

# **WESTFOCUS DESIGNPLUS: LEARNINGS FROM A MAJOR CROSS-DISCIPLINARY DESIGN, INDUSTRY AND ACADEMIC NETWORK**

**Stephen Green**

School of Engineering and Design, Brunel University, Uxbridge

## **ABSTRACT**

Westfocus Designplus is part of a multimillion-pound Higher Education Innovation Fund initiative that consists of a consortium of Universities in West London with the overall aims of knowledge transfer and industry partnership [1]. Halfway through a four year programme, Designplus represents design interests and develops opportunities within its specific industrial and academic audiences. Two case studies are presented together with an overview of the evolving context of design networks and collaborative design practice from the perspective of Designplus's work. The first case study is a practical collaborative design project between a medical equipment design and development company and Brunel University. This demonstrates interesting aspects of emerging practice in approaches to Intellectual Property (IP) and consultancy business models, user-centred design issues in health-care design and collaborative practice between multiple organisations. The second case study concerns establishing a significant new forum for exploring collaborative opportunities in the field of smart materials and wearable technology. These studies allow an evaluation of the broader strategic challenges and opportunities for design orientated industry-academia networks and projects. The findings relate to applying principles of brand management to strategic development planning within this field.

*Keywords: Industrial collaboration, cross-disciplinary practice, design networks, knowledge transfer, health-care design, smart materials, wearable technology*

## **1 THE CONTEXT**

Within The Future of Higher Education report [2] and Lord Sainsbury's innovation report [3], the themes of contextual change, knowledge transfer and international competitiveness mark a widespread recognition of the pressing need for a response to increased skills requirements, increasingly competitive economies in China and India, the need for world class research, and the requirement for stronger links with industry. Economic drivers to activity in higher education, the design sector perspective and the role of networks and interdisciplinary working are the factors that generate the context for the HE led design network and case studies described in this paper.

The DTI 2005 report into the creative industry sector of the UK economy [4], in parallel with the Cox review [5], explores aspects of the macro economic context for design, creativity and innovation. Creativity, design and innovation are held out with greater authority than ever before as key components of a UK strategic response to maintaining economic success. More recently this thinking has been consolidated in work led by the

Department of Culture Media and Sport (DCMS) in the 'Creative Economy Programme' [6] with the desire to make the UK the world's creative hub.

### **1.1 Economic drivers**

Government policy and funding to support the UK economy typically determines the direct funding sources for industry-academic networks and related research. Funding to support knowledge transfer - 'third stream funding' - was formalised in 1999 with the Higher Education Innovation fund (HEIF) - £90m pa in 2005-06 - compared to around £1.5bn pa direct government research funding. The Lambert report also makes the case for third stream funding to become a permanent component of university activity [7]. This is likely to grow: 'For the UK to operate as a high growth, competitive, global leader in the creative economy, the development of a highly connected fabric of cultural and creative infrastructure is required' [8]

### **1.2 Design**

Work by the DTI, DCMS and HM Treasury identifies a strong and growing creative industries sector, whilst recognizing the potential threat from the BRIC economies [5]. The Design Council co-coordinated keep British Design Alive forum challenges the UK design sector to question its preparedness for this challenge. A key proposal for higher education within the consultation document [9] is for enhanced partnerships between design education and industry. It also identifies a 'cottage industry' approach to management and a lack of cohesiveness within the industry as serious issues to address.

### **1.3 Interdisciplinary working**

The DCMS creative economy programme infrastructure report and work by the Design Council/HEFCE clearly demonstrate two key factors in relation to seeking an emerging direction for design and the creative industries. On the one hand, recognition that multi-disciplinary and collaborative working is important within the emerging context for design. On the other, that there is a lack of effectiveness amongst the different initiatives. '...Key point: To promote multi-disciplinary teamwork, involving business, design, science and engineering students, and to include new disciplines within design teams working in the area of innovation...' [10]. 'While there is a myriad of creative industries initiatives that seek to make connection with global markets and partners – including the work of individual institutions, RDAs, and the British Council Creative Industries Unit – there is an absolute lack of coordination' [11].

## **2 WESTFOCUS DESIGNPLUS: AN INDUSTRY-ACADEMIC NETWORK**

Backed by HEIF funding, Westfocus is a consortium of seven universities in West London, formed in 2004, with the aims of knowledge transfer and industry partnership. The universities (Kingston, Roehampton, Westminster, Royal Holloway, Thames Valley, St George's Medical School and Brunel) each contribute to an overall structure based around sector based knowledge networks - creative industries, health, ICT, life sciences, materials and manufacture, social inclusion and sustainability in practice. These networks relate to broad social, business and academic interests and the specific knowledge and talent within the seven universities. Designplus is a sub network within Creative Industries. Kingston, Westminster and Brunel Universities all have significant numbers of staff and students working in design subjects, each conducting their own and joint Designplus activity. Target audiences are both SMEs that use design, and design businesses. With an internal audience of seven universities and no limits to our catchment area we have a vast but potentially unfocussed audience. Designplus develops the network through marketing, events and collaborative projects (income generating where possible) supported by staffing allocated from each university design

subject area. Designplus reports back to a Westfocus Board with simple metrics in terms of numbers of SMEs engaged, other organizations engaged and income generated. For internal planning purposes, Designplus's proposition for adding value is defined as:

### **2.1 An independent critical mass of design knowledge and expertise**

A key added value of Designplus is the significantly increased opportunities for networking, connections and collaborations created by our partnership. This creates strategic and operational possibilities which cannot easily be achieved individually by our audiences or the design interests of the partner universities.

### **2.2 Facilitating collaboration and connections across important emerging themes**

Designplus delivers an active and vibrant programme of activities that facilitates collaboration and connections for our audiences. At Brunel activity is structured around two important emerging areas of design interest or themes: health and design; and design and technology. The selected case studies relate directly to these two themes.

## **3 CASE STUDY 1 – LIGHT WEIGHT MEDICAL**

Lightweight Medical (LWM) is an innovative product development start-up company specialising in medical equipment design with a focus on evidence based user focused design and a total commitment to sustainable design. It has won numerous awards and credits as a result of its approach (Creative Entrepreneurs of the year 2006, iF product design award 2007 and many more) [12]. LWM attended a Designplus event in June 2005 and subsequently a collaboration was established. The project discussed is from the first year's collaboration. The work demonstrates interesting aspects of emerging practice in approaches to IP and consultancy business models, user-centered design issues in health-care design, and collaborative practice between multiple organisations.

The project scope concerned designing hearing protection for neonates during transport between hospitals (Neonatal Audio Protection System) as an extension to LWM's transportable incubator system design. This is a product called Neo-Capsul, manufactured by Paraid Medical Systems [13]. A final year BSc Industrial design student was selected to work in close collaboration with the stakeholders for the duration of his major project.

### **3.1 Approach to IP**

Conventional industrial design consultancy business models are under considerable pressure from a range of factors. As a start-up LWM has been able to side-step conventional approaches and start from scratch with a model based on licensing IP rather than fees for hours. An increased awareness of the value chain has also encouraged a broader participatory approach.

### **3.2 User centred design**

Whilst the *principle* of user centred design is central to most design professionals' approach, this is often not matched by practice, apart from where specialists in human factors, such as ergonomists and cognitive physiologists, are involved. Many factors influence to what extent design process is human centered: background knowledge, human and economic resources, methodologies and, of interest here, appropriate access to end users. This is particularly the case within medical device design fields, where there are many practical and bureaucratic barriers to good access to relevant stakeholders. LWM has put user centred design genuinely at the heart of its process from the outset, establishing a sustainable relationship with key stakeholders (including end users). In this case the link to the user was provided by a leading specialist clinical neo-natal transfer team at Glasgow Royal Infirmary (covering primary and secondary interaction).

### **3.3 Collaborative Practice**

LWM describes its approach as achieving triple win results, meaning that all the key stakeholders achieve a better result than conventionally: the clinical team gets a product that better meets their real needs; the manufacturer/supplier gets lower risk R&D and a better product; the designers get a tangible stake in the business and award winning products. For Designplus the project provides practical evidence of the benefits of its role in facilitating a network/collaborative approach in areas of developing design practice. In educational terms, the participating student had a substantially enriched major project and an offer of permanent work on graduation.

## **4 CASE STUDY 2 – HOW SMART ARE WE? SYMPOSIUM**

Designplus identified that its network collectively included all the components to support developments in Smart Materials and wearable technology and that this is an important emerging field [14]. The network would also allow Designplus to make the connections between different sector interests. These links are particularly crucial to successful work in this area. Following further analysis and an opinion formers' event, a major symposium at the Royal Institute of British Architects (How Smart are We? (HSAW) was held in September 2006, attended by 170 delegates. The programme intentionally brought together a diverse range of speakers and audience. The general subject area has been attracting considerable interest and there are already a number of active networks and organisations within the field. The symposium generated a number of specific project opportunities for Designplus, but also highlighted the distance between different sector interests. This is interpreted as an opportunity for design to be the catalyst and conduit for industrial collaboration and cross disciplinary practice as evidenced by the following wearable navigation example from the symposium.

### **4.1 Wearable navigation**

The New Nomads project by Philips Electronics [15] is an important, but until recently relatively isolated, landmark in demonstrating design integration of concepts of wearable computing, smart textiles and fashion. Philips subsequently collaborated with Levis on the ICD+ range [16]. It had the scale of resources to do this work. For others a greater level of collaboration is necessary to bring all the required elements together. Wearable navigation is an area for development and commercialisation and a wide range of experts are required in electronic systems, textiles technology, cognitive ergonomics, branding, marketing, business, fashion, and product and interaction design, to name a few. At HSAW these disciplines came together which directly resulted in projects and project opportunities. For example the following organisations and projects met: Brunel University cognitive ergonomists working on MoD contracts for wearable battlefield navigation systems; Therefore Design consultants (major client Tom Tom) working with Brunel technical textiles experts; start up wearable technology company Intelligent Textiles; an RCA ethnographic researcher; Brunel research projects in inclusive haptic navigation aids and flexible display technologies; close collaborator with Brunel, Eleksen, producer of fabric switching technologies that are now used in suits sold in Marks and Spencer.

## **5 EVALUATION**

In a competitive environment demanding new approaches, the findings are based around answering two questions: firstly, what are the differentiating factors that engage audiences in this context? and secondly, what models of cross-disciplinary and collaborative project should Designplus focus on? The approach with Westfocus

Designplus is to apply principles of brand management. It has been recognised that as a result of the proven success of branding and increasing sophistication of audiences, All types of organisations are increasingly using branding principles as a foundation to their activity and means to achieve competitive advantage [17] and ‘brands are emerging as the dominant strand in business’ [18]. At the heart of a successful brand must be a ‘big idea’, essence, DNA, or for our purposes, the differentiating factor. This encompasses the idea that not only is there a defined idea, but that this is also demonstrably different to others within the brand’s context. A singular focus is crucial.

### **5.1 Defining differentiating factors**

Westfocus Designplus is not focused on conventional academic research, nor is it a conventional professional design sector network. It can be considered in contrast with both of these areas. It shares similar metrics in terms of value of projects and attracting audiences. It must be innovative *and* competitive. Principles of brand building are useful in defining the differentiating factors and the essence of the brand. Two branding process tools can be usefully applied as part of defining the brand at a planning stage.

#### **5.1.1 Stakeholder mapping**

Significant within the context for design related cross-disciplinary and collaborative projects is a complex multi-stakeholder environment. Clear and effective mapping of this environment is a valuable process to facilitate internal and external planning and communication. A complete stakeholder map is a practical framework for exploring audience needs, potential benefits and ‘hot spot’ identification.

The map for Designplus spreads out through the DTI, DCMS, DES, the Research Councils and the Knowledge Transfer networks, encompassing initiatives such as *the Creative Economy* and Designing for the 21<sup>st</sup> Century [19]. At the other side of the map will be end users, with a multitude of organisations and initiatives in between. This mapping exercise highlighted the potential of the wearable technology sector as well as identifying potential partners and network duplication.

#### **5.1.2 Iceberg brand model**

As a strategic tool within a development project, brand models can be effective for deconstructing and identifying the significant components of a brand [20]. A generic iceberg or pyramid model is effective for providing a framework for exploring a broad range of influencing factors, whilst also encapsulating some of the core principles of a brand led approach.

The base of the iceberg represents the brand’s origin, its history and position within the stakeholder map. The core includes factors such as values, personality and proposition. Towards the water line is the essence of the brand, a concentrated expression of everything below, or the ‘big idea’. The visible part of the iceberg, the part experienced by external audiences, the ‘brand expression’, is determined by everything beneath. This concept of connectedness and consistency is important for a branded approach. The definition of values can be a checklist for compatibility, such as with LWM, where a strong company ethos was in tune with Designplus’s approach.

### **5.2 Defining cross-disciplinary and collaborative projects**

Initiatives should conform to attributes developed within the brand model and should take account of a thorough understanding of the relevant stakeholder mapping. This provides a robust foundation. Subsequently identification of metaphorical hot spots can be derived from this framework and turned into strategic objectives. For example, from the HSAW case study we discovered that within the Designplus network and our target audiences there was considerable, but diverse, expertise in subjects related to wearable technology. At a macro level this is a hotspot, but also at a micro level, where we can

see an opportunity to facilitate and participate in collaborations between specific people and organisations. Building on the defined values of Designplus and LWM this case study illustrates the results of facilitating and participating in a collaborative project, with triple win benefits.

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Stephen GREEN  
Brunel University  
Uxbridge  
Middlesex  
UB8 3PH  
[stephen.green@brunel.ac.uk](mailto:stephen.green@brunel.ac.uk)  
+44 (0) 1895 266374