Scotland is the perfect partner for tier 1 value chain leaders and SMEs seeking an Open Innovation Partnership in Mobility R&D

The Michigan-Scotland Link
By 2020, we envision Scotland as:

- **the** global location of choice for demonstrating the value of Smart Mobility products, services and business models
- an exemplar of their adoption
- a leading international provider of technology and engineering products, services, and know-how.
SM opportunity development strategy

• Scotland’s strategy for success is to unite, understand, support and strengthen a **globally unique open Innovation partnership in Mobility R&D** (a Knowledge and Innovation Community) from which economic - as well as environmental and social - benefits flow by:
  – Building capabilities in Scotland (people and investment)
  – Attracting global companies into the Living Lab (FDI)
  – Proving value within the Living Lab (innovation)
  – Going global from the Living Lab (export)

• Forming strategic partnerships around the world

• Prize: May be between £252m and £504m p.a. additional turnover from 2020 onwards, depending on funders’ appetite

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Survey of megacity officials & influencers
(n=522 across 25 cities during Oct./Nov. 2006)
From trends to future mobility core needs

- 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
- Value
Yesterday’s information broadcast – top down
Today’s information broadcast – fast, flexible, interactive, personal and global
The industry challenge

Winning in “smart mobility” markets

Public Sector
Energy Sector
ICT Sector
Transport Sector

Collision

Mobility Services

CUSTOMERS

TODAY

TOMORROW

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Smart mobility: 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

Smarter Grid Solutions Ltd
Uni of Strathclyde spinout; Global software leader in power grid management

SkyScanner Ltd
Global informatics phenomenon exporting from Scotland
The potential of smart mobility

Potential outputs

- Generates new markets and profits – a global business
- Generates new funding streams from value added products and services
- Helps to attract and retain residents, businesses and visitors through personalised services matched to their lifestyle needs
- Generates efficiency savings
- Provides the ability to shape and balance the mobility system
- Enables the delivery of other strategic objectives like health, environment and social needs
Future Mobility is driven by finding and capturing customer value
People and businesses see value very quickly

- London’s Heathrow Airport to City Centre
- Cost on the “Heathrow Express” is £18 ($27) for a 15 minute journey
- On the London Underground it can cost as little as £2.90 ($4.40) – BUT takes around 1 hour
- 16,000 passengers take the Heathrow Express on a daily basis
- ….but 1st Class is usually almost empty!
Value drives the market and behaviour – and the results can be dramatic.

TTC trial showed 57% increase in public transport use!
Spitsmijden, Netherlands – incentives to reduce peak traffic

- Pilot project
- Paid participants to travel by public transport or out of peak time
- Used smart phones to provide information and cameras to enforce
- Discounts and PTP type advice
- 20-50% change away from peak car use
Information creates value – increased coffee sales!
What is Scottish Enterprise doing to help companies take advantage of global smart mobility markets?
Markets

Societal Challenges

- The world is becoming increasingly urban

Megatrends

- Urban mobility demand explodes

Problems

- Cities are confronted with new challenges
  - Air pollution
  - CO₂ emissions
  - Noise
  - Increasing ecological footprint
  - Traffic chaos
  - Traffic security
  - Traffic jam
  - Decreasing quality of life and convenience
  - Overloaded infrastructures
  - Insufficient public transport capacities
  - Increasing motorization
  - Limited parking places

Total Addressable Market

- Global Opportunity (TAM)
  - B2G: $400B by 2020
  - B2C: 14% consumer income
  - B2B: $13T by 2020

Source: UN Population Division, Schäfer Nicola 2000, Cosgrove Cargile 2007, Arthur D. Little
Unique selling point

The ONLY **country-scale** Smart Mobility Living Lab (there are 320 non-country scale living labs)

**Scotland**
- Devolved Government
- Talented and skilled people
- Just the right size
- Engineering excellence

**Markets**
- People buy SM service
- Business buys SM service
- Public Sector buys SM service
- Launchpad to Global Markets

**Industry specialisation**
- Transport
- Informatics
- Energy
- Retail

**Research Excellence**
- Science
- Technology
- Engineering
- Mathematics

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Personalised, integrated movement of people, goods and information, enabled by the internet

What might a national mobility management system look like?

Internet of Things → Things that are moved → Things that move → Networks → Services → Customers

- Connectivity
- Real-Time Information Services
- Vehicle Management Systems
- Smart Ticketing/AFC
- Apps Store Services
- Intermodal Communications
- Mobile
- V2V & V2X
- Navigation
- Safety Systems
- Traffic Signs
- WLAN
- Vehicle Sharing
- Travel Assistance
- Commercial Vehicle Telematics
- Fleet Management
- Congestion Charging
- Trip Planning
- Electric Vehicles

Source: ETSI
Inbound Marketing (FDI)

Attract FDI by offering an opportunity to global value chain leaders to co-create the world’s first national-scale mobility management system.

<table>
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<th>Group 5</th>
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<td>Big Data</td>
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**Exemplars**
- Cisco, Freescale
- Amazon, DHL
- Ford, Virgin, Mitsubishi
- Siemens, ABB, “Public”
- Google

+Scottish SMEs +Scottish SMEs +Scottish SMEs +Scottish SMEs +Scottish SMEs
Partnership Opportunity

Scotland is a perfect match for Tier 1 players and SMEs seeking to establish an innovation partnership for Smart Mobility R&D

<table>
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<th>Investment</th>
<th>Mobility co-investment and venture fund</th>
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<tr>
<td>Inclusion</td>
<td>All of Scotland: Businesses, Government, Academia, People</td>
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<tr>
<td>Innovation</td>
<td>Value Chain: service providers, networks, vehicles, things, IoT</td>
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<tr>
<td>Procurement</td>
<td>Mobility Application Dev. Env. : Feasibility, Demonstrator, Scale</td>
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<tr>
<th>In (FDI)</th>
<th>Operations</th>
<th>Out (export)</th>
<th>M&amp;S</th>
<th>Services</th>
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<tr>
<td>Co-create Mobility Management System</td>
<td>International Innovation Investment People</td>
<td>Go Global</td>
<td>International Market Comms <em>Mobilising a Better World</em></td>
<td>Agreements Contracts Support</td>
</tr>
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www.scottish-enterprise.com
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.
Response to the SE challenge to industry

- 62 bids received from multi-million to small SME companies
- 180 organisations involved in the bids – all led by industry but many including the public sector, academia and international partners
- £103m total project investment opportunity
- £57m committed by bidders in cash (£40m) and kind (£17m)
- £46m funding sought from other agencies
- All bids now assessed and routed to appropriate places
- 12 large collaborative bids approved for next stage
- These 12 projects moving to investment case and implementation
Position Statements

Within the Open innovation partnership for Mobility R&D, we help industry to
1. connect in new ways
2. co-create seamless, valued services
3. prove value early to prospective buyers
4. scale globally, before the others
Thank you.

Dr George Hazel OBE
Smart Mobility Network Integrator
On behalf of Scottish Enterprise
February 2015