Impact case study (REF3b)

Institution: University of Leicester

Unit of Assessment: 19 Business and Management Studies

Title of case study: The user- centred management of innovation in two SMEs

1. Summary of the impact

Green and Lilley's research on the management of innovation within creative organisations, with a specific focus on people-centred and socio-technical systems design of digital technology, has benefitted two companies significantly through two knowledge-transfer partnerships. One company – Bulb - more than doubled its staff numbers from 8 to 18 and increased turnover from £700,000 to £1.2 million. This research contributed to the basis for a new company – CrowdLab - now worth £1.5 million. Both companies have been short-listed for a number of awards, one recently winning the 2013 Leicester Mercury Innovative Company category. The School has embraced the University's Knowledge Exchange provision to respond effectively to the Government's economic development agenda which has placed HEIs 'centre stage' to deliver private-sector led innovation and economic recovery.

2. Underpinning research

Since his appointment at Leicester in 2003, Professor Simon **Lilley**'s research has focussed consistently on the users of social and material technologies. He conducts research on management and organisation within the financial and creative industries. Dr Will **Green** joined Lilley in 2009 having completed his post-doc at Phillips research in Eindhoven and PhD in the areas of human factors and ergonomics, studying User Centered Design (UCD) theory and practice within world leading organisations, with a specific focus on ensuring effective technology design and development through participation in the design process. UCD is a method by which the needs, wants, and limitations of end users of a product are given extensive attention at each stage of the design process. This is collaborative action research, in which the needs of the users and researchers are negotiated as the project develops and the researcher and user become entangled in complex ways that challenge the distinction between research and impact.

Consistent with the School's impact strategy to work with the SMEs which make up 99% of the UK's companies, and also to provide an opportunity to apply Green and Lilley's prior research findings, funding was sought in 2010 to support a local digital design agency, Bulb Studios Ltd. Bulb is a media production and digital design agency specialising in web, mobile and motion design. A grant was given through the Knowledge Transfer Partnership scheme to adapt Green and Lilley's UCD research to support Bulb in software development and understanding how they might work more closely with their customers. This project was awarded the highest grade – 'outstanding' – by the Technology Strategy Board.

The partnership has been beneficial to the School, Bulb and CrowdLab, and reflects Green and Lilley's collaborative approach to research. The project has led to prior research findings regarding socio-technical systems, User Centred Design (UCD) and innovation practice (1) being modified and adopted within the context of Bulb Studios and CrowdLab. This includes embedding novel processes and UCD methodologies within these organisations, supporting the management of innovation, and the design of related services (2, 3, 4, 5). Engagement with the organisations has led to new findings which are in turn being applied to the organisations themselves.

The project has also facilitated new research to identify successful strategies to manage and maintain space for creativity whilst hi-tech SMEs grow. We have found that they grapple with the pressures of potential increased revenue leading to a risk of employees cutting corners to secure short term growth to the long term detriment of performance (6). The research has provided case study data that will generate publications exploring how adopting UCD and associated Participatory Design methodologies can have a direct impact on profits – something that is missing from the related academic literature. Further data relates to the political issues, ambiguity and

fuzziness which exist in both design and organisation and have been identified in both Green and Lilley's prior research.

Interviews conducted as part of the UCD research projects with Bulb and CrowdLab have also led to a body of data related to practice in new high technology start-ups. This data was primarily collected to evaluate the effectiveness of the organisations' new UCD approach but also has research application to SMEs in similar domains.

The initial project has now led to further knowledge transfer partnership funding in light of findings to date with Bulb spin-off organisation, CrowdLab. In relation to this second knowledge partnership an additional funded research project is supporting CrowdLab development but also providing research opportunities in the School. Because CrowdLab is a digital market research tool, Green is now researching the impact of digital market research tools to identify further research projects and innovations that could be developed, and has already been awarded University funding of £4k to run workshops on cultural value with a colleague from Media and Communications at Leicester.

3. References to the research

Key publications

1. Representing Organization: *Knowledge, Management, and the Information Age*. Simon Lilley, Geoffrey Lightfoot, and Paulo Amaral M. N. Oxford: Oxford University Press, 2004. 218 pp.
2. Green, W. (2013), Ambiguity in user-centred design. *Proceedings of the 7th Annual Irish HCI Conference, Co. Louth, Ireland. (to appear on ACM Digital Library).*
3. Green, W., and de Ruyter, B. (2010). The design and evaluation of interactive systems with perceived social characteristics. *International Journal of Artificial Intelligence & Society*, 25,2 203-210.
4. Hoonhout, H.C.M., Caplan, S., Green, W., Watts-Perotti, J., and Rogers, W. A. (2010). User-Centered Methods For New Product Concept Development. *Proceedings of the Human Factors and Ergonomics Society 54th annual meeting*, 1802-1807. San Francisco: HFES.
5. Christou, G., Law, E., L.-J., Green, W., & Hornbæk, K. (2011). Reality-based interaction evaluation methods and challenges. *International Journal of Human-Computer Studies*, 69,1-2, January-February 2011, 1-2.
6. Green, W., Cluley, R., 'Images of Creativity in a Creative Organisation.' Under review with *Industrial Marketing Management*

Key Grants

- FP7-PEOPLE-2009-RG, Sub-Scheme: MC-ERG, 2010, Renaissance Project: Towards a strategic orientation to support design that is appropriate and accountable to local culture, €45000.
- Knowledge Transfer Partnership (KTP): Technology Strategy Board and Bulb Studios Ltd, To support growth through management and organisational adoption of user-centred design (UCD) practice, in the creation and development of mobile and ubiquitous computing technology, £172 144.
- Partnership in Knowledge Transfer (PiKT): ERDF and Crowdlab Ltd, Next generation of the CrowdLab mobile survey tool with advanced social media functionality, £91 939.

4. Details of the impact

Bulb's core activities include graphic design, photography, film production, editing, web development, software development, programming, music production, and outsource and mark-up print production and media replication. The majority of their income had been gained via long-term relationships with approximately 12 businesses in the public and private sectors.

Shortly before embarking on the knowledge transfer partnership, Bulb had undertaken collaborative software development projects with the market research and branding industry sectors. Building on the new initiatives, a potential area of growth for Bulb was identified: the development of interactive and innovative digital products for the market research and branding industry. At the same time as Bulb identified their new strategic direction, Green and Lilley were contacting companies to provide sites for their research exploring the adoption of UCD research and practice and how organisations develop and attempt to maintain a creative culture as they grow. Contact was made with Bulb and a collaborative research project was developed.

The involvement of users in the design process was recognised to be both a market differentiator and a skill-set that Bulb required. Indeed, Jim Willis, Managing Director of Bulb Studios, commented that the University knowledge base "*afforded the businesses valuable insight and direction into design processes never used before.*" A research partnership was deemed suitable to support Bulb's growth and new strategic objective, as it reduced the business and technical risk of developing interactive and innovative products by strengthening Bulb's position as a product developer through the integration of UCD. Mr Willis specifically commented "*Dr Green and Professor Lilley are both active in making considered recommendations that we are active in embedding into our systems and culture.*" In addition, opportunity would be provided to Green and Lilley to study the evolution of the organisation to further develop understanding of the pressures that SMEs overcome as they develop.

Three broad areas of impact are attributed to the research conducted as part of the initial knowledge transfer project:

1) Adopting a UCD philosophy throughout the organisation and product development lifecycle has brought knowledge and expertise in UCD systems development to Bulb which has improved the product offer in terms of ease of use, efficiency, user satisfaction, quality, and indirectly enabled access to a larger client base.

2) UCD as an intervention has had an impact on management and worker practice and has had a positive effect on organisational culture.

3) Knowledge of the many techniques and methods required to support UCD design across a wide variety of products has been vital in expanding the company's portfolio.

One of the products that the knowledge partnership supported soon became such a strong product offering that a separate company was developed called CrowdLab Ltd which produces market research applications for mobile devices. This company is now worth £1.5million and has created its own research partnership with the School having observed the successful research partnership with Bulb. This project (Partnership in Knowledge Transfer) will support the next generation of CrowdLab development and support organisational growth. Like Bulb, CrowdLab operate in an incredibly competitive industry in which speed to market is paramount but must be accompanied by human-computer interaction that maximizes the user experience, gained through thorough UCD and collaborative research.

In April 2012 it was reported that Bulb had more than doubled its staff numbers from 8 to 18 whilst turnover had increased from £700,000 to £1.2m in the three years of the research collaboration. Staff numbers are projected to increase to 20 with a turnover of £1.5m by December 2013. In parallel CrowdLab Limited's staff numbers have grown to 9 people, and in summer 2013 they opened a US office. Key players in both companies corroborate that the research conducted by Green and Lilley contributed to this success. 'Fanlabs', the pilot product from Green and Lilley's work with Bulb, was the central plank of Sharp's international advertising campaign around the European Football Championships in 2012, with the product name prominent in the idents deployed by Sharp in their sponsorship of ITV's coverage of the tournament. Bulb's production, in collaboration with Green and Lilley, of the trademarked CrowdLab app won the Innovation Award at the Leicester Mercury Business Awards 2013.

5. Sources to corroborate the impact

"For the past two years CrowdLab have been collaborating with Dr Green in the University of Leicester School of Management on two projects that have proven to be both successful and extremely innovative. Through the two projects, one a Technology Strategy Board funded Knowledge Transfer Partnership (KTP) and the other an ERDF funded Partnership in Knowledge Transfer (PiKT) project, CrowdLab have benefitted from Dr Green's research in user-centred design and design practice. As far as possible UCD practice has been adopted to support efficacious design and Dr Green has supported this process. The work that Dr Green has undertaken in collaboration with CrowdLab has been invaluable to us in shaping the direction of our product, to ensure that its feature set meets the requirements of our clients, and that its interface is appealing and easy to use. The challenge that we have set ourselves is to produce powerful research software that is a pleasure to use, and Dr Green's input has been vital to our success in this area." Research and Technology Director, CrowdLab

"Bulb Studios' collaboration with the University of Leicester School of Management has proven to be a measurable catalyst for change within Bulb, resulting in the creation of a new business, CrowdLab Limited. The support from the department has always been respectful of our business objectives. It is reasonable to make a direct link between the influence that Dr Green and Professor Lilley's advice and research have had and the growth of both companies. It is my ambition to continue to work closely with Dr Green and Professor Lilley and to better understand how their findings can impact in a positive way on our ability to increase both companies growth and profit margins." Managing Director, Bulb Studios Limited

"Bulb Studios' partnership with the University of Leicester has provided the company with genuine, measurable benefits from a number of perspectives. Operationally, the business has benefitted from Dr Green's User Centred Design and development process knowledge. Crucially though, this knowledge has been imparted with sensitivity to the requirements of the business. Dr Green has been rigorous in developing an understanding of business needs which has allowed him a unique insight - focussing on providing the best possible fit for the business' requirements; with respect to its scale and with the broader SME environment in-mind. The internal development systems we have created in conjunction with Dr Green and Professor Lilley have developed our understanding of contemporary, cutting-edge processes and techniques which have allowed the company to attract new staff, expanding the company's skillset and offering. The additional experience, skills and systems have in-turn opened up new opportunities for the company - business which was once out of reach has now become the core of the company's revenue.

"Additional collaborations with Dr Green have led to applications for innovation funding including most recently an application to the Nesta Digital R&D fund for the Arts. Additionally, the company has begun to innovate and produce its own Intellectual Property, utilising the learning from the collaboration to do so." Operations Director, Bulb Studios Limited

"Through the two projects, one a Technology Strategy Board funded Knowledge Transfer Partnership (KTP) and the other an ERDF funded Partnership in Knowledge Transfer (PiKT) project, CrowdLab have been able to incorporate Dr Green's research and expertise in usercentred design and design practice. As far as possible UCD practice has been adopted to support efficacious design and Dr Green has supported this process through interviews with our core client base, as well as research project participants. (…) Dr Green's work has led us to being nominated for two Market Research Society Wards – Best new Agency and Best Innovation in 2012, and more recently Outstanding Innovation for a conference paper at the Big Conference in May 2013. The MRS said: "CrowdLab are to be commended for demonstrating smart ways of ensuring that research stays relevant and their strong added-value approach to serving clients". Dr. Green's work was pivotal to getting us into this position within the first 18 months of our launch." Founding Partner and CEO, Crowd Lab Limited