



DRIVING THE UK'S MOTORWAYS TO SUCCESS

Report of seminar 157 held on 10th June 2010
at Hallam Conference Centre, London

SUMMARY

KEY CONCLUSIONS

- The need for transformational change for the Highways Agency to move from motorway provider to operator was largely driven by external factors such as unaffordability of new works and environmental concerns.
- The focus now is on data collection, interpretation and communication to users.
- A pilot scheme was chosen to trial concept and technology, but careful consideration was given to work out the scope and adequately describe it.
- Lessons were adopted from other industries such as rail, aviation and overseas; a robust three-level governance structure ensured reporting and decisions were at the appropriate level.
- The pilot scheme was ring-fenced to de-risk the operations, and the procurement model began with small increases before becoming a full cost contract. This supported better (unwritten) understanding of requirements and flexibility.
- Next time, full testing of the technology package would be carried out in operational conditions to save re-visits after switch on.
- Client's commercial intentions were to better estimate costs, produce a comprehensive database of outturn costs and make an intelligent treatment of risks.
- Having now gathered much data, the Highways Agency is aware that costs ranges above the average are more extreme than those below. This new database can depreciate the risk quantum from concept to construction phases.
- Clients should not use target cost contracts unless they know what things cost!
- In summing up, the Chairman provided the following thoughts:
 - Improved embedded understanding of what outcomes are sought.
 - Express those outcomes clearly.
 - Achieve alignment across stakeholders.
 - Governance should have the ability to 'drill down'.
 - Cost control and demonstration of value for money are key.

The key objective of this half day seminar was: 'To learn lessons from transformational change and cross-cutting programme management.'

The seminar looked at the transformation of the Highways Agency's approach to traffic management through its innovative 'Managed Motorways' programme, which aims to provide a better service for drivers from existing capacity. This programme provides an excellent opportunity to understand how data capture and response in real time can transform an operation and deliver significant end-user benefits.

Speakers from both the client and the supply side discussed how the concept was brought to fruition, describing the high-level thinking, the design and technological solutions and a forward-looking approach to commercial structures.

FROM PROVISION TO HIGHWAYS OPERATOR

The first presentation discussed the Highways Agency's move away from its role of building and maintaining the roads to that of 'network operator', and reflected on the lessons learned. Developed in the late 1990s, the network operator concept is key to the Agency's focus on providing 'safe roads, reliable journeys and informed travellers' and the delivery of managed motorways.

Delegates heard how the Agency's incident management capability, the development of the Traffic Officer Service, information provision and technology improvements have provided the opportunity to deliver capacity enhancements through its programme of managed motorways.

The presentation also provided an overview of the philosophy behind managed motorways. It looked at how the operation has become central to the design process, leading to a flexible approach in dealing with project challenges while providing consistency for the road user.

Managed motorways can provide:

- More capacity where needed
- Lower whole life costs than conventional widening
- A smaller environmental impact
- A good safety record

The M42 managed motorways pilot scheme, which began in 2005, was outlined. A summary was given of some of the main outcomes – for instance, average journey times improved by 50%, whilst fuel consumption reduced by 4%.

It was noted that the compliance of the road user is essential to the successful operation of managed motorways. However, it is not just about enforcement, but about making compliance more intuitive.

Looking in detail at the M42 pilot Active Traffic Management (ATM) project around Birmingham, this presentation from Mouchel discussed how the scheme took shape from the initial concept to the built reality. The pilot was developed in parallel with the Highways Agency's change to a network operator, which resulted in a more holistic and joined-up approach between operations, maintenance and design.

The starting point for the scheme was to define the problem – unreliable journeys caused by peak time congestion and a higher than average accident rate – and then to develop a clear understanding of what success would look like. Other questions that had to be considered included the type of operational regime required, who the stakeholders were, what safety requirements were needed, and how to scale up to a successful outcome. Implementing managed motorways requires the management and leadership of many – often competing – parties and strands of work, therefore robust governance was a prerequisite

The concept of an operational regime to describe how the motorway would be operated was a new feature of the ATM pilot, and helped to explain to stakeholders how the driving environment and experience would look and feel. The regime chosen was one that smoothed traffic flow by using variable speed limits, and created more space when needed by deploying the hard shoulder in response to congestion and incidents.

A fundamental review of the hazards and risks associated with the operational regime was undertaken, drawing upon experience from the rail, shipping and aviation industries. This enabled the team to understand how the motorway could be operated safely and was vital in engaging with the wide range of stakeholders involved.

The presentation concluded with an overview of lessons learned, which can be taken through the Managed Motorways programme and into other areas of industry. Other schemes are being considered, and the Highways Agency programme is now focused on the use of technology and different operational regimes to manage the network – this is a move away from motorway widening schemes.

TECHNOLOGY AND OPERATIONAL SUCCESS

The concept of managed motorways is to deliver additional capacity to the existing road network through the use of technology, rather than the traditional and more costly road widening; this concept depends on having operational regimes which integrate the civil infrastructure and the technology.

The presentation from Peek Traffic gave a brief overview of the technology deployed as part of the M42 managed motorways pilot project, and described the architecture required to provide the operational regimes. It looked at the systems that were developed, the drivers and constraints, and the lessons learned. It was noted that from an integration point of view, the challenges faced tended to be about process and people and how the two interact, rather than about the technology.

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In particular, the design, development and implementation of the Hard Shoulder Management System was discussed. This system enables Regional Control Centre operators to open and close the hard shoulder in a safe and controlled manner. It was noted that a flexible approach to its specification, together with stakeholder involvement throughout the development life cycle, were key to the successful delivery of the system. The presentation also looked at two other systems: HADECS (the Highways Agency Digital Enforcement Camera System), which is used to enforce variable mandatory speed limits, and ramp metering, which aims to reduce congestion by algorithmically controlling the rate at which traffic joins the main carriageway.

ACHIEVING THE FUTURE BUSINESS MODEL

The Highways Agency explained what has been done to develop an estimating and cost capture capability, and how it has built on that work to develop a system of total cost management. It was explained how the tools and data that the Agency now has will support the development of future commercial models over the next few years.

Current estimating practice was explained, and planned developments outlined. For instance there has been significant investment in 'commercial capability' training in the Agency, and there will be more direct engagement with the lower tiers of the supply chain.

Detailed forecasting spend profiles for the construction phase have been assisted by investment in a 'cost intelligence' model, which has been loaded with recent project data. The data has been normalised into the work breakdown and cost structure and the Agency is now in a position to compare like with like across the portfolio. This enables benchmarking, for instance between individual projects, regions and contractors. Other initiatives include the development of an integrated supply chain, and a planned programme of category management supported by the cost capture system, which will drive value on buying commodities.

CONCLUSION

In concluding the seminar, the Chairman, Simon Webb CBE, made a number of observations regarding the transformation of the Highways Agency's approach to traffic management.

For instance, there was now a better understanding of the outcomes it wanted to achieve, not only throughout the Agency but also within its supply chain partners. Diverse stakeholders had been successfully aligned, but the necessity of working closely with partners and delivery chain must not be overlooked.

There was a need for tailor-made governance, which stemmed from the need to be aware of the overall system, but still being able to drill down to greater detail when required – with the ability to keep an eye on the big picture whilst managing safety and risk.



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