A SURVEY OF DEMAND RESPONSIVE TRANSPORT IN GREAT BRITAIN

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ABSTRACT

The rise in private car use in recent years has led to a dispersal of activity centres. In response, lifestyle choices and land use patterns present challenges in providing public transport to meet the needs of a large section of the population. In addition, governments now see public transport as being important in meeting an ever expanding range of public policy goals. At the same time, costs in providing bus services have risen significantly and the Global Economic Crisis is exerting further pressure upon budgets for subsidising existing provision.

As a result, there is a need for new cost-effective modes of transport that can operate effectively in areas and at times where demand levels are lower. Such modes include Demand Responsive Transport (DRT), an intermediate form of public transport, encompassing a whole range of service delivery options. However, unlike for buses relatively little research has been carried out to determine how, why, when and where DRT services functions effectively, particularly in economically more developed countries.

Consequently, the aim of this paper is to report the current status of DRT schemes in Great Britain, drawing on a survey of public authorities. It examines the design, performance, operating contexts and likely futures of DRT schemes. Key findings suggest that budget cuts in some cases are leading to funding being reduced or withdrawn so decreasing service provision, while in other cases, where fixed route buses are withdrawn, it is identified as the most cost-effective way of ensuring public transport meets local needs.

1.0 INTRODUCTION

The Global Economic Crisis that began in the U.S. in 2007 has impacted heavily on public sector finances. In the United Kingdom, the response of the newly elected Conservative Liberal Coalition Government in October 2010 was to announce cuts of £81bn of public spending by 2015 *(1).* Subsequently there have been significant repercussions on, amongst other things, subsidising commercially unviable but 'socially necessary' bus services. This has typically had the greatest impact in less densely populated areas. For example, in response to having a £3.1m rural bus subsidy grant replaced with £1m, Northamptonshire County Council plan to introduce. Meanwhile, demand responsive transport (DRT) schemes in the place of fixed route services. Furthermore, Cambridgeshire County Council is reviewing their response to budget cuts after their decision to withdraw 100% of bus subsidy was legally challenged *(2).*

Moreover, wider societal trends, including a rapidly ageing population and potentially far higher levels of unemployment coupled with still rising car use (and its associated impact on increasing levels of car dependence in the form of lower density development for example) are combining to ensure that just as the need for non-private car-based transport is becoming increasingly important, the ability of trains and buses to meet those needs is actually decreasing. As a consequence, the search is on for alternatives to 'conventional' public transport, in particular buses with fixed timetables and fixed routes, such as 'Demand Responsive Transport' (DRT).

DRT, broadly similar to paratransit in the USA, can be defined as being 'an intermediate form of public transport, somewhere between a regular service route that uses small low floor buses and variably routed highly personalised transport services offered by taxis'*(3).* Whilst recognising that other forms of DRT, such as dial-a-ride do exist, this paper will focus on DRT whereby:

- The service responds to changes in demand by either altering its route and/or its timetable;
- The fare is charged on a per passenger and not a per vehicle basis; and
- The service is available to the general public (i.e. it is not restricted to particular groups of user according to age or disability criteria).

Interestingly, (in the UK at least) DRT vehicles, drivers, and operators can be categorised as being either bus, taxi/minicab, or even Community Transport (CT) services, (operated by community groups). This, in turn influences how DRT schemes are treated by the tax and insurance authorities, as well as by what legislation and regulations they abide by when licensing routes and/or service areas *(4).* Such complexity perhaps helps explain why relatively little is known about DRT as a 'mode' (or range of modes) – a significant gap given the context identified earlier.

The aim of this paper then, is to report the current status of DRT schemes in Great Britain. Specifically, it will draw on the results of a national survey of DRT providers to present details as to the design, performance, operating contexts and likely futures of DRT schemes to help identify issues that require attention from practitioners and policy makers and perhaps provide some indications as to how, where, and when DRT schemes might particularly effective.

2.0 REVIEW OF DEMAND RESPONSIVE TRANSPORT SYSTEMS IN OPERATION

DRT is most common in countries where institutional and/or land use factors prevent conventional buses from meeting demand (*4, 5)*. Enoch et al *(4)* identify a range of more than 70 schemes from across the world and classify them by operational characteristics and market niche and motivation for provision. In examining what this means for DRT in the UK, recommendations are that schemes need to be simple to understand and straightforward to book and use, irrespective of the classification of service. This makes marketing the concept to users and gaining acceptance feasible. Cervero *(5)* provides a comprehensive overview of the potential for DRT in the US context, based on international and localised national examples concluding that "commercial paratransit… offers the kinds of service features and inherent adaptability that would make mass transit far more competitive with the private automobile" (p.256), particularly given the "continuing spread and dispersion of new growth into the suburbs, exurbs and beyond" (p.257). However, it acknowledges that paratransit can never match the features of the private car and so will always be a niche market service.

Furthermore, paratransit in the US is identified as being 'slow to spread' beyond the Americans with Disabilities Act (ADA) market *(6)*. However, in completing a survey of US transit agencies into 'flexible transit services', defined as being anything between an ADA service and a fixed route bus, TCRP *(7)* identifies six types of DRT service. Of these, route deviation, where vehicles operate along a fixed route but can accept request to deviate to meet demand, is the most common. Mulley and Nelson *(8)* explore the potential for flexible transport systems organised via travel dispatch centres, depending heavily on telematics, so that the vehicles dispatched are suits demand and are provided by the most appropriate agency. Institutional barriers to this relate to the level of integration of DRT with other public transport options and how funders value the benefits of investing in such schemes *(8)*.

Whilst dial-a-ride services and CT are both identified as influencing DRT for the general public *(5, 9)*, such services are resource intensive and whilst commercial services, not requiring subsidy, exist in the US these are restricted to niche markets, e.g. airport shuttles. Brake et al. *(9)* suggest that for DRT to be commercially viable in the UK and Europe providers of flexible transport options should pool resources and work in partnership to cater for need. Another solution is to price DRT fares to better reflect the service provided *(4)* as is the case for commercial services in the US. This in turn could attract commercial operators, who are generally absent from the UK market.

Given that few DRT schemes operate commercially, pilots have been funded by government bodies *(10, 11)*. Ambrosino et al *(12)* report on an evaluation of DRT schemes involved European-funded projects. Conclusions note that DRT schemes remain a niche market provision as further efforts are needed to increase the commercial potential. Suggestions on how to achieve this include brokerage of vehicles, incorporating DRT within online journey planners and making it easier to integrate DRT with other forms of public transport. Related to this they highlight that competition between transport providers presents a challenge in introducing DRT as an alternative to both taxis and buses, a barrier which is most prevalent in urban areas.

In England and Wales the Rural Bus Challenge, a funding stream designed to improve bus provision in rural areas, provided over £110 million between 1998 and 2003, while, the Urban Bus Challenge, the urban equivalent, invested over £53 million in urban areas between 2001 and 2003, with the aim of introducing innovative transport solutions to overcome social exclusion *(13)*. Similar, funding was also available to develop DRT schemes in Scotland *(14)*. Enoch et al *(4)* emphasise that while the bus challenges funding streams have had a positive influence on DRT, the focus on innovation can result in more expensive forms of DRT, which are difficult to sustain longer term. If sustained this may be at the expense of other services which are less high-profile. Based on the findings of an earlier national survey in England and Wales, Laws et al *(15)* conclude that the subsidy level required for DRT provision would make it difficult for funding to continue beyond the term of the initial funding. This is unless it can be justified on the basis of cross sector benefits as explored by Enoch et al *(4)*.

Brake et al *(16)* identify that these forms of investment can result in withdrawal of service once this seed-funding is no longer available, they highlight that DRT schemes should be grounded in a longer term local strategy to avoid public disillusionment with DRT. Furthermore, when applying a qualitative 'realistic evaluation' to the extensive DRT service network in Wiltshire, UK , Laws *(10)* found that as a result of receiving rural bus challenge funds, the schemes responded more to the national criteria rather than local need. Recommendations from these findings were to base schemes on thorough consultation with local stakeholders, including community members *(10)* and to ensure that members support the schemes on a long term basis *(16)*.

The survey presented in this paper builds upon a similar data collection effort by Laws et al. *(15)*, where the population was identified using a list of DRT scheme provider registered with the Department for Transport. Completed in 2005, this survey identified that the main motivations for introducing a scheme were social or related to funding availability, relating to the rural and urban bus challenges funding streams. The primary scheme objective in most cases was to promote social inclusion. Of the schemes surveyed, just over half of schemes required a subsidy of over £5 per person per trip with those operating in rural areas requiring higher levels and being less cost-effective than those with suburban or urban elements. This supports the TCRP *(7)* finding that productivity is lower in rural areas.

3.0 RESEARCH DESIGN

Survey recruitment in this study involved public transport officers in Great Britain representing Transport for London, Passenger Transport Executives, responsible for transport policy and planning metropolitan areas, county councils and unitary authorities. The survey was also distributed to CT operators, though as Nutley highlights *(17)*, identifying such organisations is challenging. The survey took place between March and October 2011. Contact was initially made by telephone and then a link to a web-based survey was emailed to the most relevant person. Non-respondents were contacted a further two times, firstly as a reminder, and secondly to arrange a time for a telephone interview. The survey was also publicised via trade publications and respondents were encouraged to share the link with relevant contacts. The following sections are based on a response from 68 governmental organisations and eleven community transport operators. The former results in a response rate of 47% from authorities responsible for strategic transport planning across Great Britain, the latter received a far lower response rate though it is not possible to include a percentage value as the total population of CT operators is not available.

The content of the survey questionnaire is as follows:

1. Background: organisational information;
2. Provider level data: basic details of each scheme, how DRT is integrated with other public transport options and user needs, user and trip numbers, the vehicles and technology used;
3. Scheme design for the most and least cost effective DRT schemes: licensing, stakeholder involvement, financing including fares, user and trip numbers, objectives, and performance;
4. Previous DRT schemes: how schemes have changed and the rationale for changes and withdrawals;
5. Proposed and future DRT schemes: the reasons for introducing further schemes and how these services will differ from existing provision; and
6. Lessons learnt: how lessons learnt has informed design, stakeholder roles in overcoming future challenges.

Survey results are analysed using descriptive statistics as the low population size results in a sample which does not allow for deeper statistical analysis. For qualitative data, where response allowed, data is categorised and summarised statistically; discussions include verbatim responses to emphasise survey findings.

4.0 DEMAND RESPONSIVE TRANSPORT SCHEMES IN GREAT BRITAIN

The survey identifies 369 schemes from 59 respondents (excluding the respondents which have no DRT at present), an average of six schemes per respondent with the number of schemes varying between one and 41. Scheme number is influenced by the role the organisation had in provision, in particular whether it was strategic or operational. Most of the reported schemes started between 2007 and 2011 (2007 = 11, 2008 = 20, 2009 = 20, 2010 = 24, and 2011 = 18), although some schemes started as early as 1983. Whilst some have an end date, or a date where contracts will be reviewed, the majority are either ongoing or the end date is not known. Of the schemes reported in this paper, eleven are up for review this year, 20 in 2012 and one each in 2014, 2015, 2016 and 2021.

Of the organisations responding to the survey 23 had been involved in DRT schemes which had now ceased operation. Of these 23 organisations one reported getting involved in DRT schemes in 1986, though most first got involved in 2001, coinciding with input from the rural and urban bus challenges. Nineteen organisations are currently involved in further proposed schemes to be introduced in the next 12 months, each introducing up to five more schemes. Of these 19 organisations twelve, plus a further eight organisations, may be involved in schemes, launched over the next 12 months, that are not yet at the planning stage, often in response to withdrawal of conventional bus services. Furthermore, 20 organisations report planned changes to existing services, either in the form of expansions, for 13 organisations or reductions or withdrawals for seven organisations, three of which are expanding in some areas whilst detracting in others.

Respondents report that initiation of a scheme can take between 2 weeks and 36 months from conception through to the first day of operation. This depends on a range of factors including: member support, service registration, level of local knowledge and whether the organisation has existing DRT schemes. The difference between the planning and preparation phase for most cost effective schemes and least cost effective schemes is minimal.

Responses at the organisational level represents the experience of Transport for London, three Passenger Transport Executives, 16 county councils 46 unitary authorities and, as mentioned above, eleven CT operators. Responses by region Scotland (eleven responses), the South East (eleven), Wales (eleven), the East Midlands (ten), the South West (ten), East Anglia (six), the West Midlands (six), the North West (five), Yorkshire and the Humber (four) and the North East (three).

5.0 DESIGN OF DRT SCHEMES

In this section the design characteristics of the schemes in terms of licensing, vehicles and technology used, fare levels and types and integration with other public transport provision is presented.

In Britain companies using vehicles with nine or more seats for 'hire or reward' require a Public Service Vehicle (PSV) licence, a condition extended to all vehicles when companies expect each passenger to pay individually *(18)*. Organisations without a view to profit, such as CT operators, can operate under the permit system *(19)*. Here there are two options, a section 22 permit, which allows the community transport operator to provide a local bus service, available to the general public, and a section 19 permit, which restricts users to defined groups. It is also possible for DRT schemes to be registered as a minicab, being licensed as a private hire vehicle (PHV) which must be pre-booked or a taxi or 'Hackney Carriage', where pre-booking is not required. Of 70 schemes reported on in detail, 27 schemes operate under a PSV licence, 24 with section 19 permits, nine with section 22 permits and eight are licensed as 'taxis' – six as PHVs and two as Hackney Carriages. The remaining two schemes are not licensed as a result of the type operation.

As licensing influences the vehicles used, with a few exceptions schemes operating under section 19 are restricted to minibuses, vehicles with 16 seats or fewer and section 22 or PSVs are often available for minibuses or buses, though more recently PSV licenses have been expanded to registered cars. Therefore, 43 organisations operate DRT using minibuses; 14 organisations operate using buses and 14 organisations operate using cars. Whilst the majority of vehicles are accessible for users with limited mobility, this is not always the case for the cars, with the exception of those registered under the Hackney license.

Related also to licensing, organisations require users to register for 39 of the schemes and 23 schemes are restricted to specific user groups, with restrictions defined either by area or by population segment. In most cases this is because the scheme is operated under a section 19 permit, but in a few cases it is to ensure local residents benefit from the scheme. In response to the survey few respondents identify service registration as causing any problems, though a number highlight that recent changes to registration have supported service introduction, for example the possibility for CT operators to opt use paid drivers on services available to the general public, rather than relying solely on volunteers.

Technology plays a number of roles on DRT provision, the largest contribution identified through this survey is communication focussed, with 37 organisations using technology for call centre bookings and also for communicating with the driver (29 responses). It also plays a function in vehicle management, being applied to routing (23), allocation (19) and tracking (15). Organisations use in-house facilities and programmes, coordinate provision with other authorities or purchase the relevant software. Common software providers are Mobisoft and Trapeze.

For non-concessionary fares, the per trip fare level ranged between a £1.00 and £8.00. Of the 52 schemes, for which fare information was provided, 38 accepted concessionary fares. For three of the schemes, this equated to half fare, but for the remaining schemes concessionary fares were free to the user, being reimbursed from national or local government funding sources. This is significant as organisations report that for 31 DRT schemes in excess of 75% of passengers are eligible for concessionary fares.

Thirty-three respondents report that one or more of their schemes, is designed, or capable of acting as a feeder route for other forms of public transport. This is achieved either officially as part of the scheduled design or unofficially when sensible connections occur. Furthermore 24 respondents report that DRT schemes are coordinated with other transport provision, to cater for adult social care and educational needs, which includes special educational needs, post 16 and mainstream education; similar to the types of services provided through a human services agency in the USA. The main reason for doing this is to increase the viability of the service through fixed financial investment, particularly when public demand is low, or alternatively to make best use of resources or reduce overall costs. The coordination is achieved either by accommodating users on public DRT or, by reserving vehicles as required.

6.0 PERFORMANCE OF DRT SCHEMES

In this section the performance of DRT schemes is reviewed, specifically the number of trips and users, level of subsidy, performance against objectives and details of response when services are underperforming or not performing as expected.

Table 1 summarises demand for 2010 (or in some cases the 2010/11 financial year): across all schemes; for the most costs effective scheme; and for the least cost effective scheme.

TABLE 1 Number of Passengers and Trips per Annum

Schemes	Indicator	Responses	Average	Range	Total
All schemes	Passengers	29	13,106	50-180,000	380,073
	Trips	37	43,459	1,000-270,000	1,607,998
Most cost effective scheme	Passengers	22	3,793	10-24,000	83,446
	Trips	26	15,577	100-80,000	405,012
Least cost effective scheme	Passengers	9	1,082	20-5569	9,738
	Trips	14	4,499	300-12,748	62,986

Demand for DRT is identified as providing a *'business case'* for provision *'particularly in rural areas'*, but respondents highlight a need for awareness amongst suppliers and users. Suppliers need to be aware of what the demand is *'to make sure it's there'* and how best to provide for it, and users need to know that such schemes exist. There is public concern that withdrawal of a bus service can result in an isolated society. Respondents highlight that *'understanding how schemes work can be a barrier when replacing conventional bus services'* so raising awareness is important in ensuring success. Communication and marketing from initiation and throughout the life of the scheme is key in ensuring DRT is *'positively received'*.

In assessing a scheme as being cost effective the majority of respondents refer to low levels of subsidy per person or high occupancy rates: *'[DRT is] most established with a lower per passenger subsidy and higher usage'*. This is also identified as a function of design, for instance, services that do not operate when not booked, or when the level of flexibility provides most efficient use of vehicles: *'We provide a fully demand responsive service, with the flexibility to schedule multiple passengers to one vehicle through an effective booking system.'* Both technology-based and manual booking systems are identified as elements of a cost effective service, though one example in particular highlights the benefits of using taxis: *'Taxibuses have very competitive operating prices, plus the booking function is achieved at a near-zero additional cost on top of core business of taxi firm.'*

Less cost effective services are identified, in part, for opposing reasons: *'High cost and low vehicle occupancy'*, which can occur when forecasted demand is higher than actual demand. Alternative reasons are driven by service design and the target audience. Providing vehicles to high specification, computerised booking and long operating hours are identified as requiring upfront investment *'However, these costs were considered necessary to get quality and accessibility of service'*. Furthermore, in another case capital front end costs are expected to take *'A 3-year period to become sustainable and generate funds to replace older vehicles.'* Also, with certain target groups, e.g. journeys to the hospital, the high cost of the journey can reflect the user needs, for example door-to-door provision and trained personnel accompanying the passenger(s) and be justified on that basis.

Per trip subsidy for provision ranges between schemes operating without subsidy (four out of 64 schemes) to in excess of £20 (seven out of 64 schemes), though the majority receive £2.01-£5.00 (20 out of 64 schemes) or £5.01-£10.00 (18 out of 64 schemes). The least cost effective schemes receive slightly higher subsidy rates than the most cost effective schemes, and the highest subsidy reported is £93 per trip, although the second highest is £34. However, in the majority of cases the schemes are performing well against geographical, social and economic objectives. So, out of 77 reported objectives across 47 schemes only seven are not completely or almost being met. DRT scheme objectives are discussed in the following section as part of the rationale for introducing DRT.

Whilst DRT is often expensive to provide, only 14 organisations had an exit strategy in place if their scheme continues to be or becomes unsustainable, though a greater number include details of what they would do. For each, the approach involves ceasing or reducing investment in schemes which would either result in a withdrawal or reduction through integration within other provision, including social service transport or fixed routes services.

As detailed above, 23 of the respondents have been involved in DRT schemes which have ceased operation. The reasons that services were withdrawn relate mainly to funding availability or the levels of demand often being too low, or in a limited number of instances to high. Specific reasons include: *'being replaced by a fixed route service'*, *'DRT didn't work as well in an urban area'* and *'over complex design and operating model'*.

However, as a flexible mode of transport responding to demand, 39 organisations report that changes have been made to services as knowledge about the market increases. Changes include:

- Introducing a fixed route bus where there is sufficient demand;
- Changing the areas covered by the schemes: *'in one area the geographical roam zone area has increased to include areas where conventional bus services have been withdrawn'*; and
- Changing the hours of operations: *'some existing schemes have been widened in scope i.e. more hours, opened to the general public'*.

In many cases this has resulted in expansion but in some other cases services have decreased or been withdrawn as a result of cost or demand levels. Other reported changes include:

- Changes to the vehicles used to better reflect demand: *'we changed our fleet to smaller vehicles, which are more suited to passenger requirements'*; or
- Changes to the design such as reducing the need to service fixed points or introducing fixed times of operation rather than providing a fully flexible timetable: *'Some of the early DRT schemes had no fixed times to get a feel for demand, new schemes have set times for outward and return journeys.'*

Most changes were in response to demand but other reasons include challenges in providing the service owing to coordination or time requirements, and providing a public transport option in response to withdrawal of bus services, as highlighted above.

7.0 RATIONALE FOR INTRODUCING DRT SCHEMES

This section will focus on motivations for introducing a DRT scheme. The main reason that DRT schemes were selected over more conventional public transport can be classified as responding to:

The main reason that DRT schemes were selected over more conventional public transport can be classified as responding to:

- The withdrawal or unavailability of a service bus *'The DRT schemes are introduced where conventional services were not provided commercially and a full tendered service could not be justified'*.
- The rural nature of an area *'DRT solutions have been chosen in rural areas where there are few passengers spread over many small settlements. Conventional solutions tend to produce either convoluted routes, irregular services or both.'*
- The mobility needs of passengers *'The schemes are principally targeted at people who find it physically difficult to use conventional public transport services because of mobility issues or remoteness from services.'*

Cost effectiveness is highlighted as essential when selecting DRT as a transport option, for some authorities introducing DRT schemes is a way to provide public transport in response to budget cuts. *'The requirement to reduce the local bus budget by £1m has led to the need to consider DRT against withdrawing of services completely.'* Though, in a small number of cases funding availability has made it possible to introduce such schemes.

Funding availability is identified as *'the primary enabling factor'* in ensuring DRT scheme success, revenue funding streams are recognise as particularly important in influencing the scope of DRT provision: *'Capital funding was key in getting very high quality accessible buses but revenue funding is very challenging and can limit scope'*. The initial funding sources included central government who funded, or part funded, 18 of the schemes reported on, the county councils or passenger transport executives, who funded 24 the unitary authorities, 36, and district or borough level councils who also funded, or part funded, 8 of the reported schemes. A small number of other organisations, including primary care trusts, emergency services and charities provided initial funding for 13 of the schemes. In a number of cases this initial funding has now finished, at least in part, or is due to finish shortly but further funds have been sourced. Secondary funding is most commonly from internal council budgets, fares and in a small number of cases a trip generator. In some cases these funds are ongoing for as long as they are assessed as value for money in provision and / or meeting targets.

Examining the motivations for introducing DRT schemes, where respondents can select more than one motivation, the majority of respondents introduce specific DRT schemes to cater for social need, for example: *'To enable residents of the villages to access town services'* and to improve accessibility, for example: *'DRT provides an effective transport solution to settlements that are not served by traditional fixed bus services'*, 57 and 52 in agreement respectively. In addition, 43 respondents identify funding availability as a motivator, this includes initial funding from rural bus challenge and more recent funding to support the third sector in providing local services, as part of the *'big society'* agenda, which encourages the local community including voluntary groups to respond to local needs *(20)*. Fewer respondents recognise the environment (23 organisations), cost reduction (20) or modal shift (15) and only five respondents are motivated by each commercial opportunity and business reasons. For respondents selecting 'other reasons' responses include improving journey times, catering for specific social needs such as providing a link to the hospital and providing a cost effective service.

Objectives for introducing specific DRT schemes led on from the above and can be summarised under the following categories geographical, social and economic, (three of the four categories introduced by Laws et al *(15)*). DRT is generally effective in meeting such objectives across each of the categories. Most frequently authorities highlight geographical objectives (31 objectives) related to providing accessibility, including when conventional bus services have been withdrawn, for example. '*To improve access from rural areas'* or '*To replace bus service'*. This is followed by providing for the social need of a population or a segment of the population and / or access to a specified service, categorised as a social objective (27 objectives), for example, *'Supporting people to live in the community'*. Economic objectives supporting DRT as opposed to conventional bus services were mentioned for 19 schemes, for example, *'better use of subsidy funding'*. As highlighted above a small number of these objectives are not being met, whilst the objectives cover the range of categories the reason for not being able to meet them are predominantly cost related.

One factor influencing the introduction of DRT is the response of local politicians, for instance: '*Members, after hearing of such a scheme elsewhere in the country, have determined that this is an idea we should be pursuing'*. In cases where the members are supportive of the scheme then they push it forward, whereas if politicians prefer a conventional bus service for their constituents it is difficult to transfer investment to DRT. Commercial bus operators are a challenge to involve because low passenger numbers mean *'many services will never have the scope to become commercial'*. Furthermore, larger bus operating companies, in particular, are reticent to involve themselves in such schemes, given that DRT can be perceived as competition for conventional bus services.

8.0 PERSPECTIVES ON THE FUTURE OF DRT

Over recent years the design, performance and context has changed in order to better cater for demand and the needs of the passenger. These changes are summarised in Table 2 and have a strong influence the future plans for DRT.

TABLE 2 Developments in Design, Performance and Context of DRT

Aspect	Changes and selected evidence
Design	Greater investment of effort in planning and consulting at the design phase: *'Do the research, speak to real people, don't always trust council knowledge, this will shape service. Planning is time consuming but worthwhile'* A growing role for technology to co-ordinate services and vehicle use and also allow users to book nearer their journey time: '*Computerised booking to allow on the day bookings which are increasing'* Increased attention on how taxis can be used in delivering cost-effective DRT provision: *'Taxibuses provide an economical way of catering for low volume movements and have replaced some conventional services'* The flexibility offered by DRT has in some cases been increased, in a number of cases through the use of taxis, but in others decreased either to enable vehicles to be used more efficiently or to manage user expectations: *Actually limit the "fully flexible" offer in publicity as this can unduly raise expectations amongst first time users'*.
Performance	Good communication between stakeholders supported by training as required, ensures a positive user experience: *'engage positively with both service users and stakeholders, ensure staff understand their role and support they need to give'* Market the scheme and increase awareness about booking and use Recognise the full cost of provision, in particular the expense of certain elements, such as call centres.
Context	DRT provision for the general market is increasingly identified as a *'deep rural product with some value in small towns'* rather than urban solution. Though successful urban examples do exist '*DRT is not going to compete with registered local bus so will remain niche'*. Integration, rather the duplication of existing public transport provision is highlighted as an important element of design in context. Dial-a-ride and community transport provision has influenced current DRT design and they are expected to have a growing role.

Respondents identify a growing role for taxis, plus potentially commercial bus operators and further integration of DRT with other public transport options. Some local authorities also plan for services to cater for a wider market, for instance using DRT to meet commuter need or merging of services to create economies of scale: *'Sample data suggests that cost saving and service improvements can be achieved through enabling more shared use of service provision by existing stakeholders.'*

The future of DRT is however uncertain owing to reduced funding. Respondents saw two possible outcomes as a result of this:

1. DRT schemes are withdrawn:
   - Generally *'Unless passenger numbers can be increased, DRT could diminish'*; or
   - Specifically: *'All DRT is likely to cease in 2012 due to withdrawal of funding'.*
2. DRT schemes increase, either
   - In response to an decrease in investment in fixed-route bus service provision, *'I predict an inevitable growth as local authorities are forced to make more savings';*
   - As a result of the increased focus on third sector contribution to local services: *'The Government's "Big Society" may lead to an increase'*; or
   - To cater for the needs of a less mobile population *'It may expand to cope with increased demand among people with impaired mobility'.*

This is, in effect, an outcome of the economic downturn and the decreased investment in public services.

Where DRT remains, local authorities recognise it as primarily meeting rural demand, remaining a niche market product into the future. The main reason for this is the relatively high cost of providing conventional forms of public transport as a means of meeting the low and dispersed demand patterns of rural areas. Ways in which limitations can be overcome relate mainly to funding availability. Possible sources identified include central government, local government and passenger fares through increased usage. One local authority reports that whilst subsidies for DRT are not a statutory duty there will be concerns regarding the continuity of funding, though another highlights that integration with other services can cross-subsidise provision. To attract users, increasing awareness of services and overcoming the barriers presented by the need to pre-book, either by removing this need or overcoming passenger concern, was highlighted by respondents. Other stakeholders, such as CT and commercial operators including taxis, are identified as having a growing role in the future.

9.0 DISCUSSION AND CONCLUSIONS

This paper aimed to report the current status of DRT schemes in Great Britain. From a response of 47% of authorities and eleven CT operators it identifies 369 DRT schemes. Results of the survey demonstrate that funding, or the commercial potential for DRT, continues to be the factor which requires the most attention from practitioners and policy-makers. However, evidence from this survey would suggest that despite concerns that the absence of urban and rural bus challenge funding would result in service withdrawal *(4, 9, 15),* this has not had a uniform impact nationally. Whilst some schemes have been withdrawn on the basis of funding, levels of demand and the challenges in providing an overcomplicated service are also mentioned. However, many of the existing schemes reported on were introduced through these funding sources, with follow up investment being sourced from council funding. This is despite the level of subsidy falling for the most cost effective schemes only. However, funding remains a concern into the future and budget cuts are likely to influence the stakeholders involved in DRT provision, the form it takes and fare levels.

This survey also demonstrates that the number of identified schemes has grown, with a high proportion of schemes being initiated from 2007 onwards. That said these results are not a direct comparison with the number of schemes reported by Laws et al *(15)* as the sample population is not restricted to schemes recorded by the Department for Transport, this highlights the complexity in completing a review of DRT schemes on the national level. The majority of services are provided using minibuses but respondents identified taxis as providing a more cost effective solution when demand is low and community car clubs (car sharing schemes in the USA), which provide a pool of vehicles available to loan in the neighbourhood, also provide a function.

Comparisons can be made between the 2005 Laws et al survey *(15)* and 2011 surveys as to the context of the DRT schemes, specifically the motivations for introducing such schemes. In 2005 the key motivations were funding availability and social need, whereas in 2011 key motivations are social need followed by improved accessibility. In 2005 the rural and urban bus challenge focus on providing funding for innovative transport measures to meet social need has clearly influenced these motivations, whereas in 2011 the competition for funding from central funds is higher, as overall funding has been reduced.

There are also distinct differences in objectives for introducing a scheme. Whilst in 2005 many objectives identified a population benefitting from DRT and the potential for DRT to provide access to a specific service, therefore classified as a 'social need' a much greater proportion of objectives in 2011 focussed on the geography of the location(s) served, in particular the rural nature of the area and also in response to the withdrawal of conventional bus services. Whilst the environment is a motivation for a small proportion of organisations, is not identified as an objective for current schemes. This suggests that, at present, DRT is viewed as an option for those without car access. In the 2005 survey, however, the environment was often a secondary objective. This highlights a move to consider local needs rather than national criteria, as specified by the boundaries of funding grants. In fact, one lesson learnt is the need to invest in the planning stage of DRT development to ensure that provision is based on full local knowledge. Community members, parish councils, district councils and local community and commercial operators are identified as being the best sources of information.

Design of DRT schemes has shifted in the last five years to an increasingly rural service, with smaller vehicles playing a growing role. As identified by Laws et al *(15)* and TCRP *(7)* the rural focus of schemes may not always deliver the most cost effective investment DRT on a per subsidy basis, however, DRT is identified by some respondents as the most cost effective way of ensuring rural communities without a conventional bus service, receive access to services, providing 'coverage efficiency' *(7)*. Plus, as discussed by Ambrosino et al *(12)* it may be easier to introduce DRT in areas where there is limited other forms of public transport because of competition between forms and operators. In some cases the flexibility of provision has grown in response to increased knowledge of demand. For other services, fixed times of operation have been introduced to make best use of resources to encourage sharing and to manage customer expectations about the capabilities of DRT. Linked to this, as funding is withdrawn, there is likely to be a growing role for DRT in ensuring at least some semblance of geographical coverage.

As to the future, the perception of the majority of DRT providers is inconclusive. There are two distinct views on how DRT will respond to the economic downturn, one where it plays a growing role in maintaining geographical coverage and social inclusion, the other where there is simply not the funds to sustain such schemes. Should funding be available it is expected that DRT will continue along a similar trend, with a growing role for taxis, increasing deep rural provision and with local decisions as to the level of flexibility.

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