Fonte: Design Management review, v. 16, n. 3, p. 56-63, Summer 2005

Commercial Advantage from Inclusive Design

by John Bound and Roger Coleman

***As** companies seek to better understand customers, as managers encourage user-centered design methods, and as educators integrate social awareness into their curricula, universal or inclusive design is becoming a mainstream reality. Here, John Bound and Roger Coleman present reports and case studies to demonstrate progress in this arena, especially in the UK, and outline the significant role design managers play in implementing this priority.*

John Bound, Head of Innovation Development, Royal College of Art

Roger Coleman, Professo Royal College of Art

From Japan to Europe to the Americas, universal design offers real benefits in an increasingly global marketplace. The design trend toward a better understanding of consumer capabilities and preferences can't help but take into account that, for instance, aging and disabled consumers represent a substantial market—and a loyal one.

In Japan, one-fourth of the population will be at least 65 years old by 2014; in the U.S., aging baby boomers own 70 percent of American financial assets and represent 50 percent of discretionary spending power. This has not gone unnoticed by global manufacturers. At recent design conferences in Rio de Janeiro and London, a dynamic new network of Japanese companies gave its European and American counterparts a wake-up call on the need to address demographic change. Representatives from five member companies—Fujitsu,Matsushita Panasonic, Oki, Toshiba, and Toyota—presented innovations ranging from bone induction phones and accessible websites to tilted-drum washing machines and disability-friendly cars, and shared design and user research methodologies, along with inclusive

Japanese manufacturers at the Royal College of Art's Include 2005 conference on inclusive design.

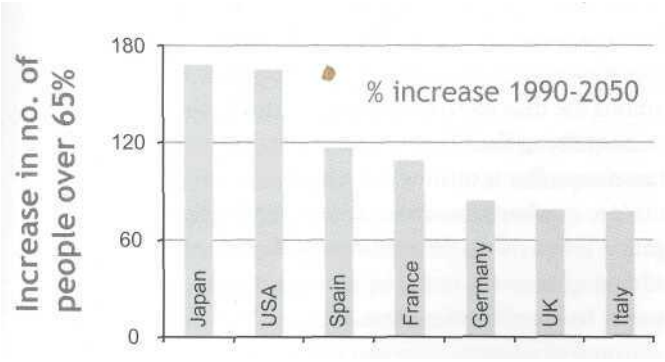
employment strategies and related developments in workplace design.

The only way forward is to develop a more inclusive offer, and Japanese companies are determined to make this happen not just at the level of product development, but also in service delivery and employment. The vehicle for this is the Japanese International Association for Universal Design (IAUD), which has a membership of more than 130 Japanese companies and a program of activities aimed at building the required knowledge base and expertise within Japanese industry. The relative youth of many of the Japanese presenters at the London and Rio conferences indicates that a new generation of designers and managers is leading the push for more inclusive design and is willing to share methodologies openly with the international design community.

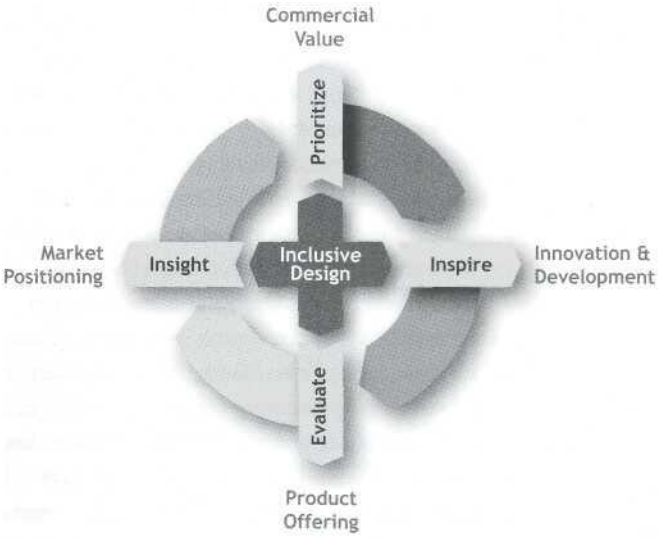
Although much of the article that follows is specific to the UK, the approach is eminently transferable, and the design management community worldwide is in a unique position to play a leadership role in the adoption of more-inclusive thinking at the strategic level.

Building inclusiveness into business culture

In the UK, thinking and practice around universal design have been developed through industrial collaborations and supported by research initiatives, example projects, and the services of business consultancies. Major age and disability charities are increasingly working with industry to meet the needs of their constituencies, while service-led companies, such as telecoms giant BT and retailers B&Q and Tesco, are taking a keen interest in older and disabled consumers as sectors for potential market growth. In parallel, the design and research communities, working with the government in the form of the Design Council, have made significant strides in understanding the capabilities and aspirations of such consumers and integrating these into design and new product development processes. What all these groups are seeking is design that more



Demographic change drives inclusive design: projected increase in population aged over 65, 1990-2050.



Adding value: mapping inclusive design against the business cycle.

accurately reflects the diversity and age spectrum of modern societies—design that will add value to the conventional business cycle of developing the product or service offer, positioning it within the marketplace, extracting commercial value, and investing that value in innovation and development.

A better understanding of consumer capabilities and preferences ensures that the product offering is appropriate. Products that are a better fit with a broader range of consumers can deliver increased commercial returns. Moreover, work with older and disabled users can lead to insight and innovation by encouraging out-of-the-box thinking. As well, assessing and evaluating designs with such users can ensure acceptance in the marketplace and avoid expensive mistakes and costly returns.

Success or failure? Sky TV

In the future, it will be networks of satisfied and informed customers that determine the success or failure of products and brands in the marketplace. This trend will favor companies that have adopted inclusive design and will work to ensure that those companies' offerings include and embrace the maximum number of people. A good example is UK satellite broadcaster Sky TV. Driven initially by legislation, in the form of the UK 1995 Disability Discrimination Act—key elements of which became fully enforceable in October 2004—Sky realized that by actively catering to disabled users, it could attract additional subscribers, enough to make the provision of enhanced content cost-neutral and eventually profitable.

Sky's current focus is on improving the product and interaction design of TV remote-control devices, which are often the source of frustration among users—disabled or not. Older and disabled people have become established members of Sky's consumer research panels, and have influenced the company's control design in terms of ease of navigating menus and selecting programs. Sky is taking this a stage further by developing a remote control accessible to customers with severe disabilities. Now in the research phase, this model is likely to have larger buttons, higher-contrast graphics, and further improvements to menu navigation.

Making TV broadcasting accessible to all.

Not only is this building the Sky brand in terms of social inclusiveness and innovation, it is also creating networks of delighted users among the disabled community, who are promoting Sky to their friends and family. In these ways, Sky is turning what other companies see as a burdensome and costly legal obligation into a competitive advantage that is adding value to the brand by growing its consumer base and market share.

In February 2005, the British Standards Institution added to its design management series with BS7000-6, a guide to managing inclusive design, supported by a dedicated section of the UK Design Council website.

New ***British Standard***

BS7000-6 is a comprehensive guide to managing inclusive design within all enterprises. It is a process-based standard and does not specify dimensions or other design features. Instead, it offers guidance to managers and designers within industry on how to adopt an inclusive approach and put it into practice. For example, it highlights the importance of conferring with target customers to ensure that approaches and solutions are appropriate. Emphasis is placed on ensuring close coordination during the development process so that all disciplines contribute effectively at all stages, before and after introduction to market. (After all, a highly inclusive product in hard-to-access packaging fails at a holistic level. Changing the specification for an individual element for cost reasons can compromise usability. And a lack of understanding of user sensitivities can result in poor consumer perceptions, no matter how usable the product. It's important that inclusiveness is seen as a clear goal across all the disciplines.) But the central focus is on cultural change within organizations, which is necessary if inclusive design is to be considered alongside other business goals such as quality and risk management. This is aided by a process model covering four phases of adoption and delivery, set out as a diagram and a checklist to aid implementation.

The standard also sets out the business case for an inclusive approach to design, identifying five key drivers and opportunities:

1. Extending product life-cycles and developing brand loyalty through a better understanding of changing consumer needs
2. Boosting turnover and market share through a better alignment of consumer offers with an organization's customers and markets
3. Encouraging repeat purchases, guarding against dissatisfaction, and minimizing the costs of servicing and returns through user-centered design and attention to human factors
4. Building corporate reputation and brand value through identifying opportunities for innovation and improvement
5. Improving efficiency, motivation, and loyalty among employees through a closer association among staff and investors, as well as attention to corporate values and mission

In addition, adoption of the standard will reflect on the social responsibility of organizations and provide visible signals of compliance with legislation, as well as an audit trail of decision making as evidence of good practice.

Another section of BS7000-6 covers the management of inclusive design at the project level and is structured into five phases broken down into 11 stages, each of which is described in detail and accompanied by a summary checklist to facilitate implementation. Appendices set out the challenge of leading inclusiveness in business and list a range of tools and techniques for inclusive design. A short bibliography and list of web links concludes the standard. This is supplemented by more-extended references on the Design Council website.

Emphasis is placed on ensuring close coordination during the development process so that all disciplines contribute effectively at all stages, before and after introduction to market.

Making Industry *Aware*

A second initiative is led by Scope, a cerebral palsy charity, and funded by the Department of Trade and Industry. Its brief is to improve industry awareness and deliver appropriate consultancy, advice, and product development services.

In 2004, Scope organized a disability summit in which inclusive design was identified as key to integrating the disabled into the mainstream of life and work. As a consequence, Scope has placed the promotion of inclusive design at the heart of its activities, and is seeking to work with major companies to develop inclusive products and services. The mechanism for this is the Centre for Inclusive Technology and Design

Inclusive design drives innovation

As a major UK home improvement retailer, B&Q dominates the do-it-yourself (DIY) market. The company took an early interest in the older consumer and also found benefits in employing older people, who tended to be more flexible, reliable, and loyal than younger workers. From this base of awareness, B&Q was quick to respond to the Disability Discrimination Act, putting in place a diversity strategy to make stores accessible to older and disabled customers and employees.

Some years ago, the Royal College of Art's Helen Hamlyn Research Centre (HHRC) approached B&Q to discuss the results of some research into easy-to-use DIY tools and equipment. This resulted in a now long-standing collaboration between B&Q and the HHRC. Until then, the B&Q business model was based on sourcing products, largely from Asia, that could be sold on price advantage. An initial audit of power tools carried out by Matthew White—a recent graduate of the master's program at the Royal College of Art, working with the HHRC—identified significant usability problems and resulted in a guide for product buyers to help them identify and demand easy-to-use features. This was followed by research with older users, including older women and retired tradesmen, and then with young women, to identify cross-over factors that could appeal to a wide range of consumers.

An older gardener tests a prototype B&Q leaf blower and rake.

The outcome was designs for four new or improved products, on which five patents were secured. Two of these—a lightweight palm sander with a hand-strap for easy use, and a lightweight electric screwdriver—were chosen for full development, and launched on the market in time for Christmas 2002. White paid particular attention to the styling of the products to ensure that they were perceived as having real consumer value, as well as being lightweight and easy to use. The products have sold well and were twice nominated by national newspapers to be in the top 10 power tools on the UK market.

Rake attachment desjgned for ease of use, especially by older people.

Inclusively designed power tools developed for B&Q.

White continues to work as a designer for B&Q, and Robert Brown, another RCA master's graduate, began a second HHRC project to investigate power tools for the garden—a significant market, especially for older people. Brown put together a group of older gardeners to try out the tools, which needed to be assembled before use. This uncovered many issues—from inadequate assembly instructions to poor usability. The end result was a further series of innovative designs, two of which went on to production.

B&Q internal guidelines aid design managers and suppliers.

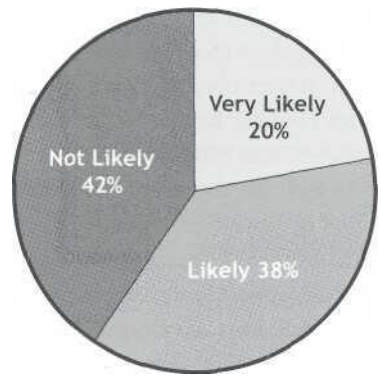
B&Q came to appreciate the value and impact of good design through these two collaborations, which demonstrate a direct link between inclusive design, innovation, profitability, and customer satisfaction. This was a significant journey for the company, but the journey did not end there. Brown was commissioned to produce guidelines on inclusive and sustainable design—not just for B&Q, but for the whole of B&Q's parent company, Kingfisher Group, which is Europe's leading home improvement retail group and the third largest in the world. Subsequently, the HHRC hosted a day of talks and workshops on the innovation process for B&Q senior managers, which has led to a better understanding and utilization of design within the company.

(CITD), a network of charities and expert organizations kick-started with government funding. Member organizations include the Helen Hamlyn Research Centre at London's Royal College of Art, international technology/product development consultancy Scientific Generics, the UK Institute for Inclusive Design, the Engineering Design Centre at the University of Cambridge, the Sprout design partnership, research charity Ricability, the Royal National Institute for the Deaf, and the Royal National Institute for the Blind.

Shortly after the publication of BS7000-6, the UK DTI funded a £150,000 in-depth study into levels of awareness in UK companies, with the goal of prioritizing future action to ensure the uptake of inclusive design in the UK. This was undertaken by the CITD team, which set up a web-based survey, developed training material, and delivered one-day intensive workshops to eight major UK companies. This is now being refined as awareness, training, and new product development packages for industry, which will be further developed as part of an effective program that can be spearheaded by Scope and other age and disability organizations.

Lack of usability in IT products

Research commissioned by Microsoft and Philips has revealed that more than 50 percent of working-age adults could benefit from software accessibility features. Not only that, but as few as 13 percent of US Internet users believe technology products are easy to use. Enhanced usability not only means more satisfied customers—it also means that companies with legal obligations to employ disabled people can provide computing and other equipment that meets their needs at no extra cost. Moreover, it means that a majority of workers are likely to find their tasks easier and more enjoyable.



Microsoft research reveals that a large proportion of working-age adults are likely to benefit from the use of accessible technology.

Another survey carried out for Microsoft by Forrester Research established that 57 percent of the respondents could benefit from accessibility features not evident to the mainstream user. A follow-up study forecast significant growth in the demand for accessible technology and included an overview of related opportunities for the IT industry. The impact on Microsoft has been significant, pushing accessibility high up on the agenda for management and software developers alike.

Similar research initiated by Philips in 2004 confirms this view. Philips, which is active in healthcare, lifestyle, and enabling technology, hoped to calibrate the convergence of these three sectors through an online survey of people aged 18 to 75 and up, but the findings also reveal much about attitudes toward technology. For example, two out of three respondents (74 percent of females and 53 percent of males) reported having lost interest in a technology product because it seemed "too complex to set up or operate." Only 13 percent (8 percent of females and 19 percent of males) believed that in general, "technology products are easy to use."

Technology products that prove difficult to use after purchase can only result in dissatisfied customers, who may share that dissatisfaction with other consumers and cause real damage to brands. Microsoft and Philips have both discovered that software and technology designed to be usable for disabled and older people can offer significant benefits to the majority of their customer base.

Conclusion

Inclusive design can add real value to businesses by more-effectively aligning products and services with the needs and aspirations of the widest possible range of users, in particular in the context of rapidly aging populations and equal rights legislation. Importantly, it can trigger innovation and new product development by encouraging out-of-the-box thinking driven by a deeper understanding of previously neglected but important groups of consumers. The potential benefits to business and to national economies are considerable in terms of competitiveness, social cohesion, and reduced welfare and care costs.

Two key drivers are essential to success. First, real collaboration is needed in building the necessary knowledge base and expertise, in industry and through education. This requires that charities, universities, and professional and business

Inclusive design at Heathrow Terminal 5

he UK airport operator BAA worked with Royal College of Art graduate researchers to develop design management guidelines intended to make Heathrow Airport Terminal 5 a model of inclusive design when it opens in 2007. According to BAA Design Director Raymond Turner, the project's success was to be "judged on its contribution to business and to feasibility rather than a grand or fantastical vision."

Turner continues, "The most significant input from the project was a simple change in vocabulary." Defining the entrances as "launch pads" rather than "orientation spaces" and switching from "managing the customer experience" to creating "the sensory landscape" was enough to "stimulate BAA to step back from the infinite amount of detail that goes with a project like T5 and take the more macro-view.... An important discipline for managing the scale of a large building and promoting instinctive (and inclusive) wayfmding was articulated. This identified three areas of contribution toward achieving a more positive passenger experience—orientation, information, and comfort."

The RCA graduates also developed a database to aid BAA managers in their design decision making. "This gives best practice examples of approaches that deliver the most appropriate mix of information, orientation, and comfort. The combination of simple categorization and a practical tool helped BAA view familiar products and actions in new ways." As a result of the RCA input and other BAA user research programs, "primacy for the passenger journey has been enshrined in the Terminal 5 design brief."

Proposal for the interior of Heathrow Airport Terminal 5.

organizations work closely together and pool expertise in ways that make it readily available to the design and business communities. Second, cultural change is needed within companies in order to embrace the concept of inclusiveness as a core aspect of business practice, in the same way that risk management and quality assurance have been embraced by modern industries and corporations. Good progress has been made in several companies, but there is an important leadership role here for the design management community to ensure that twenty-first-century products and services really do serve the needs and aspirations of the whole population.

Suggested Reading

Clarkson, J., Coleman, R., Keates, S., and Lebbon, C. *Inclusive Design: Design for the Whole Population* (London: Springer-Verlag, 2003).

Prieser, W., and Ostroff, E. *Universal Design Handbook* (New York: McGraw-Hill, 2001).

Useful Websites

Center for Universal Design, North Carolina State University:
www.design.ncsu.edu/cud/univ_design/ud.htm

The Design Council's web page on inclusive design:
www.designcouncil.org.uk/inclusivedesign

International Association for Universal Design:
www.iaud.net/en/

British Standards Institution:
www.bsi-global.com

Scope (cerebral palsy disability organization):
www.scope.org.uk

Inclusive Design Survey initiative:
www.betterdesign.org

Helen Hamlyn Research Centre:
www.hhrc.rca.ac.uk

The Engineering Design Centre at the University of Cambridge: www-edc.eng.cam.ac.uk

Sprout Design: www.sproutdesign.co.uk

Ricability research charity: www.ricability.org.uk

The Royal National Institute for the Deaf:
www.rnid.org.uk

The Royal National Institute for the Blind:
www.rnib.org.uk

UK Institute for Inclusive Design: www.ukiid.org

Microsoft accessible technology white papers:
www.microsoft.com/enable/research/phasel.aspx;
www.microsoft.com/enable/research/phase2.aspx

Philips study Calibrating the Convergence of Healthcare, Lifestyle, and Technology:
http://philipsindex.ca/

Reprint #05163BOU56