



## Newsletter: Issue 9: Autumn 2020

### Introduction

The UK is a leader in the creation, adoption, and exportation of advanced digital technologies. Our goal, as a network, is to accelerate research and implementation of these emerging technologies within manufacturing. Whilst key disciplines including engineering, design and computer science have fully engaged with Connected Everything I, there is a growing need to reach out to other disciplines not normally associated with manufacturing, such as anthropology and sociology. Therefore, the second iteration of the Network (CEII) aims to expand to include these additional disciplines, while maintaining our efforts to bring together those from more technology-focused, design-focused and engineering-focused perspectives.



*Professor Sarah Sharples,  
Principal Investigator*

Of course, considering the challenges presented by COVID, the Network, like other organisations, has had to reconsider our approach to delivering the Network's mission. We have been able to switch all our key activities online and our network has grown by nearly 100 members over the past six months. In July we hosted our largest conference yet with speakers from Industry and Made Smarter. The Summer School, supported by University of Nottingham's Smart Products Beacon, attracted 25 participants from across the UK and they designed Co-Bots to support adaption to a post-COVID world. The feasibility studies remain at the heart of the network. Two funding calls have already occurred, with five studies underway. As part of CEII, we have convened a Network of Networks to accelerate multidisciplinary collaboration, foster new collaborations between industry and academia and tackle emerging challenges which will underpin the UK academic community's research in support of people, technologies, products and systems for digital manufacturing.

As Connected Everything develops, during its second year, we will have a strong focus on trialling new initiatives to enable our members to interact virtually. We will be launching a Connected Everything LinkedIn group to simulate collaboration and discussion between our network members. In the next few months, our first Podcast will be released offering advice on writing future feasibility study applications. This will be launched alongside our next feasibility study call.

In the meantime, our website is being continually developed to help our network of interested parties keep abreast of the latest developments and find out about forthcoming events. Throughout this newsletter links to further details on the website are included. We look forward to continuing to work with the diverse community of network members over the remaining two years.

**Professor Sarah Sharples, Principal Investigator**



## New Research Fellow and Knowledge Exchange Lead

Oliver Fisher has joined the Connected Everything team as the Network's own Research Fellow and Knowledge Exchange Lead. Oliver recently completed his PhD (University of Nottingham), which explored the application of industrial digital technologies to process manufacturing industries to intelligently manage resource use within and between manufacturers. Oliver has previous experience with the Network, undertaking an industrial placement at Lindhurst Engineering Ltd., funded by Connected Everything.



*Dr Oliver Fisher, Research Fellow and Knowledge Exchange Lead*

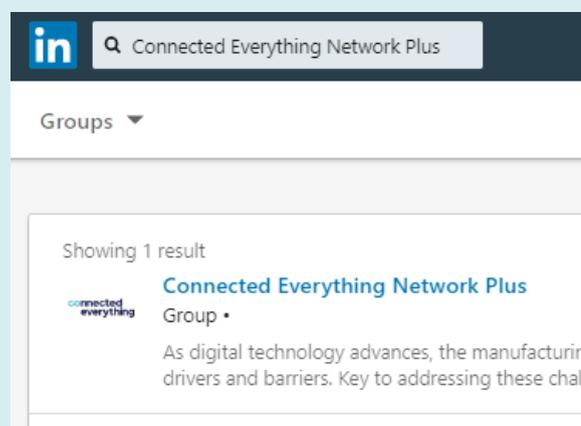
Oliver will be responsible for the knowledge exchange activities of the network, with the goal of increasing the impact of the Network. He will also work with the Project Team to develop a research programme that he will deliver that complements and enhances the work of the Network Plus, directly relating to the priority areas of the Network.

## Connected Everything LinkedIn Group Launch

This week Connected Everything has launched a LinkedIn Group that will enable members to connect directly with one another. This initiative is in response to feedback from Network members asking to be better informed of who is in the Network. The goal of this group is to provide a platform for Connected Everything members to network, collaborate, inspire each other and share news in the area of digital manufacturing.

### To join the follow these simple steps:

1. Sign in or up to LinkedIn [here](#).
2. Search for "Connected Everything Network Plus" in the **search bar**, located in the top left corner.
3. Use the **Filter Tools**, below the search bar, to display only **Groups**
4. Click on the Connected Everything Network Plus Group
5. Click the **Request to join** button.





## Feasibility studies

The first year of Connected Everything II has seen two funding calls, with five projects being funded. The studies have time frames of between 6 and 12 months. The project teams are multi-disciplinary and include one or more industry partners. Further details of these studies are available at: [feasibility studies](#).

Despite the recent challenges from COVID-19, the first three feasibility studies are well underway, and the study leads outlined their projects during day one of our recent [annual conference](#) (*feasibility studies' presentations begin at 47.44*). In September we had the kick-off meeting for the two most recently funded studies, which have now started and are due to run until September 2021. Updates from all feasibility calls will in the Winter newsletters.

### Feasibility study information sheets

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[Manufacturing of 3D-printed morphing origami solar sails for the next generation of CubeSats](#)

#### **University of Liverpool**

[AgentChat: Feasibility Of Large-scale Multi-agent Based Coordination For Freight Co-loading](#)

#### **University of Cambridge**

[Embedded Intelligent Empathy in Design](#)

#### **University of West of England**

[Studying mental stress factor in occupational safety in the context of Smart factory and COVID-19](#)

#### **Nottingham Trent University**

[Novel Digital Twins for Monitoring Compliance Debts](#)

#### **University of Birmingham**

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## Webinar sessions covered:

- Presentations from our recently funded feasibility studies
- New Connected Everything themes:
  - Sociotechnical data-rich systems with Chris Turner
  - Creativity and design with Craig Whittet
  - Regulation & Standards with Ben Sheridan
  - Resilience with John Erkoyuncu
- ECR training session webinar on funding with Katie Walker, EPSRC and Heather Lewtas and Ken Lewtas, Scitech with their industry perspectives.

## Summer School for PhD students

University of Nottingham, 15 - 17 July 2020

The Summer School was jointly chaired by Steve Benford, Professor of Collaborative Computing and Director of the Smarts Products Beacon and Nik Watson, Associate Professor of Chemical Engineering and Co-Investigator for Connected Everything. The online Summer School focused on the use of collaborative robots (COBOTs) in a COVID-19 world. Delegates from across the UK learnt about some of the key challenges faced by the collaborative robotics research community, such as ensuring robots can communicate with a broad range of users, learn intuitively, and are ethically designed and safe to interact with.

University of Nottingham  
Cobots

- Form and function
  - Social & companion
  - Making
  - Personal assistants
  - Domestic
- Sensors and actuators
  - Cameras, microphones
  - Proximity
  - Positioning
  - Motors, wheels etc.

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On day three the participants were split into teams to develop a conceptual COBOT design to address a specific challenge in one of the three areas highlighted by the summer school: Food Production, Healthcare and the Home. In a very close-run competition, the judges decided the winning design was “Squishy”, an inflatable, soft cobot designed to assist carers in lifting bed-bound patients and reduce the risk of occupational injuries. Moreover, Squishy features a wipe-clean surface to prevent the spread of COVID-19 and supports social distancing by reducing the need for carer-resident contact. The winning team consist of Angela Thornton, Cecily Pepper, Hector Montes, Laurence Roberts-Elliott, Robin Julia Trute and Siya Nakapraves.

For a summary of the school please see Hazel Sayers’ [blog post](#).



## Members' News

### **University of Liverpool collaborates with Cammell Laird to keep nuclear energy project on track**

Merseyside shipyard and maritime engineering company Cammell Laird is harnessing virtual modelling expertise from the University of Liverpool to overcome project delivery challenges posed by the COVID-19 crisis. The design and build of the facility's assembly test module must incorporate a Hazard and Operability Analysis (HAZOP) to assess and address potential operational risks. Faced with being unable to carry out the required HAZOP tests due to coronavirus restrictions, Cammell Laird has turned to the team at the University of Liverpool's VEC, who are devising detailed virtual 3D models of the reactor components. The 3D models will enable Cammell Laird's engineering specialists to conduct their HAZOP analysis in the virtual world, avoiding delay and helping to ensure efficient delivery of the project.

Further details on the project is available [here](#)

### **NOT JUST BLUE SKY: The importance and challenges of digital transformation, planning, and digital strategy**

Embracing completely new technology often comes with the expectation that there will be a high price tag, a steep learning curve, and long payback times. But if there was an opportunity to improve competitiveness and productivity through the better use of technology and digital skills, the benefits must surely outweigh the barriers?

The Virtual Engineering Centre hosted a round table discussion on the topic between industry leaders. You can read about the outcomes from the discussion [here](#).

### **Job Opportunity at London Digital Twin Research Centre at Middlesex University**

The London Digital Twin Research Centre (LDTRC) at Faculty of Science and Technology, Middlesex University (UK) is recruiting a research assistant position to contribute to research applications, co-ordination of research projects funded by the UKIERI-DST and Newton Fund programmes, through providing research and project support to senior researchers to enable the delivery of the intended results, to the benefit of the LDTRC, the University and the wider community.

Details on the job and how to apply can be found [here](#).



## Coming up in the next few months

- Connected Everything II thematic areas will be published online.
- Connected Everything will be presenting at the Digital Manufacturing Conference 2020.
- Feasibility study funding call III to launch.
- Podcast discussion with Professor Sarah Sharples on the topic of best practise when writing feasibility study applications. *Future Podcasts to follow!*

## Join Connected Everything at [connectedeverything.ac.uk](https://connectedeverything.ac.uk)

- Visit our website where you can sign up to the network (look for the yellow box!)
- Find out about forthcoming events and activities
- Let us know what would be useful to you
- Promote an event through Connected Everything
- Interact with members through our [LinkedIn group](#)