NTS Discovery Outcomes

15th December 2017

Introduction

Background

- The NTS is a series of household surveys that provides regular up-to-date data on personal travel over time.
- The NTS team update the results on an annual basis and generate around 75 standard reports that are on GOV.UK.
- Three different sets of microdata of increasing disclosivity are also deposited with the UK Data Archive at the same time.
- The NTS team also receive about 300 requests a year to produce variations on these reports, which may drill down to a regional level for example, and are time-consuming for the NTS team to manage.
- The NTS team envisages that they will continue managing highly complex queries themselves but want to investigate whether there is a demand for, and if it is possible to cost-effectively develop, a query tool to handle the relatively large proportion of relatively simple requests.
- In addition, the survey data is currently provided as excel spreadsheet and summary infographics. The spreadsheets in particular are likely to discourage potential casual users of the data.
- If the query tool could be made easy to use and present the results in a more usable and comprehensible manner it is possible that the data could get much wider use.

Objectives

The objectives of this user research were to find out:

- Who the users are and what they're trying to do – goals (what they are trying to achieve and what information/data they require), contexts, motivations
- How they currently get the information/data they require (for example, what services or channels they use) – if they can't get what they need, what would they like
- What's good about what they get and the problems/frustrations they experience
- What they need from the service to achieve their goals
- Whether there is a demand for a self-serve custom query tool

A self-serve custom query tool could act to:

- Reduce workload in handling custom requests
- Reduce workload in producing the NTS annual report
- Increase awareness of the types of insights that can be gained from the NTS data
- Make the data available to more users

Methodology

- 18 individual 1 hour depth interviews
- For NTS users, these interviews explored:
  - Respondent's role
  - Data use and sources
  - User goals
  - Experience of NTS data
  - Exploration of NTS content on gov.uk
  - Attitudes towards self-serve custom query tool
- For respondents who were not familiar with NTS, they explored:
  - Respondent’s role
  - Data use in general
  - Awareness of NTS
  - Exploration of NTS content on gov.uk
  - Impressions of NTS

User Types

Users & their goals

The discovery research identified 4 principal user personas:

- Transport researchers
  - Use archive data
  - Access to all micro data to manipulate if they wish
- Transport professionals
  - Have a specific question not answered by the standard tables
  - Want it quickly
  - Happy to interpret the data and its limitations themselves
  - Custom request tool meets their needs
- Policy researchers
  - Have a specific question not answered by the standard tables
  - Need NTS expertise to ensure they are interpreting the data correctly
  - Want to retain existing service
- Transport data novices
  - Want infographics and standard tables

NB – an individual user may fit into more than one of these groups for different queries

Transport Researchers

Data usage habits

- These respondents tend to use a wide range of different data sources, of which the NTS is one
- They all go directly to the raw NTS data in the UK Data Archive – they do not use the standard tables or reports, as these are typically not sufficiently detailed for them
- They are confident and experienced data users and understand how to manipulate the data to achieve their goals
- They will often perform complex analysis on the raw data, or import the data into their own models or databases

"I use the micro data directly… That's one of the advantages of the NTS data, that you have access to the micro data" (Respondent 13)

"More than half the work I do utilises NTS data, so I'm in and out of the archive every week" (Respondent 9)

- These respondents want the raw data, and are not interested in any visualisations or different presentations of the data

"I never use any of the DfT's publications, because I always need it really broken down" (Respondent 18)

What they use the NTS data for

Respondents identified a wide range of uses for the NTS data:

- Respondent 8:
  - Exploration of causes of trends, e.g. for the older driver taskforce
  - Identifying purposes of trips
  - Collating his own long-term dataset
- Respondent 9:
  - Transport and health modelling, e.g. developed 'impact of cycling' tool – displays trends over time and extrapolates forward
  - Evaluation studies, e.g. identifying what would happen if short car trips in urban areas changed to cycling
- Respondent 13:
  - Study of senior citizen mobility (license ownership, mileage travelled etc. cut by age) and change over time
  - Decline in young license holders over time
- Respondent 18:
  - Traffic modelling and economics, e.g. for Welsh government, Highways England

"Currently I'm leading on the traffic modelling and economics of the lower Thames crossing"
(Respondent 18)

Experience of NTS data

All respondents felt the NTS data is very valuable:

"The data is really valuable…It's so good to be able to get access to the micro data, it makes it a very useful dataset"
(Respondent 13)

"As far as I can tell, it's probably the best national travel survey in the world. Its real value is that we have now 40 years of data with relatively small changes in the techniques, so we can look at long term trends"
(Respondent 8)

"Its major advantage is that it's been kept mostly the same for a very long time"
(Respondent 9)

"The advantage of the NTS data is that it's multi-modal… We use NTS data as the gold standard!"
(Respondent 18)

Limitations of NTS data

- These respondents are already aware of the limitations of the NTS datasets (sample size etc.), and are happy to manipulate the data within these constraints
- They do not need NTS help or advice to ensure they maintain robust results

"It's very complex to set up, you have to make sure you're applying the right weighting to the trips… The whole system, quite rightly, isn't set up so that everyone has access to the data!"
(Respondent 18)

Need for self-serve tool

- These respondents do not need a self-serve tool – they will always go directly to the raw data and manipulate it themselves
- They do not need anything to change in the NTS service

"I can't imagine using a query tool, once you have access to the main data set" (Respondent 9)

Recommendations – Transport Researchers

- There is no requirement to change the service for these users
- NB. Some users would like the archive data from when the survey started (currently only available from 1988)

Transport Professionals

Data usage habits

- These respondents tend to use several data sources, of which the NTS is one of the most important
- For the NTS data they will typically use the standard data tables for some queries, and then make custom requests for more specific cuts of the data
- They are generally happy to manipulate the data once they have the custom cut that they need, and will perform further analysis and evaluation on their custom data sets
- They have a fairly good understanding of the contents of the NTS dataset, but may not be fully aware of all of the fields
- They may want the data in table form or visualised in some way, depending on their current needs. Typically they would want the outcomes from the custom queries in table form to allow further analysis

"We use a range of data suppliers – industry databases, National Rail databases like Darwin, other department databases. The NTS data is great though because it doesn't need any post-processing"
(Respondent 10)

"Inrix travel data, TomTom reports and the NTS"
(Respondent 12)

What they use the NTS data for

Respondents identified a wide range of uses for the NTS data, including:

- Identifying congestion trends
- Determining modal share for different demographics
- Comparison between international data sets for specific demographics
- Understanding road safety risks and causes by country taking account of levels of travel activity
- Understanding social trends (e.g. reduction in commuting)
- Evaluating success of strategy implementation
- Planning service provision (e.g. NHS centres)
- Quantifying emissions for specific sectors (e.g. NHS staff and patients)
- Incorporating into their own tools and data services
- Production of travel behaviour statistics (e.g. casualties per distance travelled)

They need to be able to cut the data by almost all fields to support this wide range of applications

Experience of NTS data

Respondents were all impressed with the data available from the NTS, especially:

- Granularity of the data (e.g. data for every day of the week, capturing trip stages etc.) – this allowed respondents to cut the data in almost any way they needed to fit their specific requirements
- Continuity of the data – many of the respondents used the data to analyse and/or explain trends over time – having a consistent data set going back several decades was extremely useful for them
- Regularity of the data – Several respondents compared the NTS data to corresponding data sets from around the world, e.g. the NHTS from the USA, which is only collected every 5-7 years. The annual NTS data allows a much clearer identification of trends

"I am very, very happy with the survey… it is remarkable… to have the journey stages… allows much better data on walking… it is very professional"
(Respondent 3)

"It's a massively important resource… It's great that it exists and covers a range of different fields"
(Respondent 16)

"It's so important that the data collection is consistent… It's by far the cleanest data I've ever worked with"
(Respondent 13)

Experience of NTS service

Respondents generally found the custom report service very professional and very useful, especially:

- Helpfulness of the NTS team in clarifying queries where required
- Identification of data limitations and ways to mitigate these

However, respondents did identify some issues with the service:

- Getting customized reports can take a long time (up to 10 days for some respondents)
- Respondents found that they relied on the NTS service to provide custom data analysis because they were not fully aware of the breadth and depth of the available data

"There have been times when I've asked some things and they said well if you do this and this and this will help answer your question" (Respondent 15)

"The NTS team provide useful assistance in discussing and clarifying queries and making clear what is possible" (Respondent 14)

"[Getting a custom report] It's very dependent on people's availability… sometimes you can wait quite a long time" (Respondent 2)

"I've got a pretty good feel for all the fields that are available but some of my less experienced colleagues may not, as they are less familiar with the breadth and scope of the survey" (Respondent 16)

Limitations of NTS data

- All of these respondents were well aware of the limitations of the NTS data, predominantly related to the sample size
- Respondents wanted to be able to cut the data by a number of different, highly specific fields, and typically this resulted in small and unreliable sample size:
  - Ethnicity
  - Motorcyclists
  - Smaller age brackets (e.g. 1-2 year brackets instead of 5-10 year)
  - Regional data
- Some respondents also identified other limitations that influenced their specific research:
  - The data is only for England, so respondents wanting insights for the rest of GB were forced to turn to other datasets
  - Travel behaviours are changing, so there is now a tension between maintaining continuity of the data, and updating the survey questions in line with changing behaviours
  - Some respondents wanted to have some input into the survey questions, to ensure that there was more coverage for their particular area of interest

"For us it's really important to understand how often individuals use the bus – I think the original question doesn't enable us to get the breakdown we would like"
(Respondent 15)

Attitudes to a self serve tool

All these testers were excited at the idea of a self-serve tool:

"Having an online tool would feel safer" (Respondent 2)

"It would be remarkable!" (Respondent 3)

"A tool would be great! It needs to account for the context of the question though" (Respondent 12)

"You've hinted at some sort of online portal – that would be fantastic, if we could do it without that 1 week delay… Having that as a resource would be phenomenal" (Respondent 6)

"It would be good. I'm usually looking for more segmented data, and it would be quicker to just go in and look myself" (Respondent 10)

"We'll be able to get in to the data more quickly and be able to ask the questions we want to ask, but I wouldn't like it if we couldn't have any dealings with them at all to help us shape our query and to answer any other questions…I think the dialogue could still be very important" (Respondent 16)

"Query tool which allows the user to get down to exactly what they want would be good – it would cut out the noise and get the heart of what you want find out" (Respondent 14)

"It would be really good if they had a query tool because it feels a bit annoying to me that I have to keep asking them for these things which I feel I could do myself" (Respondent 15)

Existing interfaces/tools

- Respondents identified several different tools/interfaces that they already use for other datasets:
  - Sport England active lives survey tool (http://activepeople.sportengland.org/)
  - NOMIS (e.g. for census data) (https://www.nomisweb.co.uk/)
  - Impact of Cycling tool (http://www.pct.bike/ict/)

Requirements for a self-serve tool

- Coverage:
  - The tool needs to cover the whole dataset, cut by all possible fields
  - The coverage needs to be clearly presented so that users understand the breadth and depth of the data
- Functionality:
  - Straightforward and simple to use
  - Search for data by field, cut by other fields – ability to select very precise datasets
  - Flag up and explain limitations where appropriate
- Presentation of results:
  - Raw data tables to allow further manipulation
  - Some data visualisation could be useful, e.g. trends over time

"It would be good to have access to the survey data so we can maybe ask some different questions" (Respondent 6)

"It's very important to know exactly what the sample sizes are - it is important in the credibility of the data especially when sharing with external audiences" (Respondent 14)

"For me I want it as raw as possible – I would be very happy with a CSV file" (Respondent 15)

Quantitative analysis of custom requests

In addition to the user research, the full custom query log from 2017 was analysed to identify the coverage required by the tool:

- 376 requests were made to the NTS team (see table, divided by query type)
- 21 dimensions were queried less than 3 times (e.g. motorcycle license, parking cost etc.) These represented 27 queries in total, or 7.2% of the total
- 18 dimensions were queried more than 3 times, and should form the focus of the custom query tool

Group	Type	Frequency
Non-data Request		76
Countable Units	Raw	109
	Trip	87
	Vehicle	77
	Person	69
Continuous Measurement	Time	93
	Distance	56
	Frequency	46
	Length	13
	Spend	5
Dimensions *Top 10 shown individually, with remaining 29 grouped into 'Other'*	Mode of Transport	143
	Location	111
	Age Bracket	46
	Purpose	46
	Income Bracket	21
	Driving License Held	15
	Gender	12
	Vehicle Occupancy	11
	Vehicle Age	11
	Car Availability	8
	Other	61

Recommendations – Transport Professionals

Provide a self-serve tool for custom queries. This should:

- Cover the vast majority of queries asked by users:
  - All those for which there have been more than 2 requests
  - Include the current standard data tables
  - Add any additional queries for which there is demand
- Make clear the breadth and depth of the data
- Be straightforward and simple to use
- Flag up and explain limitations where appropriate
- Provide table and graphical outputs

Policy researchers

Data usage habits

- These respondents tend to use several data sources, one of which is the NTS:
  - Respondent 1 – Historical data on rail ticket sales, National Rail Passenger Survey, NTS (but aggregated over a large number of years)
  - Respondent 7 – other travel surveys, NTS
  - Respondent 11 – uses only NTS data
- They will typically use the data in a variety of ways:
  - To create reports for the benefit of policy makers – some just want the tables and will create their own graphs if needed, others like to cut and paste tables and graphs
  - In reports that will be published for use by interested parties
  - To check statements made by government
- They use both the standard tables and custom requests, and value the NTS service for the credibility that it lends to the custom cuts of the data

"If it's just a quick answer to an internal question we don't need to make the graphs fancy…I just tend to use simple two dimensional line graphs" (Respondent 1)

What they use the NTS data for

These respondents primarily use the data to inform strategy or policy decisions:

- Respondent 1:
  - To gain strategic insight e.g. To help answer questions like “What is causing the decline in the rate of increase of rail travel”.
  - So might look to link people’s rail trip making behaviours (e.g. when & why travel) with their demographics (e.g. age, sex socio economic class, employment) and changes over time.
- Respondent 7:
  - Interested in the number of journeys that people make via the different transport modes. Can’t do this from the standard data tables – has to request a custom query
- Respondent 11:
  - Needs data to inform policy development, develop strategy and monitor performance against the strategy
  - To do this needs to understand the barriers to cycling and walking

What do they want from NTS?

These users mostly want both standard information and custom information:

- Respondent 1
  - Use tables and custom requests equally
  - Tends not to use the summary outputs or the graphs.
  - Will look up his own standard tables.
- Respondent 7
  - Only wants custom reports.
  - Always gets NTS to do these – usually once every 6 months or so
- Respondent 11
  - Needs custom reports and data manipulation but also access standard tables and graphics
  - Gets NTS to provide both of these
  - Needs to work with NTS team to alter they way they conduct the survey to give the better insights
  - Small sample sizes means get variable insights – can only get data at a national level

"Part of my job is to come up with a narrative…then I am more likely to go to the data tables in the NTS section of our website or I might make a custom request" (Respondent 1)

"The infographics are good, the techy people drill down to the tables" (Respondent 11)

Experience of NTS

All respondents felt the service they received from NTS was very good:

"I am probably a burden on the team but I have been entirely satisfied by the product they have given me."
(Respondent 1)

"Great. I've always been given anything that I've asked for… I'm given what I need within an acceptable timeframe – I'm generally happy"
(Respondent 7)

"We have a really good relationship with [NTS]"
(Respondent 11)

Data credibility

For these users the accuracy of the data is critical. These tend to be people informing the development of government policy or statements made by Government or Ministers

"Senior people put together hypotheses and we can use NTS data to test these… I may get a table and show it to a senior policy person"
(Respondent 1)

"There was something in a press release…a minister had said cycling had increased…we just needed to pull up that data"
(Respondent 11)

Self serve tools

They would, therefore, prefer not to self serve and get their insights from the NTS directly because:

- NTS help them ask the 'right' question
- NTS work out what data needs to be used to answer the query
- NTS undertake data query
- NTS process the data to answer the query
- NTS flag up the limitations of the data

Also:

- They don't believe a query tool will do this.
- Using NTS reduces the 'risk' to them of getting it wrong
- It is the way some have always done it
- And it is a lot easier…

"If you're someone like me that uses it once every 6 months, unless it's very very intuitive, I'm going to need to get back in touch with DfT anyway… (Respondent 7)

"I put a lot of stock in the fact that I've been given something by the Department for Transport…Statistics can be dangerous things – being clear on what it is that you ask for, and getting a clear answer" (Respondent 7)

"We could probably do it ourselves but they way the department runs is that we commission [NTS] to do it…it is quicker for them to do it and it is robust if it is going to a ministerial briefing or the press" (Respondent 11)

"We make sure we do it right so we make sure the team does it for us… We sit down with them we make sure we understand [the data] and ask them any queries" (Respondent 11)

Recommendations – Policy Researchers

- Some of these users goals could be better met with:
  - Much easier access to the standard data
  - A self-serve customer query tool
- However, they will need to be ‘weaned’ off using the NTS service
- But, for some requests, the ‘value added’ service NTS provide is critical – for these queries these users will still prefer, and need, to come to NTS directly

Transport Data Novices

What data/information do they use

These respondents used a variety of data and information sources:

- Respondent 4 (Teacher):
  - Human geography is 50% of geography curriculum at all ages
  - Needs different types of information at different levels:
    - Information to enrich teaching materials up to GCSE
    - Access to data for student directed projects at 6th form
  - Currently uses Datashine census data (2011) which includes travel to work information
- Respondent 5 (Student):
  - Needs data to inform research projects - not always interested in finding the raw data, depends on the assignment:
    - Desk based research requiring secondary sources as main data
    - Field based under taking primary research and using secondary sources as contextual/checking data
  - Finds travel data by:
    - Searching for DfT
    - Going to statistics pages on gov.uk – looking for any information on travel
    - Searches more specifically for stuff about Bath Spa (if undertaking project on local area
    - Googling…

Awareness/knowledge of NTS

These respondents had limited or no awareness of NTS:

- Respondent 4 (Teacher) – had no awareness of NTS
- Respondent 5 (Student) – has used NTS data via a synoptic report. Had found it by Googling travel and DfT

NB. Web Usability believes that few of the users who fit this persona will be aware of the NTS data

"I had no idea all this information was available…getting to it is a bit of a pain" (Respondent 4)

Impressions of NTS data

These respondents thought the content was highly relevant and very useful:

- Respondent 4 (Teacher) – thought it was a very useful data and information source that schools could use:
  - Liked the synoptic report and infographics – thought they were very visual and easy to understand – would use this material for lesson planning and in teaching materials
  - Liked data tables as a data source for 6th formers doing their own projects – but currently very difficult to find, and too many tables to assimilate
- Respondent 5 (Student):
  - Liked the synoptic report and infographics – provided him with the information he needed
  - He did not have a need for the underlying data but knows peers who would want this

"It's always good to have new information for lessons – this is definitely something we could use and apply… I need a bit of both – I need my students to be able to access the main data, but I just need simple graphs that I can use in a lesson or put in a presentation"
(Respondent 4)

"The report is useful, it's easy to sift through to pull out relevant information and I like the graphical presentation… this would be more than enough for me personally, but there will be some people doing similar courses who need to see what's below this"
(Respondent 5)

Attitudes to a self serve tool

These respondents did not want a self serve tool and felt the standard tables and charts were adequate for them:

- Respondent 4 (Teacher) – did not want a custom report tool for herself but thought it would be very useful for 6th formers as it would enable them to create data tables relevant for their specific projects
- Respondent 4 (Student) - did not want or need a query tool, but could imagine peers that would find it useful

"I want the students to have the option to produce their own graphs, they need access to the raw data, they can't use graphs produced by other people" (Respondent 4)

Recommendations – Transport Data Novices

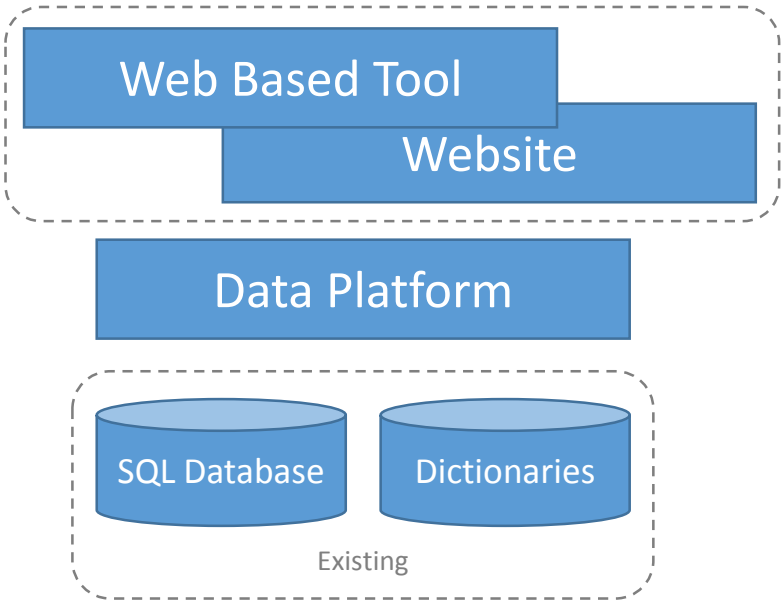
- Make NTS information and data easier to find and use:
  - Support the following user journeys:
    - Browse all transport statistics highlights
    - Browse transport highlights by category (e.g. Mode, Licences, Demographic etc.)
    - Find specific standard table/graphic
- Increase awareness of NTS

Developing the custom tool

Outline Architecture

How it might work:

- A web based tool provides users with access to data and visualisations (this needs to sit on a website for user access)
- A data platform is created which sits on top of (or is periodically generated from) the existing SQL database
  - Allows ease of integration with existing technology & processes
  - Enables provision of data feeds for a web based tool (and other future uses)
- Standard reports become a set of pre-sets in the web based tool, allowing users to access standard data by default while allowing them to explore the data further



Standardised Bucketing

Currently many dimensions have multiple buckets (e.g. ‘Working status of individuals’ has 11, 6 or 4 bucket options), which will complicate the development of a custom tool. Therefore:

- A standard approach should be taken to putting continuous (or continuous-like) data into buckets (e.g. time, age)
- The tool should provide a default bucketing for each type of data, but users should be able to create their own buckets
- For example when bucketing transport modes, the default buckets may be [Bus/Train/Tram, Car/Van, Bicycle, On foot], but the user should be able to change this to [Train/Tram, Bus/Car/Van/Bicycle, On foot]
- The data should be provided in the most granular form possible within any restrictions around personally identifiable information (which may also depend on the security level of the user), to allow the user to optimally customise their bucketing
- Geographic buckets or limits can be created by aggregating existing commonly required shapes of a selected granularity (e.g. county, district, parish, metropolitan area), circle around point, perpendicular distance from polyline (e.g. river), within polygon (free drawn or kml upload). Examples of interfaces which allow this include various GIS applications, but perhaps the best general-public focused example would be Rightmove ‘draw a search’, using a Google Maps base.

Conclusions

Summary

- The research identified 4 key user types, or personas:
  - Transport researchers – Use the raw data, don't need any change in the NTS service
  - Transport professionals – Main users of custom requests, would like a self-serve query tool to save time and allow them to make their own cuts of the data
  - Policy researchers – Use custom requests, but value the credibility that the NTS service provides for custom requests
  - Transport data novices – Not typically aware of the NTS data, but would find it very useful if they were able to access it
- Users may fit into more than one of these personas depending on their needs
- A self-serve custom query tool would be invaluable for the key persona of transport experts, but also potentially useful for policy researchers (with some training) and transport data novices as they explore the data more
- This tool needs to cover off the main query dimensions (anything requested 3 or more times in the last year), as well as the standard data tables, and will be useful for NTS as well to produce their standard tables

Recommendations

Adopt a multi-stage development process:

- Stage 1 – Develop a process to make the current approach to meeting customer requests quicker and easier (slide 46)
- Stage 2 – Make the custom tool available to a limited user group, with NTS oversight of query results (slide 47)
- Stage 3 – Make the tool available to the general public (slide 48)
- Stage 4 – Build a custom tool for visualisation of government data (slide 49)

Ensure that each stage is working and successfully meeting user needs before progressing to the next stage

Recommendations – Stage 1

Stage 1 – Develop a process to make the current approach to meeting customer requests quicker and easier:

- Build a static file from the SQL database
- Expose dimensions and measures (discrete and continuous) based on frequency of request (plus any required by standard reporting).
- Use Tableau or Microsoft Power BI (or similar third party software, e.g. Qlik) to query this file to:
  - Answer custom requests
  - Produce standard data tables and visualisations faster
- Make the results of the custom queries public via Tableau Public or BI Publish-to-Web functionality:
  - Minimise duplicate queries
  - Help to demonstrate the scope and coverage of the data
- Make the data publicly available through an API
- Produce standard reports via the tool, and embed the resultant graphs within the annual report (available in HTML)

This approach will be relatively fast and cheap (approximately 2 months, minimal cost), and NTS can ensure that they are developing something that will be useful for users

Recommendations – Stage 2

Stage 2 – Make the custom tool available to a limited user group, with NTS oversight of query results

- Host the tool on GOV.UK (or another credible domain if this is not possible) make it available to transport professionals and policy advisors via a website login
- Provide QA checks on their queries
- Publish the results of these QA'd queries as well
- Include static content about the limitations of the data
- Add new dimensions/measures as they become repeatedly requested (typically: 3 times in 1 year)
- Provide 'advanced view' of data which exposes a larger number of dimensions/measures

This will allow evaluation of the tool and a public interface, to ensure users are able to produce their own custom cuts of the data with valid statistical significance, and will require a web presence to host the tool (approximately 4-6 months, with a roughly estimated cost of £100-200k)

Recommendations – Stage 3

Stage 3 – Make the tool available to the general public:

- Open the tool up to everyone
- Conduct user testing and improve user experience
- Support browse journeys of standard tables and visualisations, as well as previous custom query results

This should take approximately 2-3 months, and cost in the region of £50k. It would allow broader use of both the custom tool and standard tables, and increase awareness of the data

Recommendations – Stage 4

*If stage 3 is successful, a further solution stage **may** be*

Stage 4 – Build a custom tool for visualisation of government data (rather than using a third-party tool):

- This would allow certain functions that are not available using the third-party tools:
  - Flagging of limitations within the data as users work with it, and suggesting how to overcome them
  - Provide a more basic interface than that provided by Tableau/Power BI/etc. for novice users
  - Further restrict potential for erroneous conclusions
- This would cover all goals of all user types
- The requirement to cut data by time, geography, gender, age group etc. is a standard problem. This custom solution should be useful for all government data visualisation, rather than just the NTS, and could therefore potentially be undertaken with the ONS and/or similar departments

This is the 'optimum' solution from a user perspective, but would require a high initial development cost plus ongoing maintenance

Recommendations – Hosting a public tool

All proposed recommendations apart from Stage 1 will require a digital presence, to host the self-serve tool and to present the standard data tables and visualisations:

- NTS should develop the following to meet all users needs:
  - Easy access to standard data tables and visualisations for both data novices and experts
  - Showcase the scope and coverage of the dataset
  - Raise awareness of the data
  - Frame and present the custom self-serve query tool, and caveat the limitations
  - Signpost Transport Researchers to the data archives
- This should follow usability best practices, SEO principles etc., and be tested throughout development
- It should be evaluated if the interactive tool can be built on .GOV.UK as the first option. If this is not practical then consider building a dedicated website for an NTS interactive tool or incorporate it onto the ONS website (http://www.ons.gov.uk)

Web Usability

Tel: 01249 444 757

www.webusability.co.uk

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