**ofThings: Experiments in Object Mobility**

Bristol Benjamin Meaker Distinguished Visiting Professor, 2020

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**Mobility built Bristol**. As a harbor town, a ferry port and transportation hub, the making and movement of people and things established Bristol and the regional dormitory towns in the County of Avon.

**But now, things are moving…differently.**

A massive reorganization of the movement of things, as parcels and packages, deliveries and consignments, is underway. The rise of eCommerce, as a disruptive force in the **rapid procurement** of goods, has subsequently lead to changes in the **rapid distribution** of goods.

Of particular interest is the movement of things in places with concentrations of people and in dense built environments – in cities. **“Last Mile Delivery (LMD),”** in supply chain management and transportation planning, describes the movement of people and goods from a transportation or delivery hub to a final destination, like a home or small business. In the United States, from 2008 to 2018, United Parcel Service reports a 29% increase in the average daily package delivery volume from distribution centers to unique addresses. Over the next five years the LMD market is projected to grow by 9.2%. The global market size will reach 4.7 billion USD by 2024, up from 3 billion USD in 2019. Additionally, the European Cycle Logistics Federation reports that, 50% of all light goods, and 25% of all goods are small and durable enough to be moved by cycle or some means of conveyance other than motorized vehicles.

World-wide, car ownership and vehicle miles traveled in personal cars is in decline, as a macro trend. However, increasing **“mobility as a service (Maas)”** options and increasing on-demand delivery activity fueled by Amazon Prime, and other fast-following carrier services, is contributing to increased motorized vehicle congestion, increased carbon emissions and contested curb access in already crowded city streets.

A recent INRIX study indicates that delivery vehicles in western cities spend 9 min on average circling and idling while looking for on-street parking. In Los Angeles or New York, it takes 12 and 15 min on average respectively, to look for on-street parking for car storage or parcel delivery. In Seattle, it takes 9 min on average to find on-street parking. In addition to time spent looking for parking, on street parking requires hourly parking payments. In Seattle, two-hour on-street parking costs an average of $9. Chicago's median daily parking rate is $30, New York: $42.25, Boston: $34, San Francisco: $28 and Miami: $25.

**So…more things, that are small, move to more places, at greater frequency, in motorized carriers, in dense locales with expensive linger costs; all happening within a context of diverse, complex and uncoordinated on-demand and shared systems emerging as new mobility options.**

**of Things: Experiments in Object Mobility** will be divided into two visit sessions. Visit 1 will activate a cohort of researchers using custom made tools of inquiry, to engage Bristol and examine how shared use mobility modes, mobility as a service modes, connected mobility and active transportation modes might be engaged for the mobilization of objects - with emphasis on pedestrian movement and object portage without dedicated motorized fleets.

- To develop the tools and techniques for action research, Pancoast will facilitate group sessions to survey current mobility concepts, examine **“Internet of Things (IoT)”** prototyping systems and demonstrate basic data analysis and visualization platforms.

- Following collaborative planning sessions, contributors headquartered at the Engine Shed and organized into field groups, will participate in daily choreographed excursions out into the city of Bristol, with bespoke IoT devices, **collecting data** on environmental and event characteristics that describe conditions for the movement of things in the city.

***For example: what are the trade-offs, the efficiencies and inefficiencies, when an object is passed from one side of Bristol to the other, using pedestrian power only, or no motorized transport, or no dedicated route vehicle – can new IoT enabled mobility subsystems be imagined that offset problems and positively augment current freight systems?***

**- Visit 1 (3 weeks**) will conclude with a public event, at the Engine Shed, for sharing initial findings and inviting community comment. Excursion data (qualitative and quantitative; environmental and temporal; location, duration, payload, etc) will be organized and visualized as simple preliminary maps and schematic diagrams and presented in a forum where visitors are invited to comment on the choreographies, co-develop new freight / logistic taxonomies and suggest new ways of engaging the mobile city.

**- Visit 2 (1 week)** will conclude with a final public exhibition event at the Engine Shed. Leading up to the visit 2, with University of Bristol support, Pancoast will work remotely and devise and produce finished maps and models, richer media and more thoroughly resolved visualization material for exhibition of the **of Things: Experiments in Object Mobility** project.