>Which? 2 Marylebone Road London NW1 4DF</p>	<p>International Consumer Research & Testing (ICRT) 24 Highbury Crescent London N5 1RX</p>
<p>The Association of Manufacturers of Domestic Appliances (AMDEA) Rapier House 40-46 Lambs Conduit Street London WC1N 3NW</p>	<p>Department of Energy & Climate Change (DECC) Area 2C 3 Whitehall Place London SW1A 2AW</p>

INTERVIEWEES	
Office of Gas & Electricity Markets (Ofgem) 9 Millbank London SW1P 3GE	Building Research Establishment (BRE) Bucknalls Lane Watford WD25 9XX
John Lewis plc 171 Victoria Street London SW1E 5NN	British Electrotechnical and Allied Manufacturers' Association (BEAMA) Westminster Tower 3 Albert Embankment London SE1 7SL
Design Matters KBB Ltd Aries House Straight Bit High Wycombe HP10 9NB	

Further reading

Rica has published another report, [Smart Appliances and the Internet of Things: trends and impact for disabled and older consumers](#), available at www.rica.org.uk.