IOT Data for Smart Cities/Sustainability and the Data Marketplace.

This was the third and concluding DigitalDisruption@BREI summer workshop, run virtually on Thursday 16th July, attended by 45 speakers and delegates. The format consisted of introductory remarks from Kevin O'Grady and Kresse Wesling, three 'roundtable discussions' and four breakout groups where delegates discussed the various issues that had been raised during the session.

Introduction.

Kevin O'Grady set the scene giving Arup's perspective on the importance of data which underpins all their business advisory, design, planning and engineering activities. He explained the importance of construction lifecycle costs which allowed a movement away from using costs as the only metric to evaluate projects. The importance of 'in use' data for Environment, Social and Governance (ESG) investing and measuring the environmental is becoming clear, embodied in the phrase 'closing the loop on data'.

Kevin produced a slide showing how Arup had broken the 'journey for data' down into four stages, design, manufacture, in use and disassembly. Kevin then demonstrated a live reality capture tool that embeds actual maintenance data into the 3D view of a building, to allow remote facilities management. He concluded by making the point that the real benefit of capturing Environmental Product Data (EPD) and ESG data is that we then have more ability to reuse the materials used in the construction of the asset.

Kresse Wesling followed and explained how the luxury manufacturer Elvis and Kresse had been established as the founders felt strongly that they didn't want to generate waste and overuse landfill. As a result they have embedded a system of value and only make corporate decisions based on making the world a better place. They are one of only a growing number of recognised Benefit Corporations (B Corps), which require a move away from profit as being more important than people or the planet. At Elvis and Kresse, all decisions should be made on whether or not the actions agreed will contribute to a regenerative economy. In so far as buildings are concerned, E&K only look at reusing existing buildings and look at how emerging technology can improve the environment of that built asset. Kresse concluded by affirming that the collection and use of relevant data was essential for the decision-making process and allowed the development of critical benchmarks.

The first roundtable considered the role of 'Deep Tech'

Patrick Brown from the British Property Federation and the Real Estate Data Foundation introduced the ethical challenges that he described as the "growing governance sink hole". Patrick felt that the best place to start sharing data is to try with non-contentious issues such as bike storage or air quality, to allow pilot projects and initiatives to develop around the relevant technology to allow the problems surface, which otherwise could prevent adoption in the market.

Adriano Soares Koshiyama who has recently been awarded PhD at UCL's Computer Science, felt that the main issue with the collection and use of data was around the issue of consent, which has to be different for people navigating their way around a smart city from logging onto a website. He felt that there needs to be a regulator or watchdog who can supervise the smart city data, rather than allow it to be dominated by one or more technology platforms or providers.

The conversation then turned to data marketplaces. **Will Serrano from Imperial College and RPL** spoke about the possibilities of a data sharing marketplace emerging, suggesting that such an initiative would probably start on a local basis, but may transition into a larger global project once people began to understand how to incentivise people to put valuable data into a marketplace. **Claudia Giannoi**, founder of Real Estate Marketplace felt that the development of a recognised marketplace was required to improve real estate transactions and bring together real estate related professionals in a transparent environment to ease the process, following the UK government report in 2017 that identified house purchasing as being as stressful as childbirth.

Roundtable 2 ESG and Circular Economy data

This conversation, moderated by **Jonny Fry** from Team Blockchain**,** who was keen to understand how data can be used in this emerging area of global investment**. Kresse Wesling** explained the importance of using data to benchmark progress towards sustainability goals and explained how some funds are starting to publish their own criteria for investment decisions. In her view, if you haven't measured current performance, you don't know what success looks like.

Olivia Allen from Derwent London explained that her focus was on developing their net zero carbon strategy by 2030, and that data was essential to identify gaps in performance, but data commissioning is often one of the last priorities in a new construction project. It is essential to understand the embodied carbon used to construct new buildings, but good decision making relies upon good data. **Kevin O'Grady** went into detail around how to conduct performance measurement for business advisory, environmental and MEP design and the importance of ESG across all disciplines at Arup. He ended the session with an interesting explanation of the potential to reuse building materials following the decommissioning of the assets, and the possibility of taking assets off balance sheet by leasing objects such as lighting, as in a use case at Schiphol Airport, where Philips have put in a high performing

system to offer lighting as a service [LAAS] and an operational cost rather than as a capital expenditure cost.

Roundtable 3 Asset Management, Facilities Management and Smart Cities.

The final session was moderated by **Professor Michael Pitt**, who has substantial experience in research and teaching in the general area of facilities management operations and strategy, and was keen to understand the panel's views as to the importance of the role that data plays in an increasingly connected world.

Derek Hidden from Cloud FM and Greenblock set the scene by explaining the importance of statutory data to not only comply with regulatory requirements but also to manage the assets in a more efficient manner. He explained that although the majority of clients have maintenance regimes, most are not compliant with their statutory benchmarks. Derek's current business model is around waste and recycling where data is essential to introducing an effective strategy that can bring about substantial cost reductions as well as other benefits. Knowing the purpose of the collection and analysis is key, noting the oft repeated retort from the client is that they have so much data that they don't know where to look or start. He was sure that the development of artificial intelligence (AI) techniques in this sector will become more prevalent as clients begin to appreciate the financial benefits of effective facilities management.

Robert Porter from Canopious gave an interesting perspective from the Insurance sector, explaining that most decisions in this field are based on data which is notoriously unreliable. There are currently substantial areas of data loss at each step of the process, so standardisation of data schemas is important. Robert predicted that soon the use of telematics, which currently result in reduced premiums for car drivers who take a 'black box' will become common in other sectors, which should lead to cost saving by reduced premiums for those who can demonstrate good practice and compliance.

Simon Pursey from RPL**,** (until recently head of UK investment for Segro), explained that the asset manager of logistics and other commercial property are always looking to 'add value', and believed that if all of the critical data such as warranties, valuations, surveys could be held and validated, speed of transactions would arise, thereby creating liquidity.

Simon considered the question of ESG investing in real estate and felt that currently there is no difference in the value of a 'sustainable' building as against one that is not compliant, but that in practice, the more efficient and digital developments will probably retain their value over time.

Michelle Pierce, Director of Place Newcastle City Council gave a detailed description of the Helix Smart City project which is a test bed for new technologies and is the home for the National Innovation Centre for Data and the Urban Observatory, which

hosts the largest real time publicly available urban data set in the UK. Other partners in the project are Urban Foresight and Newcastle University. The role of the project is to support the city to invest in technologies and new ways of working that deliver transformational social, economic, and environmental outcomes. The recent Covid 19 lockdown has challenged collaboration between organisations in the city, but it is important to obtain and then interrogate the data to better understand how people live work and move through the cities of the future.

Breakout Groups

The delegates then moved into breakout groups to consider detailed questions around the themes that had been discussed in the roundtables.

Important conclusions were voiced in the various groups including the following selection of observations:

'The important place is the interface between the digital/technical and the day-to-day operation of the project'

'We need to find a way to get expert knowledge from the architects, engineers, designers and create that in a digital environment so that it can be used'

'One of the big failings in FM is people doing the job properly but not following up to date guidance and regulation'

'The influence of insurance should not be overlooked, there could be a significant reduction in premiums for those who adopt these techniques'

'The industry has had a problem with data sharing when there is no financial model to do so'

'Using data to pilot changes in a buildings environment is challenging as people's ideas about the right temperature vary, some like it hot, some like it cold'

'You have to be able to understand what you are supposed to be monitoring before you collect the data'

'We all complain about buildings all the time, they are too hot, too cold, too noisy too quiet, but we all miss them now we have been locked down. It's the building that gives a business it's identity'.

Jeremy Barnett and Andrew Edkins: 6th August 2020.