

Big Data

The power to transform transportation

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What are we
trying to create
using big data?

- Objectives should be:
- A better cleaner, safer world
- Maximise the use of resources to benefit society
- Understand the real issues in real time
- Aid policy, product and service delivery
- Breakdown barriers, budget sharing, silo thinking
- Put people and the environment first

What data do we need?

- The availability of data surrounds us, everywhere organisations, companies, social media, local government are collecting data.
- In many ways others know us better than we do ourselves!!
- What are the benefits of open data?
- What are we using data for?
- Do we know what organisations are storing?
- What are the benefits of sharing data?
- Does open data encourage innovation?
- What are the issues?

How Big Data is
Transforming
Mobility
Think of Data like
a recipe

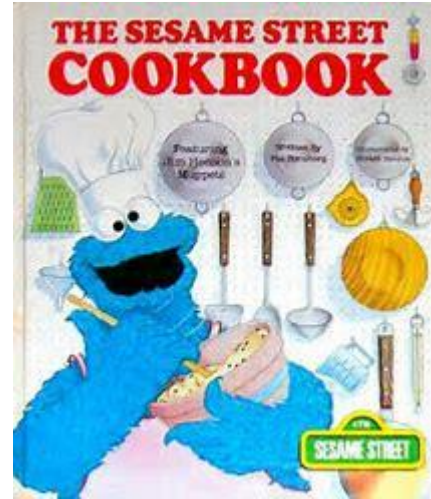
- Big Data is the recipe to success in mobility
- We can identify each persons needs
- We can identify each vehicle in the supply chain
- We can monitor performance of services
- We can identify gaps in provision
- We can model new solutions based on facts not gut feeling
- We can design innovative solutions maximising the use of existing resources
- We can identify training needs
- We can identify solutions

Infrastructure requirements



- Think of a microwave oven as Infrastructure
- The capacity of any city to cope with mobility demands is determined by the capacity of its infrastructure
- In the past this consisted of roads, track, etc. being developed to cope with vehicle demands and allow development of PT services (Road, Rail, Taxis etc.)

Traditional Regulatory Framework



- The cookbook represents the rules and regulations governing the operation of vehicles and services
- In the past this was relatively easy. Rules for each mode determined at local, national and international level

Traditional Transport Network Design



- Cities developed transport services that are operated by various operators with each mode governed by its own rules and regulations. In most cases bus and rail networks are provided based on hub and spoke principle serving town centres and transport hubs.
- Individual transport requirements are not recognised meaning only option if networks are not suitable is car in most cases.
- This approach has worked for over 100 years

MAAS

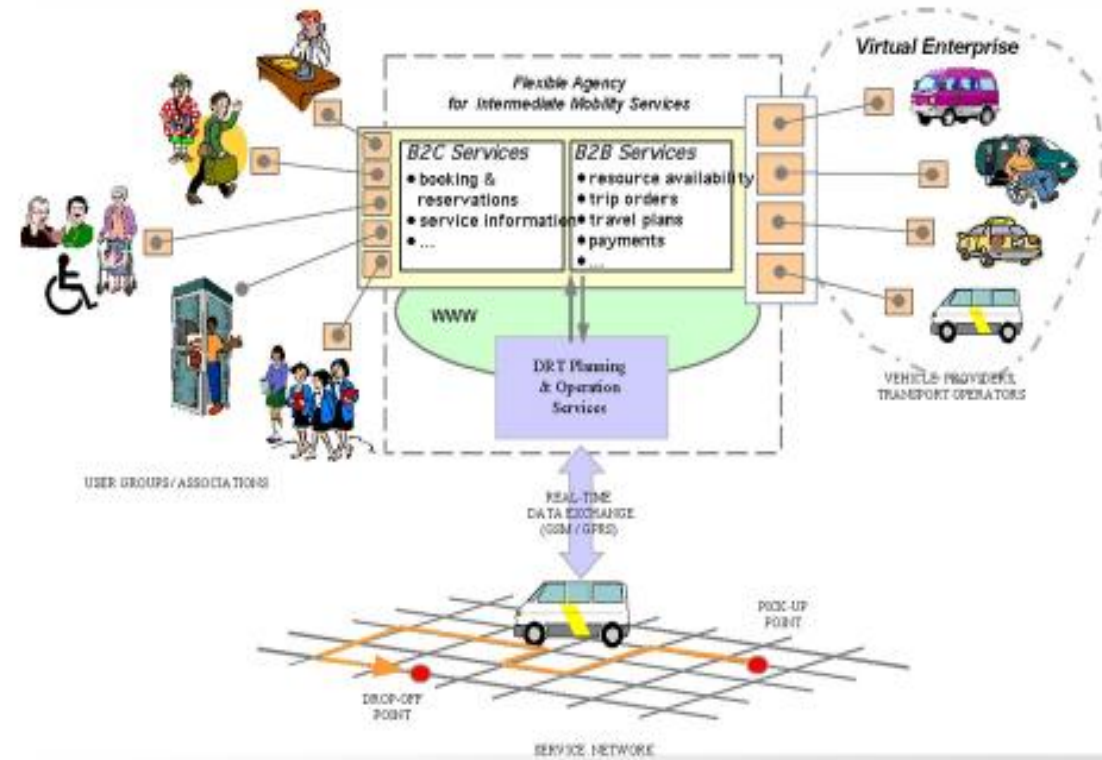
- **Mobility as a Service**
- **Data driven mobility solutions**
- **Multi Modal**
- **Customer Focused**
- **Customer decides**

FAMS Model (2004)



Initial DARTS + FAMS Context

Flexible Agency for Collective



New PT Business Models

- **UBER,LYFT**
- **Car Sharing**
- **Ride Sharing**
- **Bike Sharing**
- **Taxis Bus**
- **Demand Responsive Transport**
- **Bus Rapid Transit**
- **Autonomous Vehicles**

Open Data in the Transport Sector

- **GPS - ability to monitor vehicle, staff, customers etc.** Global standards aids development of products that interface with all supporting systems
- **Ticketing Companies** are now using vast array of ticketing options. Data provision allows passenger travel patterns to be monitored and variable pricing models introduced
- **Real Time Information / AVL.** The performance of services can be monitored and reported building confidence for users and providers.
- **Driver monitoring tools** linking GPS to Canbus information has reduced accidents, increasing comfort levels and reducing engineering costs
- **Journey Planning** – The provision of service and fares data has seen the introduction of numerous journey planning systems across the world

New Business Models as a result of open data

- 1) Mobility as a service MAAS. Data driven, Multi modal solution, focussed on user preferences
- 2) Ride share – UBER type solutions offering flexible solutions at flexible prices based on user preferences
- 3) Car sharing matching up user needs to availability of vehicles using smart technologies
- 4) Co Creation and Crowdsourcing is now widely used in transportation sector based on multi stakeholder participation
- 5) On Line shopping – Amazon type services using smart technologies to meet both demand and supply chain in real time
- 6) Google Long Tail
- 7) Pay as you go – Media, Spotify, Amazon, Mobile Phone Contracts

New Opportunities

- Personalised data will allow new multi modal mobility solutions to be developed based on individual ability to pay, location, health requirements etc
- Allow for multi stakeholder budget sharing
- Develop new cost and price models

Ciptec Project

- <http://ciptec.eu/ciptec-videos/>
- Ciptec put forward an integrated approach which draws on the best ideas from marketing (customer orientation, marketing research, consumer intelligence), consumer behaviour (advanced motivational research, behavioural experimentation), innovation (crowdsourcing, collective intelligence, co-creation and co-design of new ideas, fusion of business concepts with social innovation), evaluation (socioeconomic, technological and ethical assessment) and co-exploitation within a wider than usual stakeholder platform attacking the challenges that do not favour the public transport “environment”.
- www.ciptec.eu

Newbits

- <https://youtu.be/qyERL7K7Njk>
- The NEWBITS project is built on the belief that better information leads to better decision-making. Organizations nowadays are still working in silos not effectively feeding each other with knowledge and basically not “seeing” each other as parts of an interconnected ecosystem. In order to enable stakeholders to learn from each other and build a common pool of knowledge, resulting in decisions that are most valuable to the system, shared tools and methods are needed.
- <http://newbits-project.eu>

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Intelligent Transport Magazine

- <https://www.intelligenttransport.com/>

Way forward

- **Open Data is the blood of public transport planning, monitoring and reporting**
- **Our cities and rural areas need local based solutions based on user requirements and needs**
- **Need for multi disciplinary framework using business systems like Lean to build understanding of all issues across all sectors**
- **Need for Cost and Revenue Sharing across budget headings. Breakdown Silo thinking**
- **DATA protection issues need to be recognised and secure systems put in place**
- **Open data means open working practices to build trust**
- **We are all part of the problem and must play a part in the design of green environmentally friendly mobility solutions**

Yes with big data
we can have our
cake and eat it

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