An Intelligent Mobility Industry Innovation Network enhancing mobility, for London and beyond, by improving the impact of innovators.

THELMA: The London Mobility Alliance

Event Summary
The Data Ask for Startups in Intelligent Mobility

On 29 November 2018, four panelists spoke about the 'data journey' that their startup companies have been on and how the data landscape needs to evolve to advance intelligent mobility. This was one of three initial events for the network (more about the network at end).

PRESENTERS

Raunaq Bose, Humanising Autonomy
https://www.humanisingautonomy.com

The company works on teaching autonomous systems to understand pedestrian behaviour in real urban environments, by creating rich datasets about pedestrian behaviour and training AI models to recognise and predict culturally and contextually specific behaviours (London versus Mumbai), in order to improve AV performance around pedestrians. Guidance exists for other aspects of AV operations (roads, other vehicles) but little for pedestrians. The data challenge for HA is processing dashcam data, their primary source. The data are plentiful (eg youtube dashcam videos) but very low quality. HA is working on ways to annotate this data in bulk using AI. Currently HA is using its tech in a project with a Michigan bus company and University of Michigan to provide driver assistance that reduces collisions with pedestrians, as well as projects with Airbus, Kyocera and some other firms in other urban mobility applications.

Martin Moss, Snap
https://www.getasnap.com

Snap provides coaches from anywhere to anywhere (intercity) using dynamically routed coaches and family-run coach operators. The company focuses on predicting the best route for coach trips that are closer to 'door to door' than other coach companies. Some of the data challenges include:
- defining locations where a coach can stop to pick up passengers and that passengers can wait (pavement width, stopping areas, lighting etc.)
- determining bus routes (where bus lane traffic is considerably faster than surrounding road traffic) in any given local council area, which enables Snap to predict fastest travel routes using higher speed bus lanes

- identifying physical characteristics of routes (eg turning radius for larger vehicles) that prohibit coach travel
- identifying & working around gps/internet blackout areas

Currently Snap is dealing with many of these issues manually and have tried many different data solutions including purchasing and scraping data from other sources.

Joned Sarwar, Alchera Technologies
https://www.alcheratechnologies.com

Alchera builds a platform providing high quality real-time data from a variety of sources. Data gets analysed and interpreted, enriched by aggregating multiple streams and predicting changes, and published in an open format. This effort to provide 'clean data' faces challenges such as:
- Absence of standard formats. For example there is no standard format for publishing video data (e.g. CCTV video data comes in different formats, resolution, codex, sometimes includes stills) or for processing and making it available
- There's lack of clarity on what's allowed and for what purpose, local authorities worry about whether they're allowed to use data a certain way, education req'd
- Local authorities experience 'data shame' about the low quality or uncertainty about the usefulness of data they hold (what data do they have, does it have value?)
- Local authorities also worry about meeting 'service level agreements' for supplying regular or real time data

Andreas 'Zac' Zachariah, TravelAI
https://www.travelai.info

TravelAI is building 'travel timelines' of individuals via easy-to-embed software they developed and designed to run (ideally) in consumer facing transport apps that helps to automatically collects data on android or iOS platforms. Local authorities and transport providers can then understand journeys (not just the mode use) and

provide better services. Data challenges for TravelAI include the fact that tough data protection laws (often a consequence of other bad actors eg. social media) make governments and service providers afraid of using data (need for education/courage). Travel AI makes the case that infrastructure data like that collected for clinical trials is different – it is a public service and use of data improves journeys and has other public benefits, as well as individual benefits. Another challenge when designing a solution is to be independent of anyone else's data. The perceived risk is becoming reliant on big companies that later want to take services in house. A final challenge is that it is hard to break in with data services when local authorities feel 'safer' hiring known entities such as IBM.

TravelAI faces data challenges such as:
• Building their own training data from scratch, in a new field takes time and much effort
• Building a solution using data generated, vs processing others (whether public or private)

• GDPR dragnet a result of some v/large bad actors flagrant disregard

For TravelAI, the data landscape evolution should consider:
• Not all data is equal – Personal data used for Advertising vs in Clinical trials, education or to solve infrastructure issues like transport and energy
• Getting some consensus or legal templates in place for sharing (with consent) different types of data

Reflections on the data implications of an accelerator or incubator include:
• Conflicts of interest arising from Corp sponsors pushing their solution/data when trying to organise a pilot with prospective clients
• Developing further value by identifying Analyses and Insights because there is a shortage of practitioners in general, and especially in public sectors.
• auto makers have long supply chains that put up barriers to data that a startup typically can't get through, and that's where an incubator could be helpful.

QUESTION & ANSWER

Q: Is the impression that the data exists somewhere, but you just need to find a way to access it? Or does it not yet exist?
A: varies. Low quality data is out there but hard to access. Snap mentions having to 'knock on every door,' council by council, to try to get necessary data.

Q: can we find a new way to 'transact' with data? On the one hand councils prepare data and give it out freely, only to be asked to buy back services using the data they donated. Councils have to put work into collecting the data and making it available.
A: (lively discussion)
• The data was collected and processed using public funding, so it should be in the public domain (within the constrains of privacy).
• Local Authorities and TfL like to say 'we provide open data and that creates XYZ amount of value for the economy'—can't claim this if it monetizes the data itself
• Local Authorities trying to 'monetise their data' is usually a mistake because on the one hand they have other areas where they could make real improvement and on the other they lack the data capabilities to make their data consistently, professionally usable.
• Do they really want to get bogged down in Service Level Agreements!?

• Snap is no stranger to paying for data, but the question would be about how reliable, consistent and high quality the data could be over time
• Bus operators are much more fractured and often small, consequently the quality of data, if any, is hugely variable.
• Authorities that have licensing powers (eg TfL) have the ability to charge proper fees to offset 'open data' costs, more broadly, large data platforms such as amazon, google, apple, are not paying their fair share of taxes that should support local authorities

Q: in finance they use simulation to consider eventualities, is this used in transport?
A: simulation assumes you know how the system works, but that isn't the case in a lot of transport settings. Scenarios could be useful (eg pedestrian on a certain kind of crossing) but you would need a lot of data points to create a valid simulation. Humanising Autonomy is creating new data around pedestrian behavior. There exist data around infrastructure types, vehicle types, road types, HA want to create this for pedestrian behavior types.

Q: what about transport planning? How does it come in to play?
A: the classic ways of understanding transport that are the basis of transport planning are very much out of date. Yet everyone feels comfortable/safe with those (as with indus-

try incumbents such as transport consultants and DfT) so they are persisting or changing slowly.

Q: There has been a lot of talk about different groups—the local authorities, the big incumbent companies, the new entrants/disruptors—and talk of lack of standards and clarity. Where do you think opportunities exist to collaborate to address this?
A:
• 'Smart city' initiatives seem to offer a good opportunity because they are intentionally experimental and there is an intention to change the way things are done. They also act as proving ground that gives confidence to local councils to act.

• Cases where there is an ostensible win-win, or clear use case, e.g. driver assistance for buses in Michigan

Q: Regarding standardization, what about 1M2M, a standard for machine-to-machine communication (eg internet of things). Mobile phone industry, all work on same standard.
A: Intelligent mobility and particularly 'mobility as a service' require standard modules that can be plugged and played. This should drive the quality and a dialogue around standardization. We are a long way from this compatibility. There is a reason why CityMapper exists in +30 cities and not +30 countries, because they only go into cities where the city API is good and reliable.

Special thanks to co-hosts: usTwo, Transferwise, and UCL Innovation & Enterprise

usTwo   TransferWise   ≜UCL

ABOUT THE NETWORK

UCL, with a variety of other stakeholders, is developing an Intelligent Mobility Industry Innovation Network to enhance mobility, for London and beyond, by improving the impact of innovators. The objectives include: knowledge sharing; building of trust among innovation-focused enterprises and researchers; and new collaborations, development projects and grant applications.

The UK funding landscape is changing, with more funding available for industry partnerships that involve a range of companies and research organisations, and the lead time for these opportunities is often short. Initially we aim to deliver 3 pilot events, the first was 29 November '18, to gage interest. The next events will take place in the first half of 2019 and the topics are:

• Electrification of Mobility at Neighbourhood level: deliveries, data, and door-to-door
• Intelligent Mobility and Accessibility: software and hardware developments

To get news of our events and receive event summaries, please sign up to the network here (mailchimp list for this purpose only, unsubscribe at any time): https://www.ucl.ac.uk/transport-institute/Industry_Innovation_Network

For more information about connecting with UCL or the network, please contact Ann Thorpe with UCL's office of Innovation & Enterprise: ann.thorpe@ucl.ac.uk