



# CREATIF - Digital creative tools for digital printing of smart fabrics

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## Project Abstract

CREATIF will provide the culture and creative industries (CCI) with creative experience collaborative tools in the form of intuitive digital software design tools coupled to a digital dispenser printer allowing them to create bespoke smart fabrics by printing. The design tools consist of collaborative software to design, layout, visualise and simulate bespoke smart fabrics which are then produced using a dispenser printer; functionalisation of existing conventional fabrics is undertaken by printing active electronic materials in the form of inks/pastes. We will demonstrate use of the creative experience tools in a real environment by producing, within CREATIF, three advanced smart fabric prototypes (for interactive light emission, interactive colour change and sound emission/touch) and apply the tools in two applications relevant to the CCI: an interactive modular blind and an interactive exhibition stand. These will directly target the CCI of design, advertising and architecture. These prototypes and applications will provide beacons of excellence and an inspiration for what can be achieved using the new creative tools across the CCI and wider industries. **Recently developed and demonstrated fabric compatible functional inks and printing techniques allow physical realisation of the designs emerging from CREATIF's collaborative tools. The CREATIF tools will enable any CCI using fabrics to replicate the creative experience of designing smart fabrics, and remove the remaining barriers to entry to this field by significantly reducing the complexity of the process and the technological learning curve required.**



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**-:Project Coordinator:-**  
**University of Southampton (UoS)**

[www.ecs.soton.ac.uk](http://www.ecs.soton.ac.uk)



Electronics and Computer Science (ECS), part of UoS, is the largest UK department of its kind with 100 academic staff, including 36 professors, 150 research staff and 270 PhD students. ECS is widely recognised as being a leading centre of research in the areas of printing, software, NEMS/MEMS and sensors. 65% of ECS's research was recognised as internationally leading or excellent in the most recent 2008 UK Research Assessment Exercise with the remainder being nationally excellent.

**The main tasks they have been attributed in CREATIF:**

Design rule formulation, smart fabric printing, electronics and software design, coordination.



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**Institut für Textiltechnik der RWTH Aachen**

[www.ita.rwth-aachen.de](http://www.ita.rwth-aachen.de)



RWTH Aachen University is one of the leading technology oriented universities in Europe. Since foundation in 1870, engineering has been carried out at a high level both in education and research. With its very dense network of industry contacts, research at RWTH Aachen University is demand driven and continuously ranks in the first places of European university evaluations.

**The main tasks they have been attributed in CREATIF:**

Novel smart fabric printer research and integration with CREATIF software tools.



**Grafisoft**

[www.grafisoft.com](http://www.grafisoft.com)



Grafisoft Ltd is an innovative software engineering company with more than 15 years of experience in the development of complex business solutions. It has a wide background in implementation of reliable and custom tailored software applications. Always eager to face challenges and deliver competitive advantage to its partners, the company has gained an impeccable and trustworthy reputation across Europe.

**The main tasks they have been attributed in CREATIF:**

Collaborative tool software research and development.

**DIFFUS**

**Diffus Design**

[www.diffus.dk](http://www.diffus.dk)



Diffus design is a design company, working with a theoretical and practical approach towards art, design, architecture and new media. Diffus moves between culture, aesthetics and technology operating in between these fields. Diffus mixes computer/sensor technology and materials to satisfy a specific need. Diffus was awarded the Samsung Design Award in 2011 with the jury commenting 'An innovative concept that pushes the boundaries of wearable technologies.

**The main tasks they have been attributed in CREATIF:**

Interactive blind design and realisation, creative input and smart fabric functional requirements.



**Base Structures**

[www.basestructures.com](http://www.basestructures.com)



Base Structures was incorporated as a limited company in December 2001. BASE are a specialised contractor with a turnover of £5m offering a design and build service for supplying tensile fabric structures for the building and exhibition industries. BASE have developed an international reputation for producing world class structures working with many of the UK's leading architects and designers. We employ 50 staff including, CAD designers, fabric technicians and rope access riggers, with a total of 150 years of specialist experience in our management team alone.

**The main tasks they have been attributed in CREATIF:**

Interactive blind and exhibition stand engineering of prototype design and realisation, Quality Management.

Zaha Hadid Architects

**Zaha Hadid Architects**

[www.zaha-hadid.com](http://www.zaha-hadid.com)



Established in 1980, ZHA has acquired over 30 years of experience building some of the most acclaimed architecture in the world. Awards include the Gold Medal architectural Design in 1982, London Architect of the Year in 2004 and the Gold Medal for Design from the International Olympics Committee in 2005. 82 awards have been bestowed to ZH and ZHA. The practice currently has more than 320 staff from over 50 nationalities based in London with additional staff in site offices in Rome, Guangzhou, Beijing, and Hamburg. ZHA is an award winning international firm with projects that have been covered in nearly every major publication related to art, architecture and design. The firm provides design services at all scales from architecture and master planning to exhibitions, graphics, product design, and furniture.

**The main tasks they have been attributed in CREATIF:**

Interactive exhibition stand design, creative input and requirements.



**Ardeje**

[www.ardeje.com](http://www.ardeje.com)



Ardeje, specialising in drop on demand inkjet printing, was founded 14 years ago, by former executives of world leading continuous inkjet printing company, Imaje. Ardeje bridges the gap between inkjet print head manufacturers and users, by designing and manufacturing print engines and printing equipment. Ardeje has been involved in the development of drop on demand piezo inkjet print engines and machinery since inception. It employs 15 people, mostly engineers, in the areas of mechanics, fluidics, electronics and software. Ardeje is now taking advantage of its inkjet printing expertise by developing opportunities and new markets in printed electronics. Ardeje has been pioneering in this field since 2001 with partners and recently increased R&D to provide technological innovative solutions for printed electronics applications including fabrics. The smart fabric industry is a strategic thrust for Ardeje.

**The main tasks they have been attributed in CREATIF:**

Inkjet colour printing integration, Exploitation Management.