TRANSFORM Workshop Rotterdam

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Val is angry
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The Owner of AyeRight Taxis Ltd picks up her story on twitter and blacklists the drunken, jobless trouble maker.
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WHO OWNS THE PROBLEM?
WHO WILL DELIVER THE SOLUTIONS?

CITIES ARE PLACES OF EXCHANGE – THEY ARE ABOUT PEOPLE AND GOODS EXCHANGING IN THE MARKET
Survey of Megacity Officials & Influencers
(n=522 across 25 cities during Oct./Nov. 2006)
TRANSPORTATION SEEN AS NUMBER 1 ISSUE FOR CITIES

Importance for Economic Attractiveness Unprompted Percentages (n=522)

- Transportation: 27%
- Safety/security: 9%
- City management: 6%
- Communications: 6%
- Education system: 6%
- Energy supply: 6%
- Leisure / culture: 6%
- Environment: 5%
- Health care: 4%
- Water: 3%
FUTURE MOBILITY FROM TRENDS TO REQUIREMENTS

- Globalisation
- Urbanisation
- Land Use
- Ageing
- Workforce Participation
- Smaller Households
- Affluence
- Consumer Culture
- Motorisation
- Congestion
- Environmental Awareness
- Infrastructure Spend
- ICT Availability
- Governance

- Complex Trips
- Consumer
- Congestion
- Enabling Technology
- Government Policy

- Personalised Options
- Informed Decisions
- Simple
- Mode Neutral
- Inform & Communicate
- Personal Connectivity
- Physical & Virtual Integration
- Coordinated Transfer
- “Zero-Wait State”
- Trusted Services
- Perceived Value
- Transparent Value Proposition
- Payment Mechanism
- Attractive Mobility Package

- User Focused
- Seamless
- Valued
INESCAPABLE TRENDS – NEW BUSINESS MODEL

TRANSPORT
- Operational
- Fixed Scheduling
- Individual Modes
- Strategic Value

MOBILITY
- User Focussed
- Lifestyle Responsive
- Seamless Mobility
- User values

INEFFICIENT AND POLLUTING

EFFICIENT AND GREEN
Opportunity from Transport, ICT & Energy convergence

Gamification
Behaviour Change
Policy
Funding
Business Models
Solutions
Motivation
Scale
Service
Living Labs
Data
Informatics
Mobility
Demonstrate
Internet of Things
Policy
Demand Management
Societal Challenges
Smart Mobility
Emerging Internet of Moving Things

Customers: Those who pay for services
Mobility Integrators: The smart mobility service providers (aggregators, brokers, players)
Networks: The connected Transport, ICT and Smart Grid infrastructure and systems that enable vehicles to move things
Vehicles: The machines that move things
Things: People and goods

+ Information: to, from, and between all of the above. The Internet of Moving Things
Case Study (Uber)

- **Problem:** Customers want convenience, comfort, and swank from car service providers

- **Solution:** Uber is a venture-funded start-up company based in San Francisco, California that makes a mobile application that connects passengers with drivers of luxury vehicles for hire. Uber was founded as UberCab in 2009. Uber service was officially launched in San Francisco in June 2010 with Ryan Graves becoming CEO in August of that year. The company is already in North America, Europe, and Asia, with the Middle East, Latin America, and Africa on the way.

- **Return:** On August 22, 2013 Uber closed $361.2 million in its latest round. The round values Uber at around $3.4 billion pre-money and $3.76 billion post. Google Ventures invested $250 million into the on-demand car service.
Industry Challenge

• Businesses are challenged to win a share of the US$13 Trillion by 2020 (F&S) global mobility market. No company can win alone.

• Yet, despite billions invested in innovation, 40% to 90% of new products fail. Why?

- Effect - A gaping mismatch between what innovators think customers desire and what customers really want to buy.

- Result - the road to market adoption can be slow, business cases hard to justify with crippling time to profitability and ROI

Ref: eager sellers and stony buyers, Gourville
The drive to a low-carbon economy is one component part of the move to do things ‘smarter’ overall, and thus Technology and Engineering (TAE) firms naturally contribute to that drive.

It is best not to assume that the sector is automatically driven by low carbon ambitions, but to use corporate sustainability and profit margins as more direct influencers.

As progress is made with various TAE market opportunities the emission of carbon dioxide (or equivalent greenhouse gases) will be reduced as a by-product of that progress.

Carbon Reduction is an INDIRECT driver for the TAE Sector

The TAE Sector makes a DIRECT contribution to Carbon Reduction
What will we do in Scotland?

Accelerate Scottish TAE Sector Growth by uniting, understanding, supporting, and strengthening the Smart Mobility knowledge and innovation community.
Government Economic Strategy: Sustainable Economic Growth
Policy: Scotland’s Cities - Delivering for Scotland (+ Team Scotland plans)
Governance: Smart Mobility Steering Group, Industry (TAG), Academia (SICSA,SRPE)
Delivery: Mobility Knowledge and Innovation Community
Strategic Value Add:
  – Encourages engagement in the Scottish economic development and low carbon strategies
  – Levers in investment from other sources
  – +TSB Transport Systems Catapult Centre (~£30m pa funding)
  – ++DG engagement; EU Horizon2020; Urban Mobility KIC
Mobility Knowledge and Innovation Community

- Project Accelerator (Physical Hub)
  - Network Integrator ("Champion")
    - Manage Challenges
    - Export and FDI support
    - Connect
    - Standards and interoperation platform
  - PR&Marketing
  - Networking & Events
  - Transformation: Opportunities->Investable Projects->Delivery->Impact
    - Skills Building
    - Stakeholder Mgmt
    - Assistance for compliant Procurement of Innovative Solutions
    - Attract funders, investors and FDI to high value “deal flow”

www.scottish-enterprise.com
SMART MOBILITY MANAGEMENT ACTION PLAN FOR SCOTLAND

GROW SCOTTISH CAPABILITY MATURITY

• Smart Mobility Network Integrator “Champion” in post by 9/13
  (www.georgehazel.com)
• >100 companies in Smart Mobility cluster by 4/14
• Challenge to Industry Competition launched in 12/13

CREATE, DELIVER & CAPTURE VALUE IN INTERNATIONAL MARKETS

• 10 small demonstrator pilot projects selected and contracts awarded 3/14
• 6 large scale collaborative demonstrator projects selected and investor ready by 6/14

IMPROVE SCOTLAND’S BALANCE OF TRADE

• Help companies in the Smart Mobility cluster to secure additional exports, foreign direct investment and EU funding
Smart Mobility Opportunity: Scottish Exemplars

Alexander Dennis Ltd
World leading hybrid bus & vehicle charging demo in Glasgow

CMAL Ltd
World first hybrid ferry as part of sustainable islands project

SkyScanner Ltd
Global informatics phenomenon exporting from Scotland

Uni of Strathclyde spinout; Global software leader in power grid management

Smarter Grid Solutions Ltd

Smart Mobility Cluster (KIC)

Transport Systems

Distributed Energy Management

Telematics & Intelligent Transport

Smart Grid

SMART MOBILITY

Informatics

Energy

www.scottish-enterprise.com
Mobility Integration Challenge

• The Mobility Integration Challenge is a competition designed to help Scottish technology and engineering company prove the value to prospective buyers of Smart Mobility products and services in Scotland leading to accelerated success in international markets.

• The Challenge: Scotland is challenged to create the most advanced, integrated mobility capability in the world and to show how this can be commercialized through demonstration projects that bring global competitive advantage to our company base and our cities and communities.

• Challenge to Industry: Companies are invited to respond to the above challenge by submitting project ideas that aim to demonstrate value to prospective customers consisting of:
  – Project Objective Statement
  – Problem to be Solved
  – Proposed Solution
  – Applicant investment

• Selection: Ideas with the greatest potential for commercial, economic, environmental, and societal benefits will be selected and routed into Scottish Enterprise for full appraisal, investor readiness, funding package, implementation support and evaluation
Route to Commercial, Economic and hence Environmental Benefits

- Mobility knowledge and innovation community
  - Events
    - Idea
    - MI Challenge
    - Skills
    - SIGs
    - Mutual assist
  - Opportunity
    - Review
      - Economic
      - Environmental
      - Export potential
    - Develop
      - Collab contract
      - Project plan
      - Expert appraisal
  - Deliver
    - Funding
    - Project
    - Expert Support
    - Monitor
  - Eval
    - Impact ROI&GVA
    - Case Study
    - User Endorsement
    - Recommendations

Smarter Cities and Communities
Higher growth
Companies exporting

Repeat to move through technology readiness levels
How much might it cost?

Estimate £16.1m - £33.2m over FY14-17 from Public Sector
Scottish Industry can take advantage of the growing local and global market for Smart Mobility products, services & business models (>\$13Tn by 2020 F&S) and in so doing generate additional environmental and equity benefits.

**Economic Opportunity ( = In general, Industry Business Cases can be made showing ROI)**

- Value-demonstration projects will sustain GVA, with a return broadly around costs
- Encourage Public Sector to become new local markets for smart mobility solution providers through *procurement of innovative solutions from industry, particularly SMEs*
- Assist companies to export with a return of over £7 for every £1 of public sector input

**Which will lead to Environmental Benefit**

- Transport emissions, including international aviation and shipping, make up just under a quarter of Scotland’s total emissions, and more than two thirds of these emissions come from road transport.
  - Transport emissions in 2010 amounted to 13.2 MtCO2e or 24.1% of total Scottish emissions, and the majority (9.4 MtCO2e) was from road transport.
  - the current Business as Usual projection for transport emissions suggests that they will increase by 11% from 13.5MtCO2e to 14.8MtCO2e between 2013 and 2027.

Ref: Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013-2027
Challenge?

What challenge?

Lets ask Val...
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THANK YOU

John Murray

December 2013
Scotland’s strengths span 7 distinct, converging groups collectively offering a potentially unique innovation system:

**Group 1:** Provide mobility from point A to B (e.g. public transport operators, rentals)

**Group 2:** Provide the ICT and support to generate new products, processes and services (e.g. App developers, ICT Companies, consultants)

**Group 3:** Provide “low carbon” infrastructure for mobility (e.g. smart grid, payment providers, charging stations, H2 fuelling)

**Group 4:** Provide mobility vehicles (e.g. transport companies, OEM’s, sub-component suppliers)

**Group 5:** Provide Academic excellence in STEM, skills, research and spin-outs (e.g. SICSA, SRPe)

**Group 6:** Government laws, regulations, incentives, promotion, support and subsidies to the different entities (e.g. Scottish Government, Scottish Enterprise, Cities)

**Group 7:** Investors and funders (e.g. Angels, VCs, Green Funds, SIB, GIB, SE, TSB, EU)
## Mobility Integrator Challenge Framework

<table>
<thead>
<tr>
<th>Mobility Integrator Submissions</th>
<th>Mobility Integrator Challenge</th>
<th>Mobility Integrator Services</th>
<th>Mobility Integrator Use Cases</th>
<th>User Persona (business user)</th>
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</thead>
<tbody>
<tr>
<td>Service 1 Submissions</td>
<td>Mobility Integration</td>
<td>Service 1</td>
<td>A Day In The Life Narrative</td>
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<tr>
<td>Service 2 Submissions</td>
<td>Networks</td>
<td>Service 2</td>
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Scottish Industry can take advantage of the growing local and global market for Smart Mobility products, services & business models (>\$13Tn by 2020 F&S) and in so doing generate additional environmental and equity benefits

**Economic Opportunity**

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“Global Mega Trends continue to impact mobility, and the effectiveness in how people and goods move around. The world is experiencing rapid urbanisation, changes in the production and use of energy, changing social preferences, and rapidly advancing technology. All of these aspects play a key role in the mobility service the consumer of today expects. Yet there is one underlying trend that is leading to the convergence of products, technologies and indeed whole industries: Connectivity. With a forecast of 80 billion connected devices by 2020, or 500 devices per square km by 2020, the Internet of things is set to continue to impact every sector; and it will certainly affect mobility.”

Frost and Sullivan
Building Customer focused services

User Profiles
- Smart Mobility Use Cases

Service Specifications
- Customer focused Challenges for each use case

Service Demonstration
- Proof of value to customers for each service

Service Delivery
- Export

Service Integration
- Consolidate services into a national Mobility Integrator
**Google Now—Mobility Integration Solution**

Although a key competitor to voice assistance features in other smartphones, like Apple’s Siri, Google Now is moving more toward mobility integration with a dedicated platform that hints at future advanced products.

<table>
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<tr>
<th>What it is</th>
<th>Google Now functions as a voice-controlled search engine that not only provides the right information at just the right time but also updates the information to offer customers with anytime connectivity and on demand mobility information even before searching.</th>
</tr>
</thead>
</table>
| How it Works | • Google Now typically functions as a search assistant with voice activation on the Android 4.1 OS (Jelly Bean).  
• Google Now has a set of cards (Google Now Cards) that shows information like weather, traffic, appointments, sports, and places.  
• There are currently 10 different cards, with more expected in the future.  
• Based on the user search, these cards are automatically updated in real-time depending upon the current location, and notifications are sent to the user.  
• It therefore reduces the need for the user to search. |
| Mobility Integration Solution | The traffic, public transit, flights, time back home Google Now cards; the location route search/directions feature (for the places, appointments, and weather cards) and the ability to buy tickets (for the sport card) are aspects that identify Google Now as more than just a search engine, as it acts as a mobility integrator by giving customers the right information that they need in real time. |
| Features and Offerings | • Save the current search → auto card population → knows the user’s probable next move  
• Connects to a number of Google services like Google Maps, Google Search, Translation, Calendar, and Currency.  
• Time and directions to reach destination using different available travel modes and a combination of the same (public transport, walking, and car) |
| Future | • Introduction of new Google Now Cards  
• Probable integration of more transport modes like carsharing, bike sharing, and journey planning. |

Note: Images used only for representation purposes. Source: Google Now and Frost & Sullivan analysis.
Smart Mobility Opportunity: Estimate

Support innovative companies to conceive, develop and demonstrate smart mobility products, processes, services and business models which can become profitable in global markets.

- £2.1-4.2M over FY14-17 (Upper: 20 x £50k grants p.a. + 40 x £10k export assists p.a.)
- *e.g. Help 25 Companies before/during/after Mobile World Congress 2014 to internationalise*

Position Scotland as a leader in addressing challenges faced by city regions globally and as such, become the lead choice for companies wishing to develop, demonstrate the value of, and commercialise smart mobility innovations

- £10-21M over FY14-17 (Upper: 10 small demonstrator projects@£100k + 3x£2m projects p.a.)
- *e.g. Challenge to industry: 10 projects, £2m (50:50), export ready in 12 months*
Help ensure that Scotland has competitive and smart business infrastructure which can stimulate development and attract foreign direct investment (FDI).

- £3-6M over FY14-17 (Upper: 2x £1m capability building projects p.a.)
- e.g. £1.2m Smart Project Accelerator at ECCI** to stimulate projects of scale and deal flow

Encourage Public Sector to become new local markets for smart mobility solution providers through innovative procurement

- £1-3M over FY14-17 (Upper: SE offers £1M p.a. contracts to industry)
- e.g. SG Low Carbon Vehicle Roadmap obliges public sector to transition to low carbon mobility

Estimate £16.1m - £33.2m over FY14-17
Global Markets

• Interest in Smart Mobility has been growing globally over the last few years. This is not surprising given the increasing societal need for better ways of moving ‘people and things’, and the vast global market opportunity that represents for companies. Examples of global forecasts include
  – Investment in smart city technology infrastructure will total $108 billion during the years from 2010 to 2020. By the end of that period, market intelligence anticipates that annual spending will reach nearly $16 billion. (Navigant)
  – £6.5 Trillion will be invested globally in city infrastructure over the next 10-15 years (TSB)
  – The accessible market for integrated city systems is estimated to be £200bn a year by 2030 (UK Technology Strategy Board).
  – In USA, $2bn committed through the Energy Security Trust for Electric vehicles, advanced vehicles and intelligent mobility. Objective is to have transport "Coast to coast without using a drop of oil".
  – Non-urban logistics spending to reach $7.02 Trillion by 2020, accounting for 54% total logistics spending (Frost & Sullivan)
  – Urban logistics spending to reach $5.98 trillion by 2020, accounting for 46.0% of total logistics spending (Frost & Sullivan)