



University of the
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Centre for
Transport &
Society

Can Demand Response Transport Deliver Value for Money?

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TRICS Conference, London, 17 November 2004

Overview

- 1 Context
- 2 Defining 'Value'
- 3 Typology of DRT Services
- 4 Maximising 'Value'
- 5 Conclusions & Recommendations

1 Context

Growing International Application of Demand-Responsive Transport Solutions

- Well developed in developing countries
- Markets niches in North America
- Unfulfilled aspiration of UK bus deregulation
- Several UK Government investigations into potential
 - RBC / UBC funds have encouraged experimentation
- Rejuvenation of interest in other EU states
 - e.g. Netherlands, Italy, Finland, France

Research for DfT/GMPTE on DRT: Intermode

- One-year Study Reviewing & Interpreting Evidence
- Other Team Members:
 - Dr Marcus Enoch, Loughborough University (lead)
 - Dr Stephen Potter, Open University
 - Dr Mark Smith, Sustainable Business Solutions
- Final Report Published August 2004
 - On DfT website

Contemporary Pressures on Conventional Public Transport

- Conventional PT failing in several key markets
 - Rising incomes and increased car availability
 - More dispersed development and trip patterns
 - Some services reduced, fare rises on others
 - Costs of bus subsidy rising
 - Fewer users?
 - Fewer services?
 - Higher subsidy demand?

Project Rationale

- Most UK research to date 'kit' driven
 - i.e. what type of vehicle most appropriate?
 - how might the technology work?
 - should service be fully or semi-flexible?
 - Important, but...
 - Need to study from public authority / operator viewpoint
- Focus of research on market / near-market niches

DRT – Right Idea at Right Time/Place?

- Accessibility Planning & Social Exclusion (multi-faceted)
 - Poverty
 - Rurality
 - Disability
 - Fear of crime
- More ‘traditional’ sustainability concerns
 - Environment
 - Congestion

→ But ‘Best Value’ also important!

2 Defining 'Value' with Respect to DRT

DRT: In Tune with Doctrine of *Best Value*

- 1999 Local Govt Act - requires ALL services to be:
 - “responsive to the needs of citizens”
 - “fair and accessible to all who need them”
- 2001 Local Government WP – principles of reform
 - “framework of clear and exacting performance standards”
 - “**flexibility**: removing artificial bureaucratic barriers which prevent...improving local services”
 - “expanding choice so that users of public services are given the kind of options that they take for granted in other walks of life...taking full advantage of alternative means of provision”
- However - UK Institute of Value Management notes:
 - “Focusing on cost can be destructive when it is taken to the point where products or services are degraded”

Defining 'Value' for DRT: Theory

- Identifying needs
 - itself a value-judgement
 - consider various ways of providing for those needs
- Appraise range of social, economic, environmental costs & benefits
 - for each possible alternative solution
 - over a chosen period of time
- Different approaches to Value for Money
 - cheapest option achieving basic level of needs
 - or
 - Option with highest ratio of benefits to costs

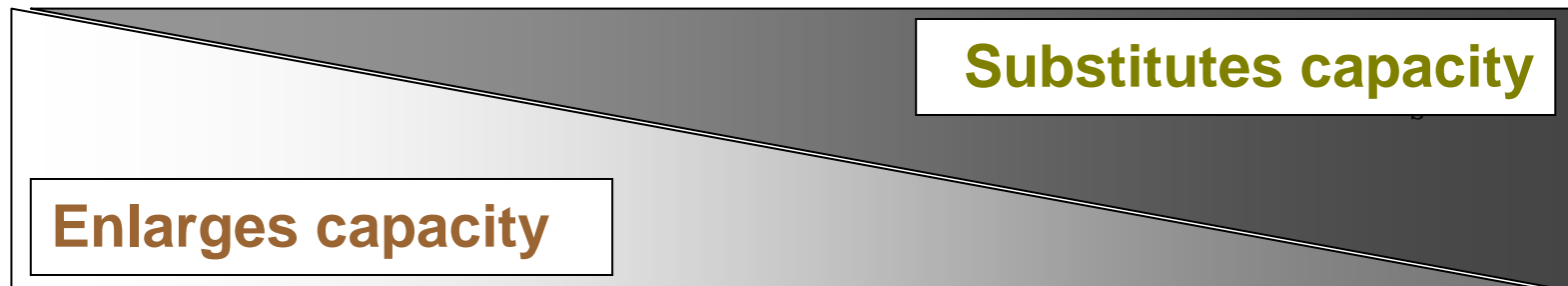
Defining 'Value' for DRT: Practice

- Compare against notional conventional service
 - Likely to provide high value where replaces existing public transport and...
 - similar/better service for same/less cost
 - Likely to provide high value where provides new type of 'essential' service but...
 - prohibitively expensive using fixed-route service
- Definition of value ultimately dependent on policy objectives & nature of solution

3 Typology of DRT Services

Four-way Classification of Market Niches

Additional capacity/part substitution		Substitutes capacity
Integrates with existing services	Complements existing services	
<i>Interchange DRT</i>	<i>Network DRT</i>	<i>Destination-specific DRT</i>
		<i>Substitute DRT (including User-specific DRT)</i>



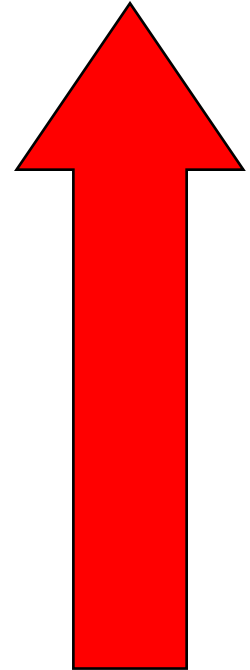
Examples of Public Policy & Commercial Niches for DRT

	<i>Interchange</i>	<i>Network</i>	<i>Destination-specific</i>	<i>Substitute</i>
Public Policy	PP1 InterConnect (Lincs)	PP2 RegioTaxi (NL)	PP3 Travelink Maxi-Taxis (Telford)	PP4 Lovedean Carshare (Hants)
Commerce Driven	CD1 Taxibus (Bicester)	CD2 Dolmus (Turkey)	CD3 Vodafone Shuttle (Banbury)	CD4 Black Taxis (Belfast 1969)

4 Maximising 'Best Value'

Hierarchy of Financial Performance

- Commercially viable DRT
 - Profitable / (cross-)subsidised for commercial reasons
- Acceptable Subsidy DRT
 - Comparable to current tendered services (<£2/trip)
- Justifiable (High) Subsidy DRT
 - Cheaper than (notional) conventional bus
 - Cross-sector benefits
- Financially Unsustainable DRT
 - Short-term demonstration project / pump priming



Potential for Evolution?

Barriers to Financial Viability: Maturity & Scale

- Limited range of vehicle type
 - Need to appeal to a range of users
 - Efficient for a range of circumstances
- Operating area
 - Local knowledge versus scale economics of capital assets

→ Regional level solutions with public funding of infrastructure and/or vehicles?

Barriers to Financial Viability: Institutional

- Specific nature of funding
 - BSOG not available for shared, pre-booked taxis
 - Shared taxis not usually exempt from VAT
 - Bus/Taxi Licensing & Regulatory regimes
 - DRT regulations subject to ad hoc arrangements, subjective interpretation, uncertainty, delay
 - Flexible scheduling contradicts ethos of bus regulation that services should always run, and on time
 - Great variation in taxi regulations between districts
 - Complexity/incompatibilities discourage entrepreneurs
- Contributes to risk averse behaviour and higher tendering costs

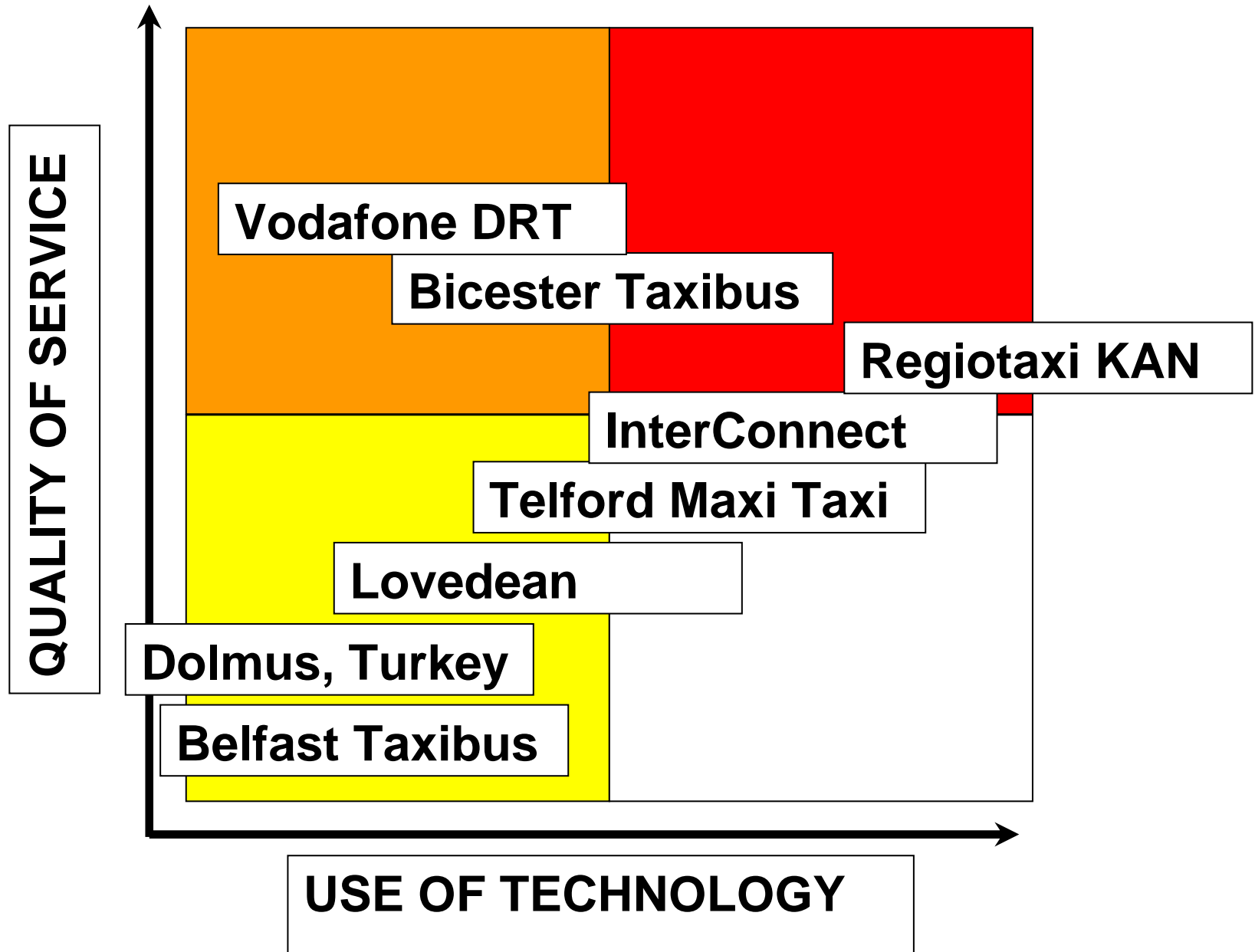
Towards Commercially-viable DRT

- Currently no truly profitable schemes in UK
- How flexible to achieve profitability?
 - ‘Variable flexibility’?
 - Premium for greater flexibility?

→ Overall product must be more attractive than conventional buses, cheaper than taxis
- How much technology to achieve profitability?
 - Affects level of flexibility
 - Higher patronage but higher costs

→ Successful commercially-oriented schemes currently low-tech

Level of Technology of Some DRT Schemes



5 Conclusions & Recommendations

Conclusions

- Appraisal of value depends on how needs are defined and subjective judgements about needs
- Focus on accessibility planning improves case for DRT?
 - ‘retrofitting’ car dependent communities
 - subsidy costs easier to justify on health / education / employment grounds
 - Risk of further decentralisation of household location?
- Barriers affecting viability include
 - Scale
 - Novelty
 - Incompatibility with regulatory frameworks
 - Nature of funding

Recommendations for Further Policy Development

- Further Review of Bus & Taxi Regimes
 - Emphasis on exclusivity/collective nature of use
 - New Ethos to Quality control e.g. based on ‘mystery traveller’ approach?
- Consideration of public role at regional level
 - E.g. call-centres for scheduling, mixed vehicle fleets
 - Public sector leasing of vehicles / equipment with private sector franchisees?