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No keynote should start without a little history reflecting the triumphs and failures of what this conference calls transport telematics but which, before long, we will all be calling “intelligent. transport systems”.

Although a professional civil engineer I lay my claim to founder member status of the electronic tendency. As a conference veteran, there are events over the years that stick in my mind. I remember in 1988 someone from the US FHWA making humble and Battering remarks at the end of a conference about the advanced state of European technology and institutions. Here in the UK, he had absorbed our work on SCOOT, our electronic road pricing technology used in Hong Kong, the expansion of London’s traffic control programme, and the on-street Autoguide demonstration. He saw our information systems Bill was heading for the statute book. He said simply that he would go away, take the lessons to the US, and hope they could catch up.

Some four years later, I was asked back to England to give the keynote at the same conference. You all know what had happened. The astonishing 1991 US Surface Transport Act, and lobbying by US industry following the cold war, had turned on a tap of funds for public/private partnership and ITS in the true American tradition. In the meantime we had seemed to have trodden water. The new Collaborative European research and development programmes had turned out to be very theoretical in orientation. There seemed precious little advance in view as far as the customer was concerned.

Keynoting in Frankfurt last year, I reflected that I couldn't see that, in terms of technology, we had advanced very much at all. SCOOT was 20 years old and still represents the most intelligent system we have actually implemented. After all, we had demonstrated autonomous navigation and road/vehicle communication systems on European streets 10 years previously. Nonetheless I was not downhearted and argued that we would look back at 1995 as the year when all the promise which we saw as so easy and natural in the 1980's would at last bear fruit.

In the 1980's we were very much a traffic control industry. The paymaster was Government whether central or local. The issues were essentially the issues of public procurement and UK standards. The biggest problem we had to face was that the traffic modellers with their huge main frames didn't understand electrical engineers. In particular, they didn't understand the Department of Transport's ex-post office engineers who introduced bizarre standards like 200 baud communication.

Through the work of people like Dennis Robertson, these barriers started to fall away. I watched entrists like Chris Queree and Ian Catling forced to open up early micro-computer's and traffic control cabinets and gingerly wire up cables between them. At last they got things to work and all sorts of possibilities opened up.

This fusion of skills seemed radical enough at the time. But meanwhile, European motor manufacturers started up the PROMETHEUS programme. They worked happily with the kind of partners who supplied car radios. But, as if working across Europe were not tough enough, they found that linking the technology of the car and highway opened up an undreamt of tangle of legal and institutional intricacies. In the real world, only products like ABS found their way to market because they were self contained.

Even if the culture of Police and Highway Authorities were not different enough, and it did and does vary hugely across Europe, the broadcasters, cartographers, publishers and telecommunication industries had wholly different agendas. European compctencies expanded for a while in response to the logic of global markets. Then social imperatives of belonging to something nearer home struck home. In came the concepts of subsidiarity. In the midst of all this, Governments started liberalising and privatising. They started making noises about public/private partnerships. Eventually they even started talking about the citizen and the customer.

Today all the naivete of the mid-1983 has gone. A key dimension of the industry we are developing is the mass market - meeting customer needs in the millions. We know that what the customer is willing to pay is everything. So we need to operate in the world of global institutions and business networks which define the international standards. Without standards we won't get the scale that will bring the prices that the consumer will pay and justify the huge costs of mass marketing.

We have learnt much watching mobile phones roll out. For even though at one level mobile phones are a mass market product, they also involve a complex web of standards, of infrastructure, of state monopolies, major corporations and European and national regulation.

Vehicle regulations too are now formally set at European level with an eye to the rest of the globe. Even then, national Govcmmnts have a role. For example, there is a muddle over the responsibility for safety of in-vehicle displays. Public procurement rules are set at European levels too. As a result input specifications are being slowly replaced with performance specifications.

But - despite the inter-nationalisation, the liberalisation, the privatisation - national and local Governments can help get things done by providing platforms on which to develop. For example, Hampshire County Council's ROMANSE project or the Scottish Office's work (about which there is more later today) provide a real boost. But the UK Government often speaks with forked tongue. The high profile rhetoric is one which talks of partnership and helping the competitiveness of UK firms. This is often unmatched by action in the Government's various procurement agencies from highways to defence. But this is not out of malice, it is because of the speed wheels from inside Government. The partnership frameworks seen in, say, the auto, oil and food industries have yet to be translated even into pilot projects in the public sector.

So why is the AA's Public Affairs supremo talking about all this? Well, the mission is simple enough. Intelligent transport systems have the power to transform the safety, efficiency and environmental impact of our roads and transport system. The first century of motoring was about developing an infant mechanical engineering technology and civil engineering technology and bringing personal mobility to the mass of ordinary people. As we enter the second century, an infant information technology has the power to develop and protect that mobility.

The AA's activity is designed to promote and represent the interests of the end user in all this. Developing international standards; a. European framework, and national projects can only happen by bringing interests together in partnership and explaining the wider mission beyond day to day priorities. All this requires a fair load of day to day activity - helping to bring the world's players together in Yokohama in November; helping to implement Technology Foresight; leading discussions amongst the world's motoring clubs; representing the view of European motoring organisations on Ertico or to national and local Government Not least explaining the issue to members of the public.

In the case of the M25 variable speed limits, for example, support of the mission and the technology means campaigning to ensure enduring public acceptance. Sometimes this means ensuring that the rights of the individual don't get swamped by excessive enthusiasm for the technology.

ITS is one of the important strategic areas of a transport policy which we must develop in the UK and Europe. And, by the end of the century, the AA plans to be the leading advocate not just for motoring but for Britain's transport system as a whole. Other European clubs feel the same way, particularly those with cycling origins. It is not too fanciful to think of ITS technologies as the true glue that will allow the development of that holy grail - the integrated transport system. ITS technology will allow travellers to be informed about transport services and their current and forecast availability. Inter-modal transport will become easier. Seats and parking spaces can be booked. Tolls, fares and charges paid for. Navigation supported. And so on. Beyond even the automated highway you can even be fanciful and think in terms of waiting at home for slots to be allocated for your car journey!

To achieve much of this in practice requires not just investment but new institutions and customer service facilities. This brings me to the real world and the hard practical work which will be discussed today below the fuzzy vision engineering.

As an illustration, take the AA routes database of which I am an unashamed fan. The AA database navigates you to destinations at the level of the village where it tells you pub names, tells you when you pass under a bridge, and then what's on the signpost. As a romantic ex-road engineer, this is to me more than squads of people constantly surveying every road in the country for mapping and routing data. When I use a route, I feel helped by real human beings who have for 90 years been thoroughly checking these pubs out and issuing real routes to real people.

But today, you can access the routes database in many ways - in writing, by asking on the phone, by using Milcmaster on a PC, by dialling up Tel-Me, by a terminal in an AA shop, or by using the new hand-held product from Philips. Last year, some 0.5 million routes were issued directly by The AA alone.

The Roadwatch database is similarly communicated through information lines, newspapers, teletext, and conventional and RDS broadcast. Some 400,000 broadcasts on 125 local radio, cable and satellite TV stations were made from AA studios last year in nine Regional centres. The AA claims to be Europe's largest travel information supplier. The way AA Roadwatch works is of itself an art-form with the broadcast being made by journalists who turn a screen of dull database into the house style of the particular station.

The editing and publishing side of this work is human and accessible. But its familiar appearance should not disguise that this is the way millions of people receive national and local travel information and it is the best mass market infrastructure we have as I speak.

One of the reasons why I was optimistic in Frankfurt was that, at last, in-vehicle navigation had arrived and the next steps are on the near horizon at last. We also expect to see vehicles enter the market with autonomous intelligent cruise control. In Japan, over 20 companies are now competing to provide units and sales are in 6 figures despite prices at the f 1500 level. Next year the system will go dynamic with traffic information communicated by infra-red beacons. My view is that these products have sold at this price, confounding some researchers who have looked narrowly at their transport value, because they have a high entertainment value as well.

The Japanese motoring club has played a key role in the creation of Japan's navigable database on CD-ROM and, in Britain, the AA is supporting the development of the UK implementations which will be ready to roll out over the next year or so.

Little by little in all this, the importance of the link between information and control is quietly emerging. Or more filly, the link between information, communication, control and entertainment.

in Germany, despite telecom deregulation, the Police are very reluclant to let private sector companies disseminate traffic information because they don't want other information sources to contradict Police advice. Similar instincts exist in other countries.

But the global forces which require reductions in public expenditure, together with the commercial skills needed to meet consumer needs, means that only by public/private partnerships can information and control work in harmony in both the public and individual consumer's interest. The public authorities want to communicate safety information but there will be a growing need to use the general information, communication and entertainment platforms.

Like ail rhe best engineering experiments, truths can only be revealed when things aren't working Al. For example, in the Forth estuary, drivers can be seen continuing to respond to Roadwatch advice to divert even though the vms expert system may have cancelled the advice on variable message signs. Until we get RDS-TMC, there is an inevitable lag.

What this teaches us is that we have to understand that individuals get information and ideas which affect their behaviour from many Sources. We have to understand the customer and harness their expectations and the wider world in product and service designs. On public transport, passengers often get accurate information on train arrivals based on the control system. Most of us have used the London tube but in Southampton, for example, buses are tracked and information on their progress is displayed at bus stops whilst the same information is simultaneously used to alter traffic signals to keep them on schedule. A nice efficient link.

I think many of us now realise that the EU transport telematics programme would have led to earlier deployment if the early concentration on safety and control, naturally dominated by the concerns of public authorities, had been paralleled with action on the same scale focused on market pull and the user. I certainly didn't start keynoting on private sector involvement until the early 1990s.

We know now that, in the future, there will be an increasing number of ways to communicate with travellers and increasing use of information and control systems to make the best USC of our networks. In the design of our road systems and institutions we should seek to harness the links between information and control. If warning, guidance and hazard warnings are set, knowledge of those control signals should pass straight into information systems.

If a driver is about to run into an incident, consistent messages should be passed through all available channels. If we have implemented diversion strategies based on traffic diversion rates which assume clear messages to divert, then alternative channels knowingly or unknowingly giving contrary advice will undermine the call to divert. Control advice and information needs to be made more openly available to information providers. But the control messages, such as advice to divert, must be in the individual customer interest as well as the interest of customers collectively just as variable speed control must be in the individual customer's interest (and certainly not because someone unknowingly left the sign on!)

Looking further forward to the possibility of the automated highway, if we are to develop higher tech communication between vehicle and vehicle, vehicle and road, we need to put the building blocks in place to get a virtuous reinforcing cycle and efficiency from using the same loops, incident detection equipment and so on.

In the customer driven 1990's, like an airline operator, we have to think not about controlling the teeming mass of passengers units, but of serving the individual who is travelling with others. Of course we want air traffic control to work for our safety but we also want to know how long we need to wait for a slot before we can land or take off.

With these thoughts, I hope I have introduced some of the themes that papers later on will be developing.