Panel Session at Smarter Travel Live – Emerging Technologies for Local Authorities
Organised by the IET & ITS United Kingdom

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Opening statements:

Devrim Kara –
PTV provides modelling software such as VISSIM for planners and engineers. They are interested in working with emerging transport technology in the context of making better use of the road network. We have known for some years now that pouring concrete is not the answer to congestion problems. We should be making control centres more intelligent and predict rather than react. For instance when there is an accident on a motorway, it is already possible to predict accurately queueing up to fifteen minutes ahead, create a diversion in an intelligent rather than a routine way, and then consider implementing a green wave on the selected diversion route. In this way we can create new capacity and move the demand there, based on the real time situation, not pre-set schemas. Forty years of research has got us to the point where this is achievable. We need to be looking well ahead to avoid wasting money on soon to be obsolete technology. £4.5 billion will be spent this year alone on hard ware motorway technology using gantries etc. But in fact the future is other, non-physical, means of communication and control.

Jeremy Wiggin –
He and his colleagues and suppliers have spent a lot of time thinking about how to present travel information to the travelling public of Norwich. These are important decisions for Local Authorities to take in a critical manner– how to handle public transport information, where does it come from, is it accurate? Consider how to show the information to customers, because if the data is badly presented it does not matter how good it is. When procuring associated services, it is important to get best value and LAs do not have a particularly good track record at achieving this. A common problem is the temptation to specify the method and the equipment rather than the outcome. For instance, it is not good practice to specify that you want to purchase a specific already available sign. Do not specify that you want scrolling, LED, etc - instead specify what type of information you want to display. This provides important room for innovation and flexibility. Specify that you are

procuring a display for a bus stop which is to show xyz types of information. When evaluating offers, remember to think about running power costs, installation costs, whole life costs, and so on, not just the headline price to purchase.

Once the technology is installed, think about how to make sure that the authority is getting the best out of it. Sometimes, a technology solution which has been purchased for one particular application, can be reused in other areas provided the knowledge to do so exists in the workforce. For instance bus stop information delivery methods can be used to provide other information as well to citizens. Bus stop signs in Norwich now also carry public health messages, information about fostering, recycling, training, etc. The transport department now has this service as a kind of internal trading arm where other departments pay it in order to promote services and events. This is not hard to achieve as long as the original tender to procure the sign included that all these different forms of information will be displayed.

Going back to the bus information provided, how often do authorities actually audit their own data? It is normal for such audits to show that data are not as accurate as the authority fondly imagines. It is normal for data from bus operators to have been manually transcribed from paper into digital formats and data obtained this way is very prone to error. Norfolk has developed and provided an online data entry tool to bus operators which it lets them use at no cost. This expenditure has paid for itself many times over through the availability of accurate digital data. Transport schedule data must be correct before one can move on to real time data, or the information service will be of a low and confusing standard. The way data is presented must be user friendly, and the "disappearing buses" syndrome which really annoys customers is caused by a poor combination of possibly inaccurate schedule data and real time data. A simple change to using the display method favoured on the railway network of showing both scheduled and expected arrival / departure, making it visually very clear that the two times refer to the same bus, works very well and customers find this easy to understand. Adopting this in Norwich ended the "disappearing bus" complaints from customers.

Gavin Neate –
Disruptive companies like Uber and AirBnB are loved by users and hated by established actors. Gavin was a guide dog instructor who developed a technical solution for disabled people at pedestrian crossings. He is now working with a Local Authority, with government and with a traffic signals provider. But it is slow and hard to develop a disruptive idea if you are a small company. The tactile cone on old pedestrian demand units was difficult for blind people to find, and the location of the unit is wrong for blind people in relation to the crossing. This also affects people with mobility issues. The solution is a mobile phone app which "presses the button" virtually. Largs in Scotland now has this installed city-wide. But the solution needs to be wider known and this is tricky to achieve for a small outfit.

Alexander Thomas –
His role is related to planning effective investment in traffic technology. Investment must be strategy, not technology, led. This is still an issue in many local authorities, who need to develop

longer term road maps to underpin a strategy led investment approach. It is important to agree strategic priorities and objectives. Conversely, when taking a strategy led approach one must still really understand the technology domain. People who combine these abilities are rare and must be nurtured. In the TfL context, the strategy needs to be informed by the desires of the Mayor, the citizens, and TfL as a body. Disruptive and emerging technologies can be hard to fit into this scheme. It can be difficult to understand and quantify their value especially over a longer term. Real Options Analysis borrowed from business decisions methodology can be applied also to ITS and can be helpful. This involves maturing a technology which seems promising by taking a systematic approach to support emerging technology with a view to then installing it.

Andy Graham -
When procuring and installing ITS we would do well by learning from domestic kitchen designers, who always specify powerpoints to meet future, not present need. These days this may even include internet access for future kitchen appliances which will need an internet connection.
We need to take the same approach on our roads – what will we need in ten years time?
The "dongle" or OBD2 transmits information such as fuel consumption, emissions, parking – and has acceleration measurements – and also records movements on the z axis data which was being deleted but which can of course usefully be employed to locate and measure pot holes. Connected vehicles do not have to be late model high end ones. Even a 100 year old Ford can be connected if you carry a mobile phone in it.

Discussion

Local authorities continue to face a challenging time with reductions in funding and staffing. At the same time, technology is changing so rapidly and it is beneficial to authorities to keep up with this. Areas of work which were firmly identified as IT now fall within the remit of people working in highways and transport. One way of dealing with this is to use consultants, which adds flexibility, but this only works well and in a cost effective way if the client is well informed enough to manage the consultant effectively. There are big opportunities offered by big data but again we need a full and critical understanding of the data and the options for working with it, not hype and wishful thinking. There is a need for solid, unbiased information in simple language to support practitioners, and for good case studies of best practice in technology implementation. Organisations like ITS (UK), the IET etc have an important role to play here.

Flexible briefs are a good idea but must include a budget ceiling, otherwise they can lead to a massive waste of time. Norfolk started its ITS improvements by getting better at procurement. This is the basis for making sustainable progress. The question is not "what technology do we want?", it is "what do we want the technology to do?" The internal procurement processes need to be changed and that can be hard given the need to change the principles and priorities of other departments to allow this to happen. The idea of giving quality a high score, e.g. scoring 60% on quality and 40% on price, is good for transport but can be resisted by finance / procurement. Buying specific equipment is never likely to lead to the best outcomes. Also, do not let consultants control

your procurement – they are not the ones who are going to have to make the procured system work. Do not assume that what works for your neighbour will work for you. Do you have the same needs and resources? And, finally, do not forget to check the Crown Procurement frameworks which may be very helpful to you.

Sometimes authorities do not actually know what systems they do have. What in-house technology is available to you already? It is good to have an understanding of the technology estate across various business areas. It could be that the planning department has a system which would be useful to the transport department but the latter may not know of its existence. One idea is to run open days, where the systems provider presents the system and colleagues from across the authority are invited to attend and find out if they too could benefit from using it.

DfT is holding a competition to help with the SPADS framework and is doing work to establish the reasons why local authorities do not do well at procuring innovative solutions from SMEs. One bit of advice is that when your in-house procurement people say "we can't procure that from them" then challenge this statement and demand to know the reasons. Sometimes SME solutions can be completely correctly sourced via the Crown Procurement framework. When an SME supplier is told by a potential client that their equipment has to be certified, perhaps via ISO or the Highways England TOPAS scheme, again they should demand the formal reasons behind such a statement and not just accept it. It can sometimes take two years to even find out what you need to do in order to get certification, so start by making sure that you really need it and are not just the victim of client procrastination.

It can be hard to get foot in the door with local authorities even for established large companies, and much harder for SMEs and start-ups.

Legacy systems in the UK can also be a barrier, and some LAs do not like to think outside their established box. Different authorities have different strategies. Proof of concept is the best way forward – but you need an brave authority to do this. More affluent authorities such as TfL can take on this role and let other, less well resourced authorities benefit from the results. TfL is already doing this in some areas.

We have invested in gantries, loops, VMS etc for many years and now have possibly lengthy maintenance contracts for them. All this is a disincentive to change. Engineers prefer to buy things, not services, but the future is services, not kit. But even larger authorities can be prone to saying "we don't do things this way".

GRID demonstrated proof of concept in Westminster in 2012, and are now about to install in Wandsworth thanks to InnovateUK support. Parking is a good example of where regulation and legislation is not keeping pace with technical and societal developments. Mobile device technology is moving much to fast to regulation and legislation to keep up. This can be an excuse for not doing something and boost the "too difficult" argument. Main acts of law will be with us for a long time.

But other regulation such as those regarding bus services can change and we should be talking to government about this. Organisations like the IET and ITS (UK) should work as channels for this dialogue.

Neatebox started by being told in 2012 by industry that it would be impossible to have a phone tell you when the light was green. Just how reactionary this stance was is demonstrated by the ubiquity of autonomous vehicle research and demos.

Data gathering exercises are often prompted by immediate need – you find you want to do something based on data and all you have is a traffic survey from 2013. Surely now we could do more data capture and analysis in real time. 60% of those attending the session room use Google maps, so this has achieved good penetration. But it means that if the Google map or incident data is bad, the advice will be bad, and for a large number of people. PTV have a transport model which takes typical peak period situations and then updates them to existing conditions. You can analyse different scenarios for how to deal with an incident – whether your priority is emissions, congestion, safety or whatever.

First we need to better understand what actually happens on the network, and only then move on to try our hand at predicting. Four million vehicles are currently providing location data via INRIX and others, so this area is moving forward in terms of good accurate data.

Allowing drivers to interact with devices in cars is not an unquestioned good. If you use a dongle to share your data then you do not have to do anything. You can of course plug your phone in and most models have standards and features to make it less disruptive. Some drivers do stick their phones to the windscreen right in their sight line and there should be a legal way of fining them for this.

The auto industry will be including decision making into future vehicles, so that drivers will have gradually less need to do this. There will be a gradual development to autonomous vehicles, not a revolution.

Challenges that technology are not already meeting:
- Connectivity – mobile phone coverage – is just not good enough for CAVs
- Data mining – we just are not able to make the most of all the data we have. Who will advise us how to buy the right software to deal with it at a good price?
- In truth we do not yet have comprehensive, good real time data
- Ageing population and meeting their needs. We just think about car drivers and able bodied people all the time. This population is growing massively. Look for Nancy Nearly Hit on YouTube.

Quality of data is also not a "solved problem" and is an important weak link. One example is to what extent the bus service data feeding journey planners is accurate on Bank Holidays. User friendly

services depend on good data. Don't underestimate the time and effort needed to provide good data. This is not a technical problem, it is built into how our transport system is created, operated and used. We need much better networking of people and organisations, not just of data.

Final thought – Those working in LA ITS need to use a single voice when communicating with the travelling public and with decision makers, in order to maximise the chance of being heard.