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Report on the Knowledge Exchange Event at the University of Strathclyde

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Purpose of document	Event report
Event detail (delete row if appropriate)	Knowledge Exchange Seminar at Strathclyde University on the10th March 2016 organised around our visit by Dr Matt-Mouley Bouamrane from the Computer and Information Sciences.

Related projects	Names and doc reference numbers
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Report on the Knowledge Exchange Event at the University of Strathclyde

The first DHI-university engagement event of 2016 was held at the University of Strathclyde on the 10th March 2016. This was a whole day Knowledge Exchange Seminar organised around our visit by Dr Matt-Mouley Bouamrane from the Computer and Information Sciences. The event attracted 12 members of staff from the University of Strathclyde across departments of Business school, the Institute for Future Cities, the institute of Pharmacy and Biomedical Sciences, the Department of Biomedical Engineering, Computer and Information Sciences, Research and Knowledge Exchange Services, and Strathclyde City Observatory. Aaron Wood, Chal Chute, Kara Mackenzie, Sanna Rimpiläinen, Stephen Milne and Stuart Deed represented the DHI.

The event started by a presentation given by Professor John Liggat, the Vice Dean for Knowledge Exchange (KE). He spoke about the importance of KE within the University of Strathclyde context and presented examples of available opportunities for funding for the research teams to engage with. One of the examples he highlighted was a proof of concept for a perspiration sensor developed by our Saltaire fellow Stephen Milne. The DHI staff identified a definite gap in the available funding to the university staff, which the DHI could help bridge. The funding streams presented by Prof Liggat do not enable the involvement of third sector or civic partners in research and development projects, something that the DHI innovation model is able to cater for.

After this the DHI had 40 + 60 min of show time. CC and SR gave a presentation introducing the policy context within which the DHI had emerged, the strategic areas of interest for the DHI, how the innovation model works, and how the different research projects could engage with us. AW told the audience of the DHI Scholarship scheme we ran last year. We are still waiting to hear from the Scottish Funding Council about the possible funding for the next year.

The presentation was more interactive allowing for the participants to interrupt and ask questions about the DHI and how to work with us. The questions related to, e.g. the available funding, the nature of the types of projects we fund, IP-issues and for example, what the DHI are going to be doing about the question of interoperability. This is a difficult issue for any software developer, given there are no generic guidelines for this at present in Scotland. Interoperability of different software is not a question of technological ability but more of a political decision making.

The lunch break was followed by a series of presentations by the University of Strathclyde staff. Dr Alison Reith from the Knowledge Transfer Partnership (KTP) West of Scotland gave a presentation on KTP and how this European programme can help R&D projects to accelerate the commercialisation of their products through arranging funding for an academic partner (e.g. a PG/PhD student) to work with a designated company. These types of partnerships are beneficial both for the academics and the companies. The companies may require the academic expertise, skills and knowledge for improving their products and services; the academic associate will gain insights into the industry, practical experience of working within the given industry environment, it allows for the academics to take their developing products to a real-life environment for further development and testing, the programme will be accountable in the academic departments REF-exercise etc. The sponsors of the programme are Innovate UK, SG and many research councils. The total value of a single project for two years for one associate could be around £130K (Full economic costing). CC noted that this type of partnership could be very useful as the next step for the DHI-involved projects, as it would allow for the business to gain funding for employing an academic partner to further develop their product.

After that Dr Marilyn Lennon and Dr Matt-Mouley Bouamrane talked about Digital Health Research at Computing and Information Sciences. They both belong to a Digital Health and Wellness Group (DhaWG), whose work focusses on designing, developing and evaluating interactive technologies, systems and services that improve the health and wellness of citizens, communities, cities and businesses.

Our research interests include:

- Designing and developing new devices, mobile apps and novel forms of interaction
- People-centred investigations of access to health information and barriers to access
- Development of policy around health information
- Implementation and Integration of Enterprise Information Systems in the NHS
- Evaluation of digital health and wellness products and services both in the lab and at scale, in the real world context (https://dhawg.cis.strath.ac.uk/)

Examples of current projects included, for example, the development of interactive tangible toys for educating young children with Type1 Diabetes about their condition and how to manage that (by Babis Kyfonidis); a mobile app for the self-management of chemotherapy symptoms (Marilyn Lennon); the development of a touch-screen text entry method for adults, who may not be familiar with computer interfaces generally (by Mark Dunlop); an app supporting Sit to Stand for stroke recovery.

Diane Rasmussen Pennington from the Information sciences presented several related research projects, including one into changing the notion of "authoritative consumer health information"; into the management of mental health issues by looking at women discussing endometriosis and infertility on social media, as well as into creating online aid for women experiencing domestic violence. Marilyn Lennon also explained about her project that explores the ethics, privacy and security perceptions and practices of online users. The research group website is at https://dhawg.cis.strath.ac.uk.

Matt-Mouley Bouamrane's study is about the information management systems and processes in Elective surgery in NHS Scotland evaluation of innovative UK delivering Assisted Living lifestyles at Scale. This related to the Dallas project (2012-2015) (need to look into that).

They also have a taught Masters in Digital Health Systems starting in September 2017.

Matt also mentioned the Health Informatics Scotland conference 11-12 October 2016.

Professor Marion Bennie and Dr Kimberley Kavanagh from the Institute of Pharmacy and Biomedical Sciences described their work on looking at Prescription Information Systems (PIS) and how this could be used in research in conjunction with national and other data bases. Their research looked at how to build expertise around health sciences in order to support better health decisions in collaboration with the Farr-institute.

Kim Kavanagh presented their work on using the PIS-database for examining the Community Acquired clostridium difficile infection (CDI)-cases and their possible links to prescription of antibiotics.

After that, Richard Bellingham and Janette Hughes from the Strathclyde City Observatory gave a talk about their work on future cities, and how to improve the quality of life of citizens in cities. Cities grown and suck in resources – they rely on very sophisticated systems. Any system (e.g. food production, transportation, water and waste handling, communication, energy etc etc) that breaks down the whole city will grind to a halt. Cities can be seen as a solution rather than a problem. They help to tackle poverty,

improve health and education, delivery of economic growth, and contribute to reducing environmental impact.

There are identified drivers for the change for cities: aging population, consumerist life-style, adoption of smart devices, online shopping, wider economic trends and political re-emergence. These create opportunities for innovation.

Janette Hughes presented a project called City Observatory, which works to identify problems and looks at new ways to conceptualise and tackle these. The observatory is multidisciplinary engaging several faculties of the university. This enables new points of view to emerge and be applied to big data. One of the projects of the observatory has looked at the impact of street lighting on street crime – increasing the hours that the street lights are on has decreased street crime in these areas. The work is part of the European network of Living labs, where for example Glasgow is taken as a Living lab.

Other projects underway are for example sensing the air quality in cities by attaching air quality sensors on moving cars. Also noise and temperature levels can be measured in this way.

Dr Anna Macintyre from the Centre for Health Policy talked about influencing policy to reduce health inequalities. Her question was: how to translate work around specific digital technologies relevant for policy. The work at the DHI stems from policies with the aim of making the digital technologies that already are relevant for policies, rather than attempting at fitting these into policy frameworks afterwards.

Dr Mario Giardini discussed digital health and biomedical engineering. One of the projects he has worked on is a pocket-sized ophthalmology packet, or a portable eye-examination kit. The kit contains a whole battery to opticians tests embedded in a mobile phone. The kit has been tested out in Africa where in nine days and 25 mobile phones the team had assessed 25 000 patients. However, there is a huge issue in terms of implementation of the device. This is a common issue in Digital health research, the implementation of new devices. This is not a problem with the technology but an issue about the clinical workflow and how the devices might fit into that. “We have a mobile device with a certain functionality. Where in the clinical workflow will this device fit in? Where does it become viable?” The Department on Engineering has been creating quantitative models on the status of clinical workflows in order to tap into this problem. This is also a relevant issue for the Digital health and care institute and the work that we promote.

The event was very informative and it was agreed that we will hold a follow up event in six months' time. In the meantime, there will be several follow up meetings with the seminar participants and the DHI. Furthermore, the seminar attendees are going to disseminate the information from the DHI to their colleagues and encourage them to join as DHI members on our website.