Towards an Accident Investigation Branch for Roads?

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The purpose of this paper is, in part, to endorse the case for thinking again about whether we need an accident investigation branch (AIB) – of some kind – for roads, but in particular to propose options for how the establishment of such a unit could be put into effect swiftly and effectively as a way of proving the concept.

Our view is that the 'learning loop' for road safety – the backbone of good risk management through which experience is reviewed, changes implemented and their success monitored – is both incomplete and inchoate. Most of its elements are in place, but key connections are missing. Unless something different is done, it is very hard to see how the stubbornly stable number of deaths occurring year after year on our roads can be reset on the downward trajectory that we all want to see. In the meantime, the impression left in the public mind will be that the zero-tolerance attitude to death and serious injury that is adopted when it comes to travel by rail, air and sea stands in stark contrast to a somewhat studied indifference to the horrific toll of death and serious injury on our roads – a price that we are, apparently, as a society willing to pay.

Background

For many years the UK has had specialist units to investigate the causes of aviation, maritime and rail accidents. Their task, unlike that of the police, is not to apportion blame, but to identify *cause*, and to recommend steps to avoid repeat incidents.

In contrast, government has resisted calls for a similar unit to be set up to investigate road traffic accidents. The argument against has been that the existing combination of police investigation and coroners' ability to make recommendations, combined with a vast array of initiatives in the field of road safety research, taken together with the sheer number of incidents per annum (notwithstanding significant progress) means the establishment of such a unit risks being no more than a costly duplication of efforts.[1]

As recently as March 2015, the Transport Safety Commission, co-chaired by Professor Stephen Glaister and former transport minister Sir Peter Bottomley MP, called for improved arrangements by which the lessons learnt from accident investigations could be separated from prosecution, creating an advisory role at arm's length from government.[2] The Parliamentary Advisory Council for Transport Safety (PACTS) has recently resurrected this debate,[3] and the RAC Foundation made reform of the investigatory regime for road crashes one of its top asks of the then newly appointed Transport Secretary Chris Grayling, having surfaced the issue as long ago as 2009, in a report by Dr Chris Elliott.[4]

Creating an AIB for roads rides high on the RAC Foundation's priority list of desirable policy initiatives. Although there is a considerable – global – body of road safety research into issues such as vehicle design and driver impairment, we do not think that there is sufficient effort paid to root cause analysis or to analysing the changing pattern of road safety incidents and their causes over time. The UK's prime

1 Hansard: House of Commons (2017). *Road Collision Investigation Unit* [debate] 30 March 2017, 624, c391. Accessed 16 November 2017 from https://hansard.parliament.uk/Commons/2017-03-30/debates/50BEAA41-5216-4593-A8AD-79F0A0202BB4/RoadCollisionInvestigationUnit?highlight=Road%20accident#contribution-2FC051FA-5835-4C11-919E-BE44EC2EE899
2 Transport Safety Commission (2015). *UK Transport Safety: Who is responsible?* Accessed 16 November 2017 from www.pacts.org.uk/wp-content/uploads/sites/2/TSCResponsibility_LowRes%20COMPLETE%20FINAL.pdf
3 Cuerden, R. (2017). The case for a Road Collision Investigation Branch. In: *PACTS Conference: Collision Investigation – How can we learn more?*, 22 March. Accessed 16 November 2017 from www.pacts.org.uk/wp-content/uploads/sites/2/Cuerden_the-case-for-a-RCIB-v7.pdf
4 Elliott, C. (2009). *Transport Safety: Is the law an ass?* RAC Foundation. Accessed 16 November 2017 from www.racfoundation.org/assets/rac_foundation/content/downloadables/transport%20safety%20-%20elliott%20-%20050509%20-%20report.pdf

data source, STATS19,[5] which is generated by the police, is a far richer resource than exists for most other countries. But it is still limited, as is the capacity of the Department for Transport (DfT) to analyse its content. Migration to the CRASH (Collision Recording and Sharing)6 software-based accident logging system has brought inconsistencies to light in the absolute quality of the STATS19 base data. But the bigger question is whether there is currently sufficient analysis, drawing on STATS19 and other sources, of what is happening and why.

DfT's Road Accident In-Depth Studies (RAIDS)[7] database is a much more limited resource in terms of coverage, capturing only data from a limited geographic area (the Thames Valley, Hampshire, Nottinghamshire and Leicestershire), but represents a much richer resource in depth than STATS19. Yet it also appears to be underutilised. The RAC Foundation analysis to date of certain RAIDS data suggests that the STATS19 questionnaire misses key information about the circumstances surrounding crashes.

While the UK is still near the top of the premier league for road safety internationally, the ongoing toll of death and serious injury (quite apart from the economic impact of traffic disruption caused by incidents) suggests that there is a business case to be made for more – and better-targeted – action. Moreover, we perceive a case for a more effective single focal point for objective analysis. Even within DfT and its agencies, road safety responsibilities are spread across directorates, groups and other bodies. The vocal road safety lobby is often well informed, but not always dispassionately objective. Coroners can make recommendations, and some do, but their contribution is not systematic, nor does it provide a perspective across the whole country.[8] In the meantime the profession of risk management, as exercised in other sectors, has developed significantly in recent years, arguably outstripping that found in road safety.[9]

We observe a lack of a genuine 'systems' approach in the current setup, and believe other industries have stolen a march over road safety in this respect. The systems approach is broader and more all-encompassing than the 'safe systems' thinking currently adopted in road safety, with the latter having as its focus the sharp end – drivers, cars and roads – in contrast to the wider vision of a systems approach, which takes in all the things that shape this environment. The question of why a crash has happened, and what could have prevented it or mitigated its impact, can be extremely complex. The fact that so much is down to driver behaviour makes it so. But, to pick just a few examples, where is the forum where patterns are being observed in, say, the incidence of drivers making 'wrong-side' access to dual carriageways? Who is totting up the number of times that diesel spills from heavy goods vehicles involved in crashes lead to significant carriageway damage, and relatively lengthy repair/recovery times? Is full account being taken of the wealth of data held just in Highways England's own systems? Looking at the economic impact, how many HGV incidents would need to be prevented to meet or more than cover the cost of running an AIB for roads? In our view, there should be a clearer responsibility for providing the answers to these and other potentially life-saving questions.

5 STATS19 is the national database consisting of data collected by a police officer when an injury road accident is reported to them. The manual for instructions for the Completion of Road Accident Reports (STATS20), for use where data has not been collected by a police force using CRASH software, was accessed 16 November 2017 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/230596/stats20-2011

6 Department for Transport (2017). *Reported Road Casualties in Great Britain: 2016 annual report*. Accessed 16 November 2017 from www.gov.uk/government/uploads/system/uploads/attachment_data/file/648081/rrcgb2016-01.pdf

7 https://www.gov.uk/government/publications/road-accident-investigation-road-accident-in-depth-studies/road-accident-in-depth-studies-raids

8 The case of the Walsall Coroner, Aidan Cotter, who spotted an emerging trend of loose wheel nuts on heavy goods vehicles leading to fatal collisions is an illustration of the issue – the coroner in that case felt he had nowhere to take his concerns.

9 Senserrick, T. & Kinnear, N. (2017). *Addressing Young and Novice-Driver Safety in Great Britain: Developing a systems-based approach*. RAC Foundation. Accessed 29 November 2017 http://www.racfoundation.org/assets/rac_foundation/content/downloadables/Addressing_Young_And_Novice_Driver_Safety_In_GB_Senserrick_And_Kinnear_November_2017.pdf

A standard model for accident investigation branches?

The shape, role and responsibilities of each of the existing AIBs is a reflection both of the peculiarities of the sector in question, and of the international regulatory environment within which the AIB operates. Rather than slavishly seeking to follow any of the established models, we believe it makes more sense to identify what distinguishes them by *purpose*, and consider what lessons might be learnt from the way they work in practice.

The main distinguishing factors of the AIBs are that:

- they investigate **cause**;
- they do so with the appropriate industry/technical **expertise**;
- their findings and subsequent **recommendations** are seen to be **independent**; and
- by virtue of recommendations being published, industry and policymakers can be held accountable for responding and for their **implementation**.

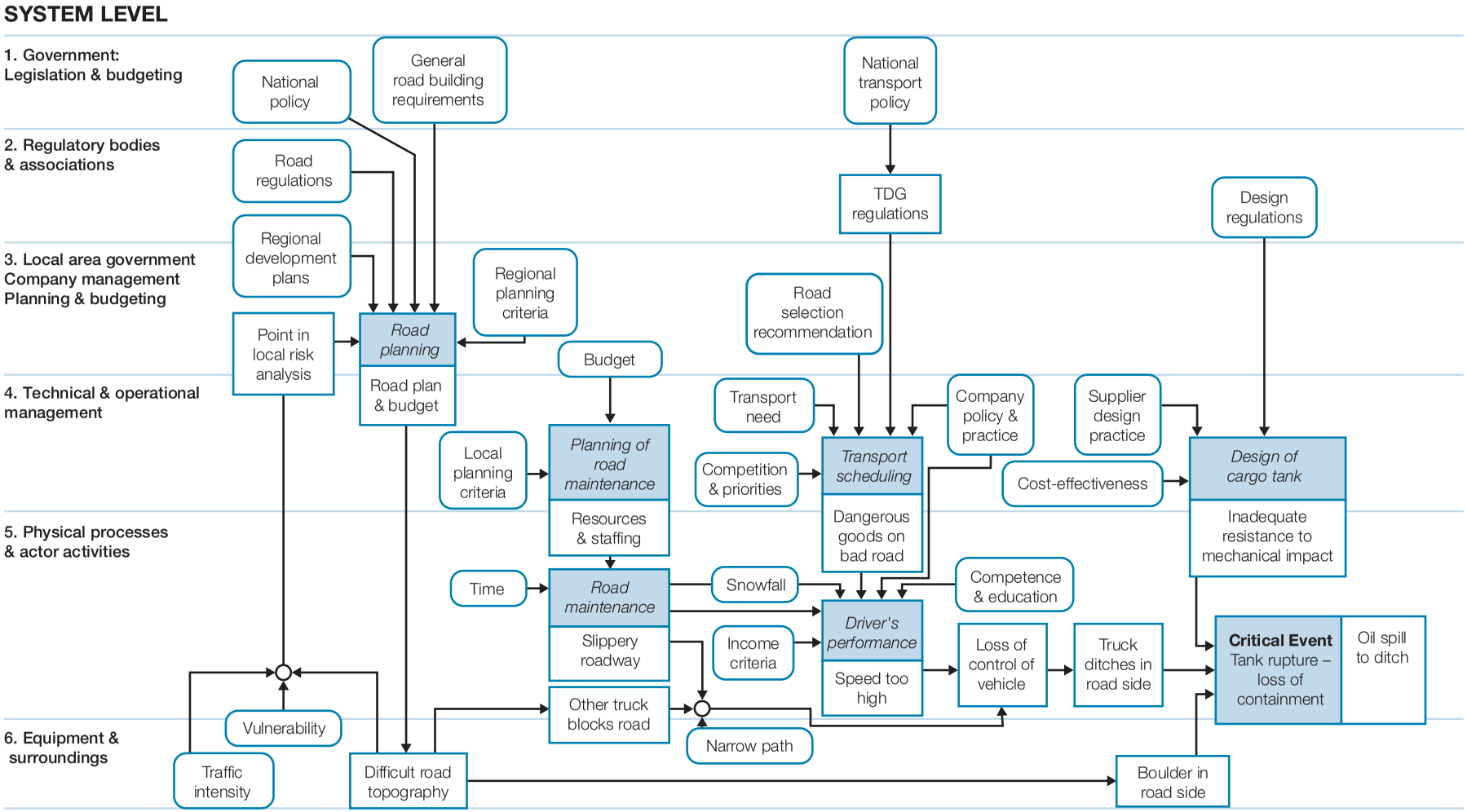
Interestingly, as a matter of corporate structure, all three existing AIBs are part of the central DfT, with the chiefs each reporting to a departmental director general. Their independence is therefore *de facto* a product of how they work and how they are perceived, rather than of how they are constituted.

Perhaps the two most important learning points pertinent to making a new AIB for roads work are: first, an understanding of exactly how the non-criminal investigation of cause is separated from the police investigation of blame and potential prosecution; and, second, an insight into how it is possible to navigate through the constraints put in place to provide appropriate protection to personal data.

We are not advocating an approach based solely on the in-depth analysis of accidents yet to happen. Nor do we suggest the in-depth investigation of every single accident. With more than 1,700 road deaths every year this would be a massive task. Our argument is that an appropriate, *bespoke* learning loop could be devised for road safety. This could involve thorough investigation of a sample of individual incidents, deep dives into the historic data, and identification both of root causes and of patterns of causation factors, before going on to make recommendations. Figure 1 illustrates how this might be achieved through application of Rasmussen's (1997) Risk Management Framework,[10] a well-used risk-management approach within other safety-critical industries (using an oil spill into a ditch as a sample incident).

10 Rasmussen, J. (1997). Risk Management in a Dynamic Society: A modelling problem. *Safety Science*, 27(2–3): 183–213.

Figure 1: AcciMap showing the results of the analysis of a dangerous goods accident involving an oil spill into a ditch



Source: Svedung & Rasmussen (2002), Figure 3.3A, p.22[11]

11 Svedung, I. & Rasmussen, J. (2002). *Proactive Risk Management in a Dynamic Society*. Accessed 16 November 2017 from https://rib.msb.se/filer/pdf/16252.pdf

A road-focused model – where to begin?

The purpose of this note is not to provide an exhaustive list of potential benefits which an AIB for roads could bring – the case for that is being extensively debated elsewhere, and we are in no doubt that an economically valid business case can be constructed. But the mundane practicalities of where to start have not as yet been explored, as far as we can find. Mundane they may be, but also essential – each journey requires a first step. So that is where we are focusing.

What would we want an AIB for roads to do? Clearly the sheer number of road traffic incidents would mean that making a deep-dive, case-by-case investigation of each, even every injury accident, would be a huge - probably impractical - undertaking. A more practicable approach would be to conduct a mix of:

- data analysis to identify patterns and systemic weaknesses;
- alongside this, a deep-dive analysis of a sample of incidents; and
- research – for example, to establish the prevalence of identified risk factors.

On the basis of this work, the AIB would be tasked with making recommendations for implementing economically appropriate solutions.

Clearly the approach of an AIB for roads would need to be shaped by the fact that road transport differs from air, maritime and rail travel in that the safe operation of the road network is hugely dependent on the behaviours of millions of individual people – not just drivers, but pedestrians, cyclists and others too. There is no 'motor transport industry' to be held accountable for system operation, in contrast to the railway, where passengers are guided through a system that – aside from navigating escalators and recognising the platform edge – they are not required to operate themselves. But we do not think that this lessens the case for having a body whose role is centred on the *investigation* of accident causation, even if *tackling* the root cause turns on broad behavioural interventions rather than systems under the control of a single company or a single industry.

An AIB for roads with the responsibilities outlined above could comprise anything from a small, tight-knit team of experts with a modest secretariat to a sizeable investigatory department. But rather than rush to advocate a specific model, we recommend piloting of different approaches, ideally in parallel. We have identified three such possible approaches that are illustrative of how a start could be made:

- create a dedicated analytical unit within DfT;
- encourage (i.e. fully or partly fund) a pilot through a competition for consortia of willing highway authorities and constabularies;
- direct or encourage Highways England to establish a unit focused on the strategic road network.

These three approaches are now discussed in more detail.

A dedicated analytical unit

It would be relatively straightforward to augment either the road safety team or one of the statistics teams in DfT headquarters with additional staff dedicated to analysis of existing road accident data from a broad range of sources. In a world of constrained resource budgets (and with the administrative pressures that Brexit has brought) this might still be a financial stretch that would have to be prioritised over other work. Ideally the resource would bring in expertise in root cause analysis and systems approach management.

The advantage of this approach would be in the speed with which it could be established. Its ambit would, however, be limited, and it would probably not be of a size that enabled it to have the independence enjoyed by the other AIBs. It might also be limited to analysis of existing data, rather than engaging in real in-depth accident investigations itself, and might not test the relationship with police criminal investigations. Nevertheless, such an approach could help build the case for a more ambitious model.

A voluntary consortium

DfT could provide seedcorn funding for the establishment of a joint investigative team by one or more local highway authorities and their associated police force. Since the cost of such a team would largely be resource (current rather than capital) expenditure, the funding would need to be guaranteed over a sufficient period – say three years – to attract the right people and build up the relevant expertise. DfT would not need to be prescriptive about the model – indeed, funds permitting, there would be advantage in encouraging a variety of approaches. This approach would suit the in-depth investigation of specific incidents, but perhaps be more limited in ability to spot national trends and patterns – there might also be a risk that with its limited geographic extent, the team would have too small a sample of incidents to explore.

It is unlikely that, as a pilot, such a voluntary model (or models) would have the independence and authority of other AIBs, but that should not undermine its value as a pathfinding project. DfT would need to be clear about whether it expected findings to result in recommendations to be effected locally or nationally.

Highways England

Possibly the closest a pilot could get to a full AIB for roads would be for Highways England to establish a unit, funded by it but at arm's length from it, to focus on the Highways England strategic road network.

The Highways England network is not the riskiest in terms of road safety. Indeed, the record on motorway safety is good. However:

- Highways England faces particular challenges in meeting its own road safety targets. Discussion is ongoing about the calibration of the targets and KPIs (key performance indicators) for the second Road Investment Strategy period (RIS2), which will run for five years from 2020/21.[12] The timing of this is such that an approach could be initiated in RIS1 (the first Road Investment Strategy period, 2015–20), with results starting to come through in RIS2.
- Highways England is already taking steps in this direction, recognising that it needs to make significant improvements in the way it collects, collates, interrogates and learns from the incidents on its network – as of today, Highways England has arguably more data than it knows what to do with, with most being generated every day. It is in need of a systems approach, as would be found in the more forward-thinking safety-critical industries.

12 The Road Investment Strategy sets out the government's budget and business objectives for Highways England.

- Highways England has the budget and administrative capability to support the development and running of one or more pilots. It has a designated fund for safety. It might not feel resource-rich, but in comparison to local highway authorities or individual police forces (or the teams in the headquarters of the DfT) there is more likelihood of it being able to carve out the modest budget needed for a pilot.
- The Highways England network might not have the worst accident record, but incidents – even those not involving death or serious injury – quickly result in major traffic delays with significant economic impact. A focus on Highways England isn't purely a focus on safety, but on network reliability, which we know to be hugely important for Highways England's customers – 2017 has, so far, seen not only some horrific incidents in safety terms, but massive, lengthy tailbacks on the network.
- A pilot 'Highways AIB' could work at arm's length from Highways England and report either to the chief executive, the chairman or to the chair of the Highways England board's safety committee. It is likely that its findings would not only lead to recommendations for Highways England's operational practices but also bring to light issues where responsibility rests elsewhere. Such findings, generated independently, would be of value to Highways England in seeking the co-operation of others based on independent evidence.
- Highways England already benefits from effective joined-up working with some police forces, most notably in the Midlands – active co-operation by at least one police force will be a prerequisite for any worthwhile pilot.
- Part of the intended way of working for Highways England was to be better joined up with its local highway authority neighbours than the Highways Agency had been. The investigation of accidents, and of the extent to which the causes and consequences of those accidents arose on local roads, would be fertile ground for building those relationships.
- Highways England's *Design Manual for Roads and Bridges*, whilst explicitly about standards for major roads, is widely recognised as the national source of road design thinking.

A forum for expert advice

If government wishes to act swiftly, within existing budgets and without the need for legislative changes that would be impossible to accomplish in a Brexit-dominated Parliament, then we would invite DfT to consider an approach based on piloting one or more models, in order to:

- explore the practicability, costs and benefits of creating an AIB for roads;
- test the protocols and processes that would need to be developed for this purpose; and
- inform future decisions about the scope for developing a more all-encompassing approach, whilst, in the near term, being of immediate value to participants.

If any of the pilot models finds favour, we would advocate adopting an agile approach under which a team or 'commission' would be appointed to produce detailed recommendations as to how the AIB concept could be constructed and piloted for roads. This team could then remain involved in the running of the pilots, thus being able to make further recommendations in the light of the experience gained through the piloting process.

Such a team could comprise relevant experts in the fields of highway design, vehicle standards and driver behaviour. But our preference would instead be to identify individuals with expertise in incident investigation, root cause analysis, human factors, ergonomics and risk management in a safety-critical industry, and to give them access to the relevant road and vehicle safety professionals.

Key aspects of the design work on which the commission could advise might include:

- putting forward proposals for handling the interactions and interfaces between the criminal investigation by the police, the establishment of blame for insurers, and the establishment of root cause (including proposals for managing data protection);
- establishing investigatory procedures and protocols;
- identifying relevant extant datasets; and
- proposing reporting arrangements.

As with the pilot models above, such a commission could vary in size and scope from being a sounding board with few, if any, dedicated full-time staff, through to comprising a more substantial body, with recruits and/or people loaned from relevant sectors.

Conclusion

There comes a time in any long-running debate when an idea either runs out of steam or finally begins to gain traction. We believe that the case for establishing some new machinery for investigating the causes of road accidents is gaining momentum. Rather than debate theoretical models and guess at the potential costs and benefits, we believe it is time to put the concept into practice by establishing one or more pathfinders. The sooner the better.

RAC Foundation

The Royal Automobile Club Foundation for Motoring Ltd is a transport policy and research organisation which explores the economic, mobility, safety and environmental issues relating to roads and their users. The Foundation publishes independent and authoritative research with which it promotes informed debate and advocates policy in the interest of the responsible motorist.

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