



ITS and Transport in the future

Prof Eric Sampson CBE

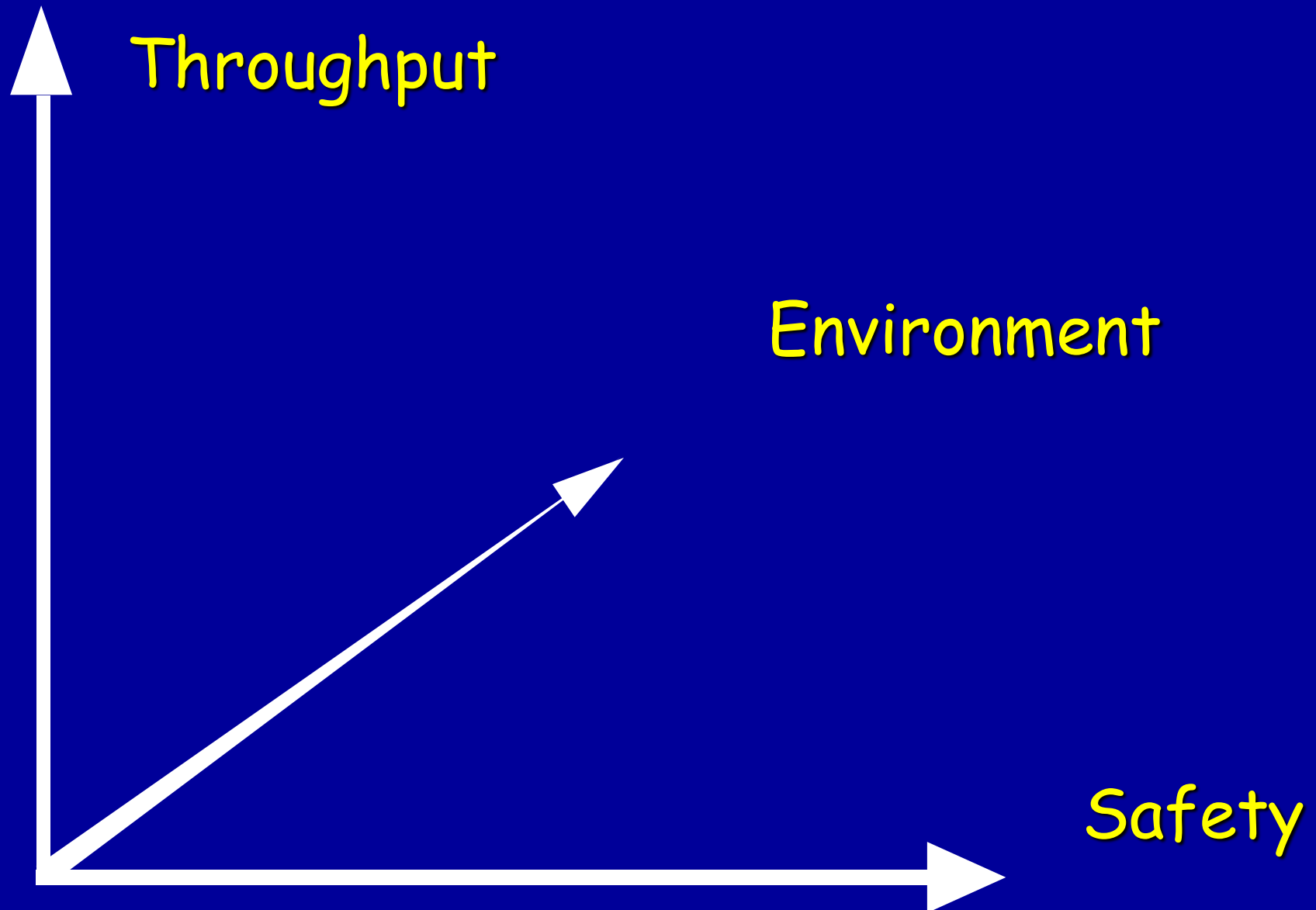
Newcastle University and ITS (UK) Ambassador

UK transport objectives:

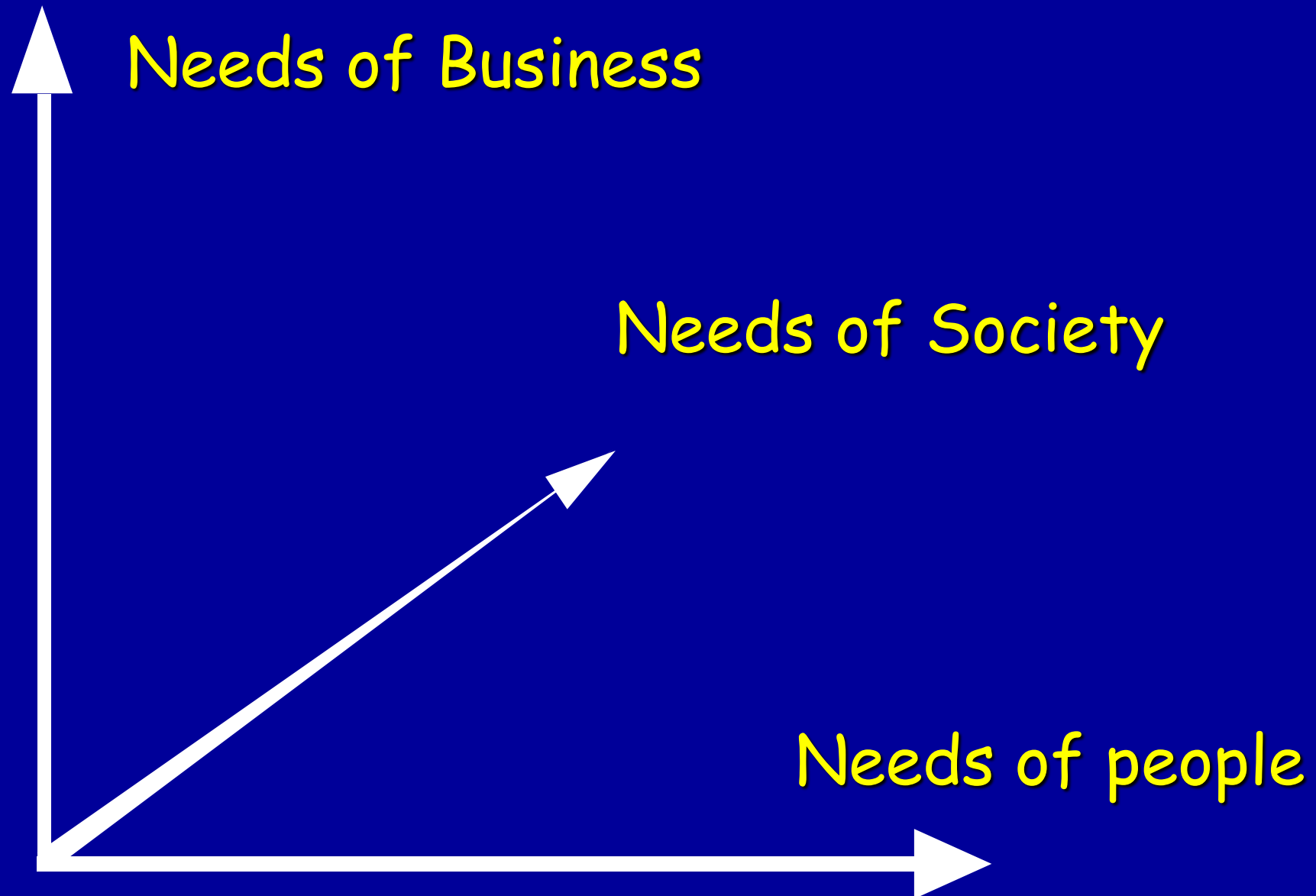
- Supporting the economy with reliable & efficient transport
- Reducing congestion
- Sustaining and extending accessibility
- Minimising energy consumption
- Minimising environmental impact
- Improving safety
- Sustaining and extending personal security

Source: DfT's four strategic objectives

Delivering transport : the tensions 1



Delivering transport : the tensions 2



Delivering transport: the challenges

How we can make progress in as many as possible without incurring the negatives ?

- congestion
- capacity
- climate change & Greenhouse Gases
- energy supply
- cost of, and space for, infrastructure
- safety
- joined-up services
- accessibility [ageing, disability, affordability]
- security and privacy

Delivering transport: the basic solutions

- Amend the demand side
 - Change traveller behaviour
 - Reduce the need to travel
 - 'Flatten' peak demand
 - Get a modal shift
- Amend the supply side
 - New build
 - Bigger/better 'vehicles'
 - Better use of existing infrastructure
 - Change traveller behaviour
- A bit of both

Some available techniques

Change the 'vehicles'

- Boost public transport (quality, information, payment)
- Mode shift especially car → bus
- Real-time information services

Change the infrastructure

- Active management of networks
- Parking management
- Land use planning
- High Occupancy Vehicle lanes and Priority Systems
- Integrated urban and inter-urban traffic management

Change traveller behaviour / trip substitution

- Tele-services to reduce the need to travel
- Road use charging and access control
- Reduce drivers' involvement (Connected V-I, Autonomous)

How well are we doing?

Not too bad

Traveller Information	✓
Managed higher capacity	✓
E-Safety (ADAS, ISA,)	1/2
Location-based Services	✓
Road User Charging	✓
Reactive traffic mgt	✓
Active traffic management	✓
V – I linking	1/2
V – V linking	1/2
Open Data	✓
E-Ticketing	✓
E-Payment / ID	✓
Primary vehicle safety	✓
Energy storage	1/2
Intelligent Vehicles	1/2
Intelligent Infrastructure	1/2
Intelligent drivers	0

Smarter Travellers

Need to do better

Smarter Cities

Smarter Infrastructure

Smarter Integration

Smart multimodal travel information
 Location-based ideas and links
 Changing traveller behaviour
 Child & pedX safety in cities
 Better public transport
 Joined-up public transport
 Smarter cities
 Avoiding congestion
 Smart network management
 Reduced environmental impact
 Seamless journeys
 Through ticketing
 More efficient logistics
 Energy storage
 Connected vehicles
 Autonomous vehicles

The mega-trends

- Everything is becoming instrumented
- Everything/everyone is becoming interconnected
- Open Data is transforming transport markets
- Consequently everything is becoming intelligent
- Everything is interacting/converging (esp. in cities)
- Huge increase in smartphone ownership
- Huge increase in use of social media
- The physical domain is becoming increasingly digital
- This facilitates sharing and cross-over apps
- A digital transport domain becomes part of retailing
- Owning infrastructure is becoming less valuable
- Buying / using data opens many new options

Where do I think we're going ?

- Many EVs or hybrids using sustainable power
- Cities rather than urban settlements
- Pay-as-you drive on roads linked to carbon prices
- Permanently connected travellers via smartphones
- Connected vehicles and infrastructure
- External control for crash-proof vehicles
- In-vehicle 'black boxes' for insurance and monitoring
- Reduced customer 'lock-in' by operators/manufacturers
- Buying 'Mobility' rather than 'Transport'
- Highly personalised information markets
- Personal travel 'shoppers' and 'tutors'
- The John Lewis/Virgin/M&S/TESCO mobility retailer

The 'killer service' will be an app store