

**Impact case study (REF3b)**

<p><b>Institution:</b> University of Wolverhampton</p>
<p><b>Unit of Assessment:</b> 34 – School of Art and Design</p>
<p><b>Title of case study:</b> CADRE research – <b>Knowledge Transfer Partnership CASE STUDY</b>  <b>The development of professional in-house design capability for Fairfield Displays &amp; Lighting Ltd., China Industries Ltd., and Tough Furniture Ltd.</b></p>
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)          This case study is based on research and impact of the development of creative systems and creative systems management to enhance professional in-house design capabilities of design and manufacturing companies through the use of new technologies. The research was conducted by Dave Henley and Rob Cooksey over the duration of several years (2008-2012) to develop the transferable application of design systems and management for SMEs. The research included three different Knowledge Transfer Partnerships (KTPs) with Fairfield Displays &amp; Lighting Ltd., China Industries Ltd., and Tough Furniture Ltd. The research evidences impact in the development of the companies' creative capabilities through significant increases in turnover, employment and market penetration and a number of awards, as well as in public benefits such as social inclusion, community health and well-being.</p>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)          The research for this case study investigated the development of creative systems and creative systems management for design and manufacturing companies through the use of new technologies. The research was conducted by Dave Henley and Rob Cooksey from 2007-2012 through three KTP projects, in conjunction with further colleagues, the KTP associates and representatives of the three companies. The aim was to develop the transferable application of design systems and management for SMEs. The KTP projects were conducted with Fairfield Displays &amp; Lighting Ltd., China Industries Ltd., and Tough Furniture Ltd. Each of the three projects investigated the development of creative systems design and management in a different area, including the area of retail displays, of craft retailing, of toy design and manufacture, and of furniture for a diverse range of specialist and care environments such as young offender's institutions, social care homes and hospitals. Over the course of the projects, the research progressively refined the creative systems model to incorporate design planning, manufacture and distribution as well as sustainable and user-centered design approaches. In the following, each project and its contribution to the development of creative systems design is presented.</p> <p><i>Fairfield Displays &amp; Lighting Ltd.</i>, is a UK company with international offices in Europe and the USA, which specializes in shop fitting and display equipment. The principal aim of the KTP (2007-2009, KTP Programme No: 6454) was to establish a professional design capability in the company. Through the review of products, materials and markets, a new strategic design policy was developed and implemented as well as new innovative display products e.g. for estate agents (Brook Street), insurance companies (Zürich Insurance), and retailers (Curry's). This initial project introduced a strategic design policy with the aim to improve economy and efficiency in product development and manufacture through the use of CAD and at the same time reduce their carbon footprint.</p> <p>The KTP with China Industries Ltd. (2008 - 2011, KTP Programme No: 7219) developed the first approach to maximise SME development and market resistance. The project introduced a new professional design capability including 2D and 3D design packages for in-house new product (toy) development, combined with the previous system management approach to reduce design cycle time and ensure clear communication lines with manufacturers abroad. This approach increased market share through new links with large international retailers such as Toys "R" Us, Wallmart, and Boys Toy (key licensee), and tripled both sales turnover and employment against a picture of deep recession.</p> <p>The third KTP (2009-2011, KTP Programme No: 7127) developed specialist design competency for <i>Tough Furniture Ltd.</i> Tough Furniture design and manufacture furniture for a diverse range of specialist and care environments, including young offender's institutions, social care homes, hospitals and private houses where challenging behaviour can pose a variety of problems such as</p>

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abuse and injury and cause the swift degradation of conventional furniture. The research addressed the challenge of developing the domestic apparel of their furniture - and by extension their design capabilities - in response to new niche markets for autistic and special needs users.

The principal aim was to develop a better understanding of how to generate efficiently a modern, non-institutional design with the ability to withstand degradation for areas of special needs and challenging behaviour, as evidenced through the new lounge range introduced in April 2011. The further aim was for the research to enhance the Company's strategic capability by enabling it to widen its product ranges and manufacturing approach to enable the company to improve its penetration of specialist markets and increase its turnover. This was achieved through standardization and modularization of furniture components as well as the harmonization of the ergonomic patterns with material supply sizes; creating and implementing a full CAD library of existing and new products with technical data accessible to both production and sales departments; and linking the design facility with the new Enterprise Resource Planning (ERP) System to increase design and in-house manufacturing capacity.

In summary, the research conducted as part of the three KTPs developed new holistic creative and management systems expertise including professional design capability to contribute to the viability of SMEs. This approach integrated the use of new technologies with ecological and social concerns to improve company performance.

**3. References to the research** (indicative maximum of six references)**1: Confidential Report for KTP Programme No: 6454**

Knowledge Base Partner: University of Wolverhampton

Company Partner: Fairfield Displays & Lighting Limited

Partnership dates: 29 June 2007 - 14 October 2009

Awarded by: Technology Strategy Board (100%)

Grant amount: £67,044.00

Contact: David Henley

Further information: <http://info.ktponline.org.uk/action/details/partnership.aspx?id=6454>

<http://www.fairfielddisplays.co.uk/>

**2: Confidential Report for KTP Programme No: 7219**

Knowledge Base Partner: University of Wolverhampton

Company Partner: China Industries Limited

Partnership dates: 21 January 2009 - 29 March 2011

Awarded by: Technology Strategy Board (100%)

Grant amount: £68,664.00

Contact: Robert Cooksey

Further information: <http://info.ktponline.org.uk/action/details/partnership.aspx?id=7033>

<http://www.wowstuff.co.uk/index.php>

**3: Confidential Report for KTP Programme No: 7127**

Knowledge Base Partner: University of Wolverhampton

Company Partner: Tough Furniture Limited

Partnership dates: 28 October 2008 - 31 May 2011

Awarded by: Arts & Humanities Research Council (50%)

Technology Strategy Board (50%)

Grant amount: £67,044.00

Contact: David Henley

Further information: <http://info.ktponline.org.uk/action/details/partnership.aspx?id=7127>

<http://www.toughfurniture.com/>

**4. Details of the impact** (indicative maximum 750 words)

The research developed through the three KTP projects has enabled the development of a new individualised systems approach-led design capability through embedding new design departments and processes in each company. The impact of this research is evident through a range of indicators, from both within the companies and through external awards and testimony. Impact is

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evident in the following key areas:

1. Enhanced design capability through an enhanced understanding of new (niche) markets and their audiences and the deposition of this knowledge in new design and technical databases to retain competitive advantage.
2. Enhanced in-house manufacturing capability (Tough Furniture) through standardization and modularization of furniture components; harmonization of the ergonomic patterns with material supply sizes; creating and implementing a full CAD library of existing and new products with technical data accessible to both production and sales departments; linking the design facility with the new Enterprise Resource Planning (ERP) System.
3. The improvements made as part of the projects (China Industries, Tough Furniture) have resulted in an increase in turnover and profits of ca. 22% each within the first year for Tough Furniture, and 300% growth in sales turnover for China International (from £4,749,000 to £15,300,000). Again this is a significant increase given that the growth is against the trend of the continuing recession during and after the time of the project.
4. Significantly increased number of employees: Not only have several of the KTP associates subsequently been employed permanently as design manager or similar, but overall the number of employees has more than doubled from 12 to 27 for Tough Furniture, and near tripled for China Industries Ltd from 12 to 35. In addition China Industries expanded its market share from 0 to 20%. This is against the background of the UK's deep depression associated with reduced or no funding for the traditional clients of Tough Furniture in particular.
5. Improved customer or stakeholder satisfaction (Tough Furniture): the new systems allow firstly a significantly faster design response to customer inquiries with the time from inquiry to design concept offer (quote) being reduced from over 3 days to under 12 hours. Secondly, the new visual tools enable customers to better visualise concepts on offer to them, thus helping in the decision making process.
6. Improved User satisfaction: the increased range of furniture for specialist areas has resulted in evident user satisfaction with the products on offer as is evident from the case studies on the company's website.
7. Increased external recognition for Tough Furniture's contribution both to design and to the community through social health, well-being and inclusion as evidenced through a number of awards: for example Tough Furniture won 1) the 2010 Shropshire Business award: Technology, Innovation and Enterprise. 2) the special recognition category at the PraxisUnico National Impact Awards 2012.
8. Increased external recognition for China Industries Ltd. through several awards: 1) international HSBC Business Thinking Award 2010; 2) Orange Innovation Award Finalist 2010; 3) Orange National Business Awards 2010.

In summary, areas that can be recognized benefitting from the impact of this research are:

- The SME's themselves
- Educational (extending the knowledge, skills and expertise of individuals within the community)
- Health and well-being of the community (physical and mental)

Social inclusion (disadvantaged, marginalized and at-risk groups)

### 5. Sources to corroborate the impact (indicative maximum of 10 references)

1. "The KTP project has helped Fairfield Displays to create and encourage a culture of innovation within the company, improved its awareness of and response to customer needs and market trends and streamlined the process of introducing new products. We have raised the profile of the company in the eyes of its clients and the new skills and knowledge acquired will benefit the company for years to come."  
Nigel Fletcher, Managing Director, Fairfield Displays & Lighting Ltd.

URL: <https://www.wlv.ac.uk/PDF/Fairfield%20Displays%20Case%20Study.pdf>

"Working with the School of Art & Design has allowed us to access knowledge and experience that we wouldn't be able to reach elsewhere. This has enabled us to move our business forward by expanding our product portfolio and has helped us to retain our competitive edge."

Geoff Fairfield, Chairman, Fairfield Display and Lighting Ltd

URL: <http://www.wlv.ac.uk/default.aspx?page=31383>

2. "The KTP has proved very rewarding for Tough Furniture; the programme has equipped the company with sought after expertise and resources which have helped increase efficiency and productivity. The company now has a dedicated design capability which would have been difficult to establish without the programme."  
Nigel Reaney, Commercial Director, Tough Furniture Ltd.  
URL: [http://www.wlv.ac.uk/pdf/KTP%20Tough%20Furniture%20Ltd%20case\\_study.pdf](http://www.wlv.ac.uk/pdf/KTP%20Tough%20Furniture%20Ltd%20case_study.pdf)
3. Confidential Report for KTP Programme No: 7219 (China Industries), p.6 (section 9)  
Confidential Report for KTP Programme No: 7127 (Tough Furniture), p.7 (section 9)
4. Confidential Report for KTP Programme No: 7219 (China Industries), p.6 (section 9)  
Confidential Report for KTP Programme No: 7127 (Tough Furniture), p.7 (section 9)
5. Improved customer or stakeholder satisfaction:  
Confidential Report for KTP Programme No: 7127 (Tough Furniture), p.5 (section 4)
6. Improved User satisfaction: <http://www.toughfurniture.com/case-studies>
7. 1) <http://www.shropshirestar.com/shropshire-business/2010/06/06/glitzzy-night-for-top-county-firms/sd3510404la4bus-17/>  
2) <http://www.praxisunico.org.uk/news/detail.asp?ItemID=1068>
8. 1) <http://www.wowstuff.co.uk/article/Top-Prize-at-HSBC-Business-Thinking-2010/2/>  
2) <http://www.telegraph.co.uk/finance/yourbusiness/7954185/Case-Study-The-Orange-Innovation-Award-Finalist.html>  
3)  
<http://www.nationalbusinessawards.co.uk/page.cfm?action=library/libID=1/libEntryID=64/listID=2>

<http://www.nationalbusinessawards.co.uk/files/wowstuffcasestudy.pdf>