CIHT

Uncertainty Ahead: **Which Way Forward for Transport?**

Final Report from the CIHT FUTURES Initiative

Professor Glenn Lyons

August 2016

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More detail on the CIHT FUTURES project is at www.ciht.org.uk/futures

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About the Author

Glenn Lyons is Professor of Transport & Society at UWE Bristol and Associate Dean for Research and Enterprise in UWE's Faculty of Environment and Technology. He is a civil engineering graduate with a PhD in artificial intelligence and driver behaviour.

Glenn is the founding director of the Centre for Transport & Society at UWE which for over ten years has sought to improve and promote understanding of the inherent links between lifestyles and personal travel in the context of continuing social and technological change.

He is a former secondee to the Department for Transport (DfT) and former Chairman of the Transport Planning Society, reflecting a commitment to ensuring that academic expertise links with professional practice.

His research has centred upon how social practices and behaviour are being influenced by the digital age as well as what this might mean for policymaking. His work into travel time use, for example, has challenged approaches in economic appraisal to valuing travel time savings. Glenn is now a member of the DfT's recently established Joint Analysis Development Panel. He also sits on the Royal Automobile Club (RAC) Foundation's Research Advisory Group.

He has been involved in a number of significant transport futures initiatives. From 2000 to 2003, he directed the Transport Visions Network. He was one of four scientific advisors to the then Department of Trade and Industry's Foresight project 'Intelligent Infrastructure Systems' from 2005 to 2006. More recently, in 2014 he was seconded to the role of Strategy Director in the New Zealand Ministry of Transport where he led a major piece of work examining transport uncertainty and future demand. In 2014–2015, he was transport lead expert for the global foresight initiative Future Agenda 2.0.

Glenn is currently a CIHT Trustee, a member of CIHT's Council and he sits on the CIHT's Transportation Planning Professional Standards Committee.

Foreword

In spring 2015, following a meeting of our Council, CIHT decided that it needed to understand in depth our members' views on the way we plan our transport and how we should deal with the uncertainty that faces society.

With the support of JMP, our staff and many of our members across our UK regions, we asked Glenn Lyons to develop and run a series of workshops through 2015 and 2016 that would gather evidence of the views of our membership and enable a series of recommendations to be developed that would improve the way we plan transport. This report, produced by Glenn, is the output of that work.

I thank Glenn for all his efforts over the past year in undertaking this work. His report captures a fascinating view of our profession and the issues that he has identified as being key in professionals' lives.

The recommendations he has produced provide CIHT, the wider sector and key stakeholders a route to facing the future with increased confidence, despite the uncertainty ahead.

This report gives us the basis to engage more widely to put the recommendations into place. I welcome your input in continuing this work.

Please check the FUTURES website for more news as the work progresses, and send us any comments via futures@ciht.org.uk.

Sue Percy, Chief Executive, CIHT

Executive Summary

CIHT FUTURES is the first major initiative of the Institution following the establishment of its new regional structure.

Challenging Times for Transport

The premise of the initiative is that the transport sector (and indeed society at large) may be in a time of deep uncertainty about the future. We face major challenges, changes and unknowns socially, technologically, economically, environmentally and politically. In this climate, how well equipped is the transport profession to respond? How appropriate are the approaches currently taken to support and shape policymaking and investment decisions? As a learned society, CIHT believes that the transport profession and especially its membership should consider these challenges and questions.

Examining Uncertainty

In 2014, the New Zealand Ministry of Transport (NZ MoT), as part of its Strategic Policy Programme, investigated the uncertainty concerning the future of transport and in particular the demand for car travel. This ambitious work published its findings in late 2014 which were presented to the CIHT Council in London. With the agreement of the NZ MoT, the findings (and further developed insights) from its Future Demand project were used to provide the basis for designing and delivering a series of workshops across the CIHT's 12 regions. Eleven workshops took place in total involving just over 200 CIHT members.

Framing Discussions

In each workshop, the following occurred: The participants were placed into groups of pups, dolphins and owls as a proxy for differing periods of life and professional experience. They were encouraged to engage with notions of change and uncertainty. They explored, through a set of four future scenarios, the plausibility of different and divergent possible futures emerging for transport and society. They were asked to discuss the following three questions:

1. How uncertain is the future we face in developing our transport system (and why) – ranging from business as usual to deep uncertainty?
2. How comfortable are you with the plausibility of significantly different futures such as those presented and why?
3. What concerns (if any) are raised regarding our current approach to policymaking and investment?

The participants were then introduced to two alternative pathways of decision making. The first is called regime-compliant. This pathway involves elements including: prediction; weak planning; cost-benefit analysis; and a focus on transport as the principal enabler and consequence of economic prosperity. The second is called regime-testing. This pathway involves elements including: scenario planning; strong planning; real options analysis; and a focus on multiple enablers of economic, social and environmental prosperity. The regime-compliant pathway suggests elements that would, together, reflect a pathway to decisions that would be compliant with the way of the world we have known. The regime-testing pathway suggests elements that may bring into question the continuity of this way of the world. The participants were then asked to explore their views on decision-making pathways by discussing the following three questions:

1. What pathway do you feel (national) policymaking and investment are currently on, why and what does this pathway entail?
2. What type of pathway should we be on, and is it practical to try to achieve this?
3. What key changes from business as usual are necessary or should be considered?

Key Messages

From the analysis of the material across the set of workshops, the following key messages emerged:

Level of Uncertainty

1. Variability of individual (expert) opinion amongst transport professionals culminates in a collective voice of rather deep uncertainty about the future.
2. Official forecasts of levels of total car traffic appear at odds with overall professional opinion on future uncertainty.
3. We may well be living in more uncertain times but should be prepared to challenge that proposition.
4. Giving a voice to different generations is important in examining the future to guard against decision biases.
5. The transport sector is ill-equipped in grasping the extent of socio technological transformation that the digital age may bring about in the future that may have a bearing on transport.

6. Transport infrastructure change may be slow (giving a greater sense of certainty), but the nature of its use is much more uncertain with potentially disruptive phenomena such as the sharing economy.
7. Where the population locates (notably urban versus rural) and which types of people locate where constitute both an uncertainty and an important influence on the shape of future transport supply and demand.
8. Successive political administrations create uncertainty for transport policy and its implementation which makes the future role of the transport profession itself uncertain.
9. A sense of professional impotence arises from the transport sector being on the back foot in relation to change and uncertainty with the lack of a national transport strategy and a lack of skills within the transport profession to embrace change and confront the uncertainty faced.

Level of Comfort

10. Each individual forms their own unique mental image of the plausible future scenarios which in turn enriches, informs and underlines the importance of expert discussion.
11. Being comfortable with the notion of significantly different futures does not necessarily equate to consensus of opinion on plausibility of particular scenarios.
12. The participants' engagement in the workshops underlines the importance of scenario planning in stretching thinking through embracing and visualising different future scenarios.
13. Scenarios can lead people to initially infer the depiction of 'extreme' futures, but this is moderated through discussions, albeit with an enduring acknowledgement of significant differences between alternative plausible futures.
14. The profiles (experience, expertise and biases) of the participants and the framing of the discussion significantly define the dynamic of engagement and potential collective outcome views.
15. Cognitive fluency was a bias at play in coming to terms with future scenarios, but the participants overall showed a willingness to rally against this natural bias of feeling more comfortable believing in things they could (more readily) understand.
16. Feeling comfortable with the plausibility of significantly different futures for many transport professionals appears inversely proportional to feeling comfortable with the processes followed in their day job (where uncertainty may be denied or concealed).
17. Transport system capacity, when provided, is typically well-used, and therefore, there is an extent to which the transport sector designs the future.
18. The central government's lack of coherent strategy, coupled with a decimated local government capability, was seen by some to offer limited ability to steer the transport sector which may instead now be driven by new private sector entrants into the mobility market.

Concerns Presented

19. Election imperatives are felt to stand in the way of seriously considering the longer term, with policymaking being high level, short term and seldom arising from listening to professionals.
20. Long-term planning is difficult when policy lurches through political cycles between fashionable ideas which seem easier to grasp in the face of uncertainty and no overall vision.
21. Without an overall vision and long-term plan, we are confined to seeking reactive funding to deal with problems as opposed to having a strategy to deliver outcomes – something that may be partially but not fully addressed through the National Infrastructure Commission.
22. The transport sector is subject to vested interests, risk aversion and a 'rear-view mirror' mentality that results in inertia to change.
23. To the transport sector's hammer, everything risks looking like a nail – the sector needs to challenge its professional models and broaden its field of view.
24. Strategic planning and development is at the mercy of the mechanisms employed and motivations at play to arrive at decisions – a sense that the tail is wagging the dog.
25. We need to be brave and embrace the uncertainty of the future, recognising the opportunities that this presents to shape the future – but this requires that policymakers are engaged with the issues of uncertainty and response explored in CIHT FUTURES.
26. More effective engagement is necessary both with the public – beyond the 'usual suspects' – and within the profession, ensuring younger people especially can articulate their views and provide input and challenge to decision-making processes.
27. As public sector capacity is reduced, the balance of power between public and private bodies will further shift as new disruptive forces from 'tech innovators' exert influence.
28. Little support is provided to develop transport professionals beyond becoming chartered towards becoming leaders and developing the attributes that accompany strong leadership.

Current Decision-making Pathway

29. The regime-compliant pathway is very much seen to be the current approach to policymaking and investment in the UK.
30. Subnational settings are in some cases considered to have more orientation and movement towards regime testing.
31. 'Decide and provide' is followed by information sought to legitimise decisions – though 'decide and provide' in this context is not seen as necessarily regime-testing.
32. The regime-compliant pathway suits politicians who need to project an air of confidence in the investment decisions being made – a certainty and solidity is offered by numerically derived decisions; in short, 'people like numbers'.
33. The familiarity with what are seen as tried-and-tested approaches of the regime-compliant pathway significantly contributes to its continued prevalence, as do existing skillsets within the profession and resource constraints.
34. The question 'Is it DfT compliant?' holds significant sway over the need for local authorities to be following (at least in certain key respects) a regime-compliant pathway if they are to secure central government funding.
35. Transport professionals do not necessarily believe in the approaches they follow but which they feel compelled to follow nevertheless – leading to frustration for pups in particular and some implied concern over professional integrity.
36. Earlier career professionals do not have the confidence to challenge because they do not know what they are entitled to challenge and how far they can push and test the existing system.
37. A lack of evaluation is likely to allow the status quo to be maintained.

Desired Decision-making Pathway

38. There is a strong call from transport professionals for change with a need to see more regime-testing as either a substitute for, or complement to, the regime-compliant approach that prevails at present.
39. The regime-compliant approach is like looking at things in black and white, while the regime-testing approach equates to seeing in technicolour.
40. The current approach has seen responsibility eroded in place of a growing culture of accountability, and this issue should be addressed.
41. In terms of both pragmatism and fitness for purpose, some combination of regime-compliant and regime-testing approaches is called for (and is deliverable).
42. Clear guidance should be developed to help assist a culture change towards a more regime-testing approach.
43. The notion of a sliding scale between regime-compliant and regime-testing for each stage in a decision-making process according to fitness for purpose seems appropriate (with it being slid towards regime-testing for big picture thinking and development of strategy).
44. Many individual transport professionals want a change in approach but are unwilling or unable to act upon their wishes because they cannot rely upon others to do likewise.
45. The importance of leadership of change was emphasised with sources of leadership potentially including central government, strong politicians, the National Infrastructure Commission, Highways England and the CIHT.
46. Limitations in resourcing are seen as a significant impediment to change from the current approach in terms of funding mechanisms, budgets and human resources.
47. Skillsets are perhaps the most challenging resource to address in terms of the need for creative thinking, willingness to collaborate, ability to communicate with other professions, and ability to engage with a wider consideration of societal objectives.

Key Changes Needed

48. There is clear recognition of the need for the transport profession to adapt to the changing times it is in and to challenge the dogma inherent in our current system of decision making.
49. CIHT has an opportunity and responsibility to help with the change needed both through supporting continuing professional development and through broadening its external message, looking more widely at the contribution of the transport sector to society.
50. Further events similar to CIHT FUTURES workshops, which foster collaborative exchange of thinking and help individuals continue to learn and develop, would be beneficial not only for early career transport professionals but also for professionals from other sectors as well as decision makers themselves.
51. There is a need to more effectively engage with the publics in the process of decision making – use of the plural 'publics' is quite deliberate with a clear concern that engagement, or at least consultation, currently is skewed towards a particular demographic.
52. Silent support is overshadowed by vocal opposition; more creative and effective approaches to public engagement are called for, including the use of online mechanisms such as social media.

53. Stronger engagement is a potentially important source of creative ideas as well as buy-in if handled effectively.
54. The transport profession needs to be more engaged with the IT and other professions, and this could be facilitated by the CIHT working with its sister institutions such as the Institution of Engineering and Technology (IET).
55. In terms of how transport policy and projects will be delivered, we are in a quite unprecedented time of change – this is a window of opportunity significantly in the hands of the transport profession and the approach it takes to address the challenges and needs brought to light through CIHT FUTURES.

Recommendations

Drawing upon the insights and key messages from engaging with the transport profession through CIHT FUTURES, the following recommendations are offered:

CIHT

1. CIHT should inform and support engagement with its wider membership over key messages emerging from CIHT FUTURES and produce an 'information pack' based on the CIHT FUTURES workshop material to help enable others to explore uncertainty.
2. CIHT should develop brief professional practice guidance for its members to foster a willingness to challenge and help evolve the existing policymaking pathways. This should include a call for transport professionals to adhere to 'responsible reporting of quantitative results' by refraining from overuse of decimal places and significant figures.
3. CIHT should develop the www.ciht.org.uk/futures content into a wider set of resources (perhaps including video and wiki pages) that professionals can draw on and contribute to as a collaborative and developmental resource.
4. CIHT should consider seeking funding to establish a 'Transport Revisions Network' – possibly as a virtual group – that would be run by early career professionals for early career professionals to critically examine the development of the profession and build confidence to engage and challenge.
5. CIHT should build on guidance such as 'Involving the Public and Other Stakeholders' (2015) and consider ways of promoting and celebrating best practice in public engagement.

Transport Professionals

6. Those responsible for strategic planning should set aside a modest part of their budget to introduce constructive challenge from a regime-testing perspective and thereby potentially improve robustness of outcomes.
7. Those responsible for overseeing and supporting relevant professional qualifications should look to establish whether candidates can demonstrate both an awareness and application of the regime-testing approach and a capacity to challenge dogma.
8. Key organisations in the transport sector are encouraged to join forces to establish a 'changing practices for changing times' leadership development programme.

Strategic Bodies

9. Key organisations that now have the opportunity in an era of devolution to shape future planning and investment are urged to consider and respond to the issues set out in this report.
10. The Transport Select Committee is asked to consider the need for an inquiry into the processes that inform and influence transport policy and investment in the face of deep uncertainty about the future.

Introduction

We are in turbulent times. Global economic uncertainty exists. World oil prices have been plumbing new depths. Extreme weather events rather regularly occur, symptomatic of climate change concerns. Global security continues to be challenging in the face of a new era of extremism. The digital age is advancing, with new forms of communication and technological possibilities. In the first part of the new millennium, something peculiar has happened to total car travel in a number of developed economies with mature transport systems – the historic trend of growth over many decades has halted.

The future is uncertain. This has always been the case, but many hold the view that we may now face deep uncertainty about what the future has in store. It is possible that society could be changing in quite fundamental ways that reflect a transition from the motor age to a very different future.

What does all this mean for the transport sector and the transport profession? Can we continue with our 'business as usual' approach to informing decision making and investment that shapes our futures? How well equipped is the transport profession to potentially adapt to the challenges that may face us?

The CIHT FUTURES[1] initiative was born out of a recognition that the highways and transportation profession needs to engage with and explore such matters as those above. Following the establishment of a new regional structure for the Institution in 2015, the FUTURES initiative set out to run a series of workshops across the UK engaging CIHT members from each region. Eleven workshops have been held with over 200 members involved in forward thinking, reflective of the Institution's status as a learned society. The workshops have sought to explore change and uncertainty, examine the plausibility of a multiplicity of divergent futures and consider the implications for how we approach decision making and investment in transport.

CIHT FUTURES has been strongly defined and informed by work undertaken in 2014 by the NZ MoT which examined the future demand for car travel in the face of uncertainty through the use of scenario planning. It developed plausible scenarios out to 2042 for New Zealand that covered a range of changes in total demand for car travel – from a 35 per cent increase in total vehicle miles travelled to a 53 per cent decrease compared to 2014. This work is summarised in the following section. The next section describes the approach taken in CIHT FUTURES. The main body of the report then focuses upon what insights and key messages have emerged across the 11 workshops and what recommendations then follow.

'Over 200 members involved in forward thinking, reflective of the Institution's status as a learned society'

[1]Future Uncertainty for Transport: Understanding and Responding to an Evolving Society

Future Demand

Genesis of an Approach to Examining the Future

In 2013, the NZ MoT was subject to a formal review in relation to performance improvement. One of the challenges emerging from this 'Performance Improvement Framework' review[2] was for the Ministry to develop its strategic capability as an organisation to provide a stronger thought leadership role in the transport sector. As a result, it established its Strategic Policy Programme which has involved appointing strategy directors to lead major projects. The first three projects in 2014 addressed the following: future travel demand, transport and economics and future funding of the transport system.

The impetus for the Future Demand[3] project was a realisation that while New Zealand was investing more than the OECD's average share of its GDP on transport infrastructure (and notably expanding its road capacity), it was concurrently subject to the phenomenon of 'peak car'. Since a peak in 2004, light passenger vehicle (principally car) distance travelled per person on average had fallen by 8 per cent with total vehicle distance travelled nationally flatlining over this period. A similar phenomenon has been observed in several other countries, including the UK – an interruption to the long-run trend of growth in car use. The Ministry was aware that making sense of what the future might have in store for travel demand was important in ensuring that present-day policy and investment decisions are mindful of appropriate 'stewardship of the future'.

The Future Demand project included a number of pieces of supporting work: a commissioned history of the motor car, an expert roundtable in London to examine the phenomenon of peak car (and further analytical consideration of the phenomenon in New Zealand) and collation of trend data for New Zealand addressing both transport and lifestyles. Such work informed the centrepiece of the project – a scenario planning exercise to examine uncertainty and develop a set of four plausible futures for New Zealand out to a time horizon of 2042. This was also informed by an international review of scenario planning methodologies and application.

Scenario Planning

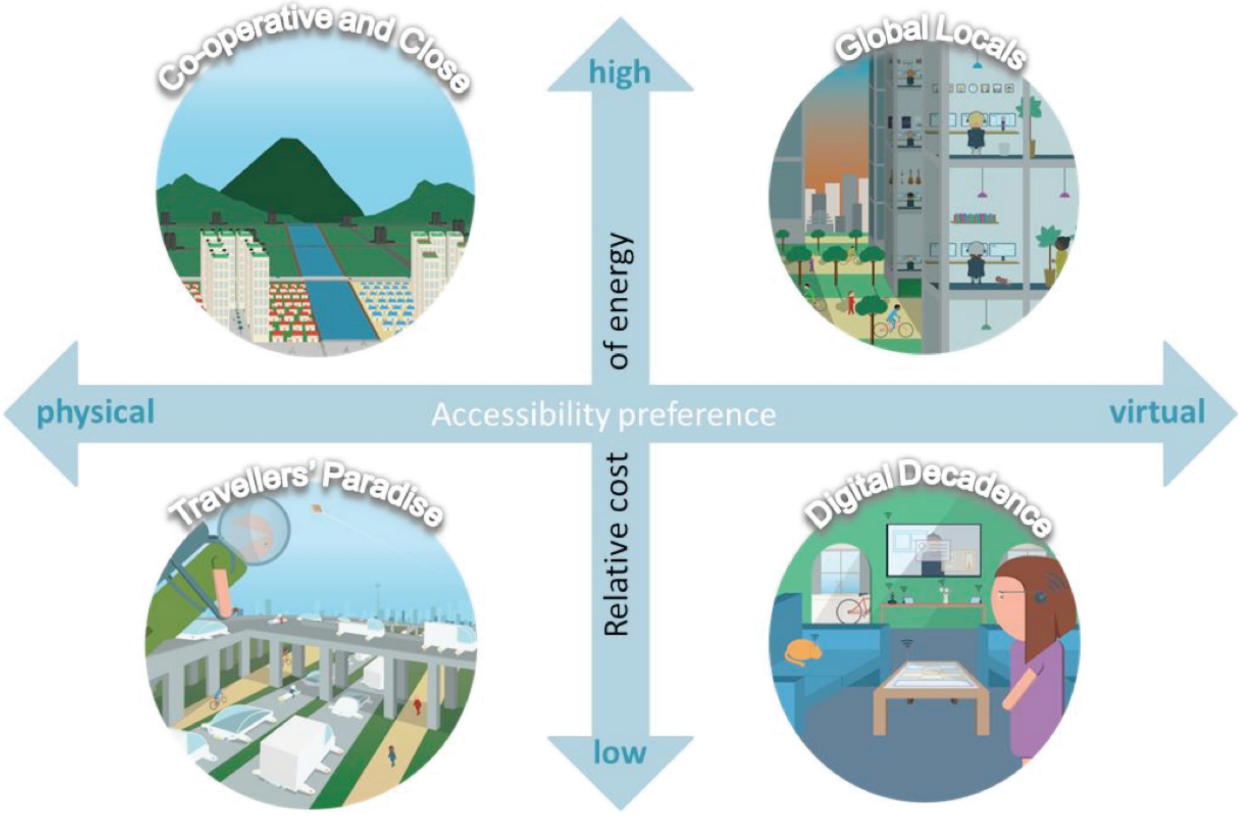
Scenario planning is a means to expose and embrace uncertainty about the future. It was developed by Shell in the 1970s. It is contrasted with forecasting which, while commonly used in the transport profession and other sectors, tends to conceal uncertainty and give a misplaced sense of confidence in the future.

The focal question for Future Demand was 'How could or should our transport system evolve in order to support mobility in the future?' With this question at the centre of the project, the scenario exercise involved a series of workshops with stakeholders and experts. This first explored the many drivers of change for the future associated with the question. Sixteen factors were identified. Stemming from this, two 'critical uncertainties' were identified. In asking 'What will society want to do in future?' the project identified the first critical uncertainty, namely, society's collective accessibility preference, ranging from a greater preference for connecting physically to a greater preference for connecting virtually. In asking 'What will society be able to do in future?' the project identified its second critical uncertainty – the relative cost of energy ranging from high to low. Forecasts for world oil prices during the project were predominantly ones of increase. Upon the conclusion of the project, world oil prices began to plummet. The two critical uncertainties then create a pair of axes or 'canvas' upon which to paint a picture of the types of future that could emerge depending upon how the two critical uncertainties play out. A future scenario is developed for each quadrant. Drawing upon the 16 factors referred to earlier, the project produced narrative descriptions of each scenario for 2042 as well as a plausible explanation of the pathway of development from present day to the future state.

'distance travelled per person on average had fallen by 8 per cent'

[2]http://www.ssc.govt.nz/sites/all/files/pif-mot-review-august2013.PDF

[3]http://www.transport.govt.nz/ourwork/keystrategiesandplans/strategic-policy-programme/future-demand/



Each scenario is given a name that is intended to be memorable and easy to recall. For example, 'Cooperative and Close' is a future scenario in which high energy costs and a society preference for physical ('face-to-face') connectivity dictate a need to prioritise proximity and seek efficiencies in resource use through cooperative behaviour.

Quantifying the Scenarios – Numbers Can Matter

The project recognised that some people are 'storytellers' and some are 'number crunchers'. Not everyone would find it easy to engage with the scenarios or perhaps even consider them credible without some hard numbers, reflective of the domain of forecasting. The Ministry of Transport therefore developed an econometric spreadsheet model that allowed a read-across from the narrative descriptions of the scenarios to a quantified estimate of the extent of total vehicle distance travelled in each scenario[4]. Across the scenarios, changes in total car travel range from a 35 per cent increase to a 53 per cent decrease from present day to the 2042 scenarios. Specific changes were as follows: 'Travellers' Paradise' – 35 per cent increase, 'Cooperative and Close' – 3 per cent decrease, 'Global Locals' – 53 per cent decrease and 'Digital Decadence' – 25 per cent decrease. These figures are estimates, but as quantifications, it is remarkable how they attract attention in a different way to the scenario narratives alone.

The Future Is Uncertain – So What?

The purpose of a scenario planning exercise such as this is to expose uncertainty. Decision makers can often find this frustrating – they expect the process to lead to some sort of convergence on a single 'most likely' or 'most desirable' future. The intention of a scenario planning exercise – especially for those directly engaged – is to prompt consideration of what such uncertainty means for how we plan and invest for the future. If we are truly prepared to recognise that we do not have confidence in the direction of travel ahead, then we need to think in terms of how to make decisions today that are robust against a range of plausible futures, such as those depicted.

[4] In the interest of transparency, it also made the spreadsheet available online: http://www.transport.govt.nz/ourwork/keystrategiesandplans/strategic-policy-programme/future-demand/

The Future Demand project run by the Ministry of Transport established three important principles arising from its examination of uncertainty:

'Firstly it is access, not mobility per se that is key to a thriving New Zealand. Uncertainties exist over what makeup of access will be desirable and affordable in the future.

Therefore, secondly, we must ensure a resilient provision of access options that provides for adaptability of behaviour over time. This means a combined and coordinated effort to evolve and improve roading and proximity and digital communications.

Our transport system's nature and scale partly determine the demand placed on it. Therefore, thirdly, when evolving our transport system, we should have in mind providing for the demand we believe is appropriate (and feasible) rather than providing for the demand we may be tempted to predict'[5].

The latest output of the project (released in January 2016) has been a four-minute animation with commentary that articulates the essence of what the project undertook[6]:

This is a reminder of the importance (but challenge) of communicating such work though different channels and formats to help and encourage people to engage with the underlying issues.

Moving Back to the UK

The Ministry of Transport emphasised that its findings were internationally relevant. During its presidency of the OECD's International Transport Forum in 2014, a meeting of the Transport Management Board in Paris debated the project's findings in terms of the implications for many member countries.

The work was published in New Zealand in November 2014. In February 2015, a presentation of the work was delivered to, and debated by, a meeting of the CIHT Council. From this emerged a realisation that the issues being highlighted in the work of the Ministry of Transport warranted debate within and across the Institution's membership. The way in which we prepare the UK for its future was at stake. CIHT FUTURES was then born.

'changes in total car travel range from a 35 per cent increase to a 53 per cent decrease from present day to the 2042 scenarios'

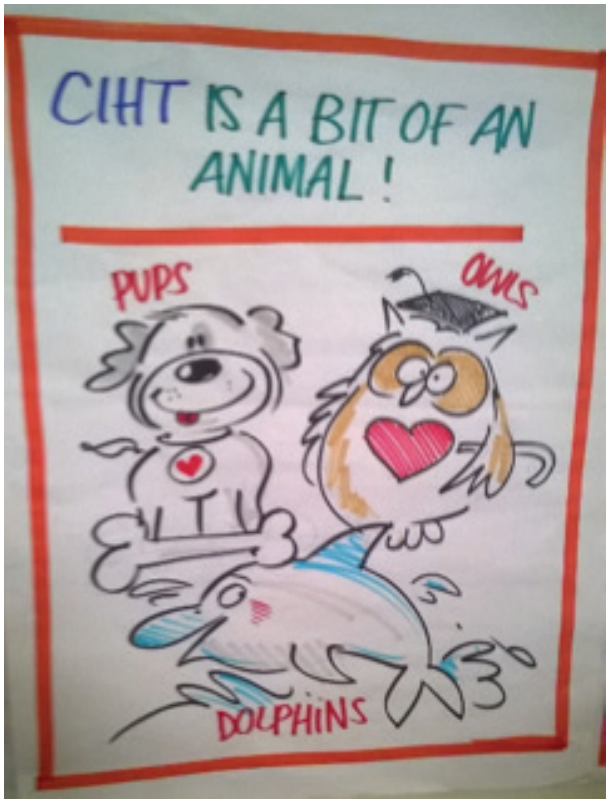
[5]Reproduced from Lyons, G., Davidson, C., Forster, T., Sage, I., McSaveney, J., MacDonald, E., Morgan, A., and Kole, A. (2014). Future Demand: How Could or Should Our Transport System Evolve in order to Support Mobility in the Future? Final Report. New Zealand Ministry of Transport, Wellington, New Zealand.
[6]To view the animation, go to http://www.transport.govt.nz/ourwork/keystrategiesandplans/strategic-policy-programme/future-demand/

The CIHT FUTURES Approach

Membership Diversity

With 12 regions defining the new geographic landscape of the CIHT, the intention was to use CIHT FUTURES as the first institutional initiative to engage across the membership by taking it to members in each region. With a combined event for the Wales and South West England regions, a total of 11 workshops took place. This provided an opportunity for particular regional perspectives and experience to set a context for each workshop.

Attendance at each workshop was established through the CIHT FUTURES website. This provided an online opportunity for any member in the region concerned to request a place. A number of direct invitations were also sent out. Each workshop brought together a variety of professional perspectives, with participants from both the public and private sectors involved in highway engineering, transport planning, development control, intelligent transport systems, transport modelling and so on.



The presumption of the initiative was that an individual's outlook to the future is likely to be strongly coloured by their lived experience and the life stage they are at. Accordingly, workshop participants were divided into groups of pups, dolphins and owls—reflecting age groups of under 35, 35 to 50 and over 50 years, respectively.

This was not to suggest that all participants within a given group would necessarily be like-minded or more similar in their views than those of the other groups. However, as the workshops proceeded, it became apparent that good-spirited 'compare and contrast' exchanges were fostered across the workshop by the arrangement of participants into these groups.

Warming People Up and Introducing Connectivity

The participants introduced themselves by explaining their employment role, sharing their motivation for attending and offering one insight to their thoughts on what the future might look like in 30 years' time.

They were then introduced to an extract from the 2014 National Infrastructure Plan[7] (or equivalent for devolved administrations):
'The choices that we make about infrastructure enable us to shape the type of economy and society that we want for the future. Infrastructure has the capacity to unlock economic potential in individual regions and ensure that growth and opportunities are distributed across the country, while also creating networks which bind together the different parts of the UK. Investment in infrastructure also helps the government to deliver new housing and business development where it is most needed'.

The key underlying theme to this statement is connectivity. Ensuring we can connect with or access people, goods, services and opportunities is what supports economic activity and social well-being. Transport, across different modes and infrastructures, provides such connectivity. This includes motorised and non-motorised transport. However, the increasing maturity, extent and capability of the telecommunications system provide a further means of connectivity alongside the transport system. The participants were asked to consider how they would, as custodians of the future, invest 100 billion 'connectivity

[7]https://www.gov.uk/government/publications/national-infrastructure-plan-2014

credits' across highways, railways, footways and cycleways and information superhighways.

Change, Uncertainty and Plausibility

The participants were played the YouTube video 'Shift Happens – Did You Know?'[8] This video depicts a myriad of seemingly dramatic changes in society (especially associated with the digital age) that are unfolding around us. This includes the indication that 'the top 10 in-demand jobs in 2010 . . . did not exist in 2004' and 'the amount of new technical information is doubling every two years . . . For students starting a four-year technical degree this means that . . . half of what they learn in their first year of study will be outdated by their third year of study'. The participants' reactions to the video were gauged. Some participants found the apparent pace of (technological) change overwhelming. Others were more sceptical regarding how profound such developments might be in terms of fundamental change in society.

The participants were then introduced to a presentation, drawing upon Future Demand from New Zealand, in which notions of change, uncertainty and plausibility were introduced – as summarised below.

'Some participants found the apparent pace of (technological) change overwhelming'

Change in society can be sudden and dramatic – for example, an earthquake that damages infrastructure and services in a way that immediately forces a reconfiguration of connectivity. However, change can often be gradual and stealthy. The ageing process is a case in point. Getting older creeps up on us – no change is noticed day to day or perhaps even year to year. Yet compare the face in the mirror over a decade or two and change is readily apparent. The same could be said of car dependence in society or traffic congestion. We tend to adapt and adjust to accommodate, or better tolerate, gradual change and can be unaware of its stealthy accumulation – until we compare such change over longer periods. Change can also be transformative – over a period of sometimes several decades as society moves from one 'regime' to another. Prior to the motor age, cities existed in a 'regime' of horse-drawn transport. This was the way of the world. Yet as the automobile was born and moved into mass production, a process of transformation unfolded. Car ownership over a period of decades moved from being the preserve of the minority to the norm of the majority, and our transport and land use systems were developed in tandem with this regime of automobility. We are all children of the motor age. History is defined by regimes and transitions between them. It is reasonable to assume that just as we have transitioned into the regime of automobility, so too will we eventually transition into a different regime. Transition is a process, not an event, so how would we know if it is occurring as we live through it?

Two strong signals of potential transition have been apparent in the early years of this millennium. We have lived for some decades with what might be referred to as two 'givens' of automobility: (i) car traffic keeps on growing; and (ii) you cannot have economic growth without traffic growth. In recent years in countries including the UK, the US and New Zealand, car traffic stopped growing. Added to this, in the same countries, economic activity (GDP) has increased at a greater rate than road traffic activity. In other words, the traffic intensity of the economy has been reducing.

Considerable international interest in understanding what has been happening to levels of car travel currently exists[9]. An obvious explanation might be presumed to be the global economic downturn. However, the halt to road traffic growth preceded this. Other factors at play are considered to be the trend of urbanisation, capacity limitations of road networks, young people less commonly acquiring driving licences and hence cars and digital-age effects on connectivity.

Professional opinion is divided on where car-use trends are heading. Currently no professional consensus exists on whether car use will grow, remain at a plateau or decline. It is also clear that different trends are playing out for different people in different areas[10]. Nevertheless, official road traffic forecasts appear to exhibit a consistent characteristic in different countries – they predict growth of varying degrees and never decline or plateau (saturation). This is in spite of the recently observed data. The UK Department for Transport (DfT) has sought to take some account of the 'peak car' phenomenon in its own recent range of forecasts underpinning the government's 2015 Road Investment Strategy[11] and in its 2015 road

[8]https://www.youtube.com/watch?v=YmwwrGV_aiE

[9]Goodwin, P., and Van Dender, K. (2013). Peak Car–Themes and Issues. Transport Review, 33(3) – Special Issue on Peak Car: 243–254.

‘we attribute success to ourselves and blame failure on external factors’

traffic forecasts for England[12]. Nevertheless, based strongly upon longstanding factors such as income and population levels, our forecasts tell us that road traffic is on an ever-upward trend[13].

With such insights as a thought provocation to the workshop participants, they were then introduced to the four scenarios developed as part of the NZ MoT’s Future Demand project. In turn, they were asked to each assign eight ‘plausibility credits’ across the four scenarios. The challenge was for them to gauge in their own minds the relative likelihood of the different scenarios coming to pass for the UK.

Let the Discussion Commence

The participants were then given nearly an hour to discuss in their groups the following three questions:

1. How uncertain is the future we face in developing our transport system (and why) – ranging from business as usual to deep uncertainty?
2. How comfortable are you with the plausibility of significantly different futures such as those presented and why?
3. What concerns (if any) are raised regarding our current approach to policymaking and investment, including your own allocations of connectivity credits?

Group views were then fed back to the workshop as a whole.

Beware of Decision Biases

As a segue into the second half of the workshop, the participants were played a second YouTube video ‘How to Improve Your Daily Decision Making: Top 4 Cognitive Biases You Should Avoid’[14]. The video explains four decision biases with advice on how to keep them in check: Self-serving bias – We attribute success to ourselves and blame failure on external factors. This bias protects our self-esteem but stops us from learning from our mistakes. To counter the bias, it is advised you should have people around you who can ‘call you out and keep you grounded’.

Cognitive fluency – More easily processed and understood ideas are rated higher (regardless of the true position). Therefore, it is advisable that if something sounds good, it should be questioned (and things that are harder to grasp should also be given due consideration).

Sunk-cost fallacy – Intense aversion to loss means we may extend a previous unsatisfactory approach, allowing sunk costs to influence decisions. Instead, focus should be placed on the future costs and benefits without letting previous loss influence a decision.

Confirmation bias – We only search for evidence that confirms our beliefs. To remedy this, we should also search actively for contracting evidence.

Across all workshops, no one was prepared to indicate that they were immune to any of these biases. Yet such biases, if unacknowledged and unaddressed, may well be playing a significant part in shaping the way in which, as transport professionals, we interact and exchange information and expert views in the course of guiding and advising the decision-making process.

Decision Pathways

The workshop participants were then introduced to two decision pathways, as set out on page 17[15]. These pathways were drawn up as an extension of the insights gained from the Future Demand project in New Zealand. One pathway suggests elements that would, together, reflect a pathway to decisions that would be compliant with the current regime. Meanwhile, the other pathway suggests elements that may bring into question the continuity of such a regime in terms of the decisions arrived at.

[10]Le Vine, S., and Jones, P. (2012). On the Move: Making Sense of Car and Train Travel Trends in Britain. RAC Foundation, London.

[11]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/408514/ris-for-2015-16-road-period-web-version.pdf

[12]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

[13]Total distance travelled by cars and taxis in Great Britain for 2014 does show an increase, but the total remains in line with the total figure from 10 years earlier: https://www.gov.uk/government/statistics/transport-statistics-great-britain-2015

[14]https://www.youtube.com/watch?v=3Ux3pm6UfCo

[15]Lyons, G., and Davidson, C. (2016). Guidance for Transport Planning and Policymaking in the Face of an Uncertain Future. Transportation Research A—Policy and Practice, 88, 104–116. http://dx.doi.org/10.1016/j.tra.2016.03.012

‘workshop participants were then introduced to two decision pathways’

Each pathway begins by building upon the notion of decision biases by identifying the dominant preconceptions of the actors involved in the process of informing and making decisions. For the regime-compliant pathway, actors may have the following outlooks: predicted (an extrapolated outlook giving a [misguided] sense of confidence), presumed (an outlook based on probability and instinct but without proof) and practical (an outlook aligned best with immediate interest and imperatives). Meanwhile, for the regime-testing pathway, actors may have the following outlooks: plausible (an outlook whose potential emergence cannot be denied based on current knowledge) and preferred (an outlook for a future that is desirable [so therefore value laden]).

The regime-testing pathway introduces real options analysis (ROA) as an alternative to cost-benefit analysis. The latter concerns a predicted assessment of a one-shot long-term decision (especially in terms of investment in a piece of major new infrastructure). By contrast, ROA concerns considering how greater up-front investment in a more flexible design of a scheme could pay a longer-term dividend by being able to respond to uncertainty. ROA examines building in the option to do something at a later date if circumstances become appropriate. A simple example was used to explain this in the workshops – a parking facility where ROA is used to consider the merits of designing the structure to be strong enough to accommodate vertical expansion (i.e., building additional floors) should future demand exceed projections[16].

Regardless of the decision-making pathway that applies in practice, it was suggested to the participants that decision making should be framed by an acknowledgement that society’s connectivity is underpinned by three inter-related systems that provide access to people, goods, services and opportunities: the transport system (which can enable access through physical [motorised] mobility), the land-use system (which can enable access through spatial proximity) and the telecommunications system (which can enable access through digital connectivity).

The participants were given an hour in their groups to discuss the following three questions:

1. What pathway do you feel (national) policymaking and investment is currently on, why and what does this pathway entail? (This may be one of the two pathways indicated or a different combination of elements.)
2. What type of pathway should we be on, and is it practical to try to achieve this?
3. What key changes from business as usual are necessary or should be considered?

Group views were then fed back to the workshop as a whole.

Yes, Minister

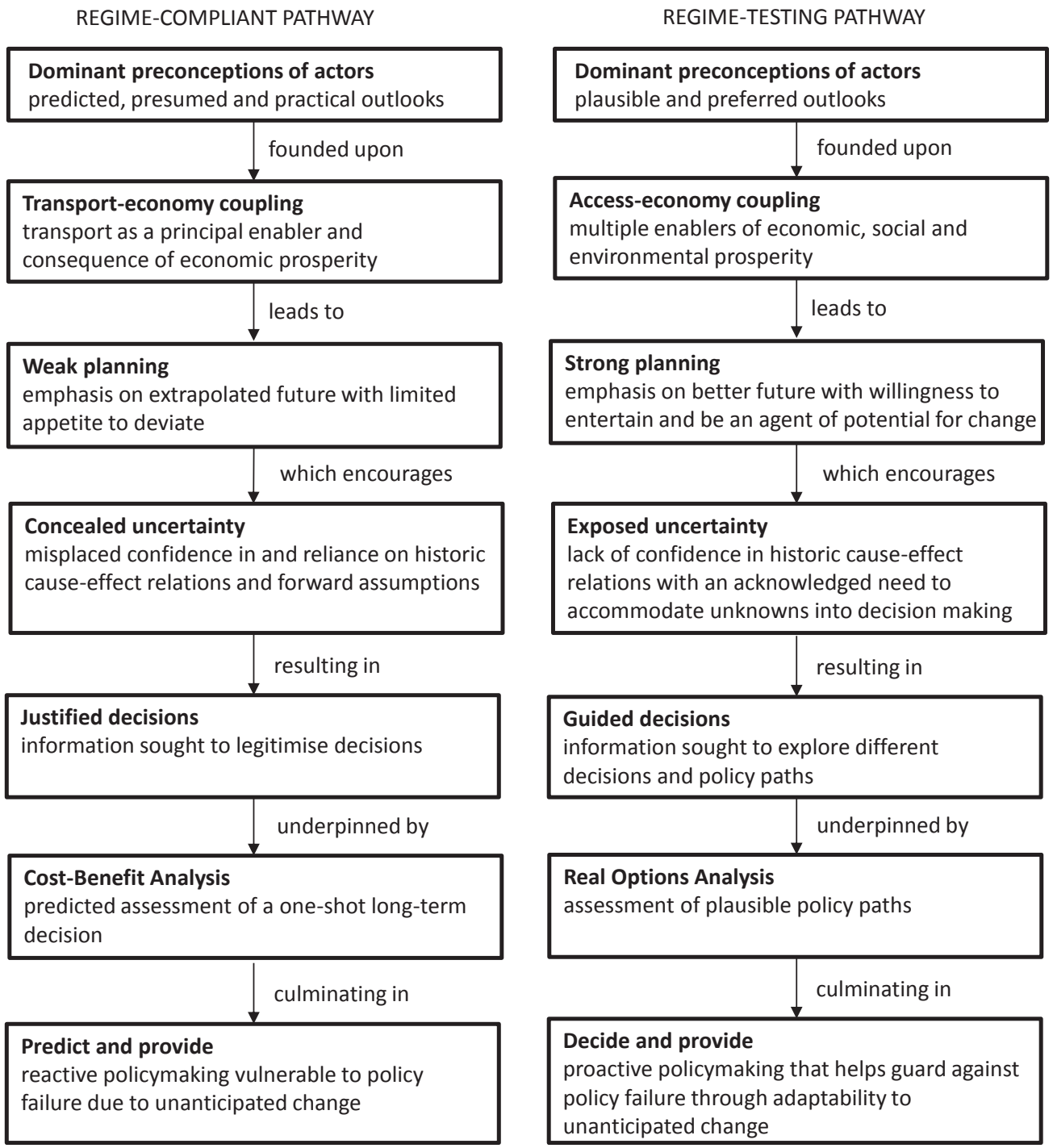
To conclude the workshop, the participants were invited to reflect upon what key messages for the transport profession and for policymakers they felt had come through in the workshop. However, prior to this, a short extract from ‘Yes, Minister – The Bed of Nails’ was played. This episode concerns the minister having accepted an invitation from the prime minister to formulate an integrated transport policy. The minister’s permanent secretary, Sir Humphrey Appleby, is aghast at this prospect. With CIHT FUTURES looking some 30 years into the future, it is notable that this episode of the popular satirical comedy depicting UK politics was first released in 1982 – over 30 years ago. Its ability to amuse the workshop participants suggests that not much may have changed.

The subsequent sections of the report set out how the workshop participants reacted to the six key workshop questions.

‘society’s connectivity is underpinned by three inter-related systems that provide access’

[16]Zhao, T., Sundararajan, S. K., and Tseng, C-L. (2004). Highway Development Decision-Making under Uncertainty: A Real Options Approach. Journal of Infrastructure Systems, 10(1), 23–32.

Alternative Decision-making Pathways[17]



[17]Reproduced from Lyons, G., and Davidson, C. (2016). Guidance for Transport Planning and Policymaking in the Face of an Uncertain Future. Transportation Research A – Policy and Practice, 88, 104–116. http://dx.doi.org/10.1016/j.tra.2016.03.012

How uncertain is the future we face in developing our transport system?

Key Messages

1. Variability of individual (expert) opinion amongst transport professionals culminates in a collective voice of rather deep uncertainty about the future.

2. Official forecasts of levels of total car traffic appear at odds with overall professional opinion on future uncertainty.

3. We may well be living in more uncertain times but should be prepared to challenge that proposition.

4. There is an importance to giving a voice to different generations in examining the future to guard against decision biases.

5. We are ill-equipped in the transport sector to grasp the extent of socio technological transformation that the digital age may bring about in the future that may have a bearing on transport.

6. Transport infrastructure change may be slow (giving a greater sense of certainty), but the nature of its use is much more uncertain with potentially disruptive phenomena such as the sharing economy.

7. Where the population locates (notably urban versus rural) and which types of people locate where constitute both an uncertainty and an important influence on the shape of future transport supply and demand.

8. Successive political administrations create uncertainty for transport policy and its implementation which makes the future role of the transport profession itself uncertain.

9. A sense of professional impotence arises from the transport sector being on the back foot in relation to change and uncertainty with the lack of a national transport strategy and a lack of skills within the transport profession to embrace change and confront the uncertainty faced.

Collective Opinion

Each participant was asked to allocate eight 'plausibility' credits to reflect their view on the (relative) plausibility – assuming a UK context – of the four divergent scenarios presented. After nearly one hour in groups discussing uncertainty and plausibility, the participants were asked to revisit their scores.

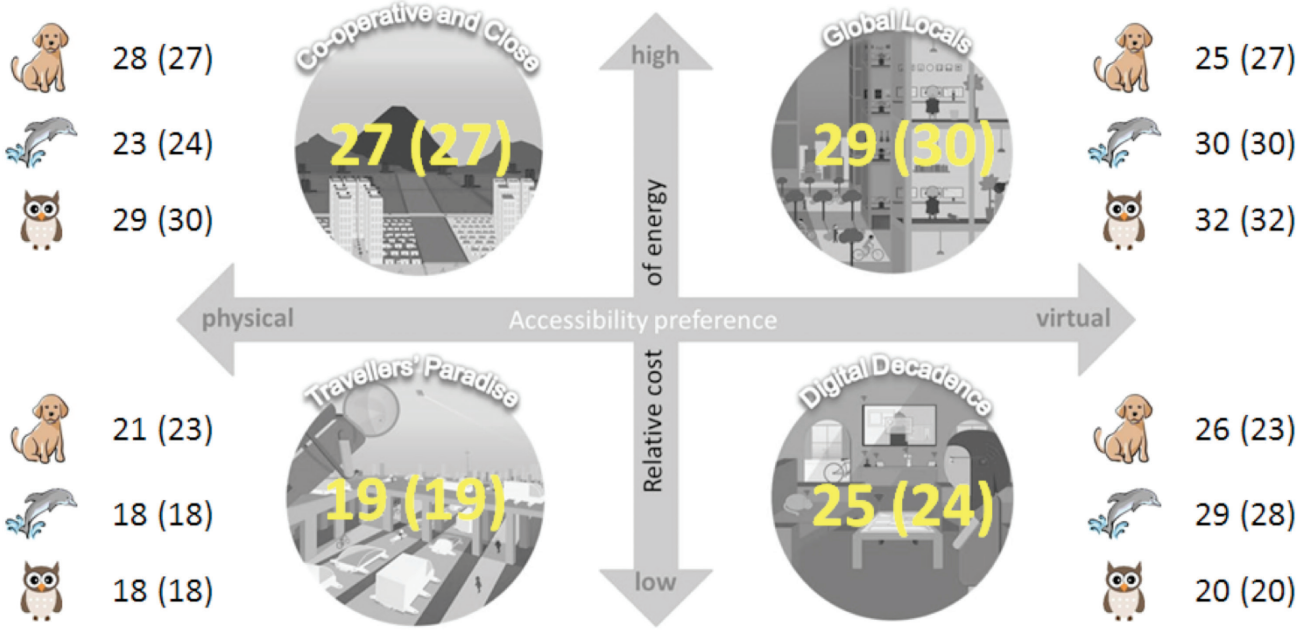
The results are shown below[18] with the following observations:

- All four scenarios are considered plausible overall, underlining a collective view of uncertainty.
- A high energy future is somewhat more plausible than a low energy future.
- There is a tendency towards greater virtual accessibility being deemed more plausible than greater physical accessibility in the future.
- Travellers' Paradise (the only scenario with growth in total car travel) is considered overall to be least likely to materialise.
- Only modest changes from before to after discussion in the overall results arise (although more individuals changed their allocation of credits).

The participants' views expressed at the workshops will, to some extent, be influenced by the construct of the workshop design itself

The degree to which the workshops' sample of 201 participants is representative of the transport profession is untested. It can, however, be suggested that the sample reflects a cross section of membership views. The participants' views expressed at the workshops will, to some extent, be influenced by the construct of the workshop design itself. The limited degree of acquaintance with the four scenarios as presented should be stated – while pointing out that the participants were given an indication of the change in total car distance travelled that would arise for each scenario. The participants tended to focus upon their views concerning the two critical uncertainties which frame the scenarios.

Percentage of each group's plausibility assigned to each scenario before (and after) discussion – averages for all participants shown in yellow



[18]201 participants in total: 59 pups, 81 dolphins and 61 owls

The DfT's 2015 road traffic forecasts (for England)[19] range from 9 per cent to 45 per cent growth in total car traffic (vehicle distance travelled) between 2010 and 2040. These forecasts respond to an acknowledgement that '[s]ome stakeholders have expressed a general concern around how our forecasts of significant traffic growth fit with recent data showing a largely flat trend over the last decade'. It is remarkable that the only scenario considered in CIHT FUTURES which has a change in car traffic within the range of the official road traffic forecasts (Travellers' Paradise – 35 per cent growth in total car traffic) is the scenario deemed least plausible. Meanwhile, Global Locals received the strongest overall signals of plausibility from this sample of the transport profession, yet this scenario equates to a 53 per cent reduction in total car traffic.

Official forecasts of levels of total car traffic appear at odds with professional opinion on future uncertainty.

The views of the participants over the question of how uncertain the future is that we face are now considered.

Considerable Uncertainty

While not a universally held view, most commonly expressed by the different workshop groups across regions was a belief that the future is very or deeply uncertain. This included the important acknowledgement by London region pups that uncertainty reflects that there may be very little or considerable change ahead – influenced by many things not necessarily within the control of the transport sector.

Individual versus Collective Views

There is considerable variability in views across individuals in relation to the (relative) plausibility of different future scenarios.

Differences of opinion were acknowledged and respected rather than rejected within the workshops. A majority of the participants overall indicated that their assignment of plausibility credits to the scenarios had changed as a result of discussions with fellow transport professionals. However, such 'churn' in opinion did not result in much net change in collective opinion concerning the relative plausibility of the different scenarios.

Decision biases may have been at play in people's minds during their deliberations. Likewise, an overall interpretation could clearly be prone to bias. However, concluding that the variability of views amounts to a collective professional voice of uncertainty seems reasonable and important.

Deeper Uncertainty?

The future is uncertain – this is a fact. It is the degree of uncertainty that matters. Are we facing more uncertain times ahead now than in the past? There was some acknowledgement that we have always faced uncertainty. Across regions, the owls were most notable in addressing the question.

According to an East Midlands region owl, we are facing '...a world order we don't understand, global economics beyond any of the equations, at war with a state that doesn't actually exist . . . all the rules have changed'. In the Northern Ireland region, the view was that **the world is more uncertain now than in the past 30 years** (yet tempered by a view about strong inertia and hence stability in terms of how transport was evolving over time in Northern Ireland). Yorkshire and Humber owls included the view that there was '[a] lot of uncertainty; possibly more now than in the past – which means we ought to respond with flexibility in whatever plans we come up with'. The East of England owls suggested that **we have lived through a period of relative stability in recent decades**, yet to look back at 1910–1940 is to be reminded that we may underestimate the influence of something radical happening and the consequences of that. Meanwhile, the North East and Cumbria owls suggested that to be faced with uncertainty with many factors at play may be business as usual for the transport profession who had 'heard it all before'.

The Yorkshire and Humber and East of England dolphins highlighted **the possibility that the level of uncertainty today is being more pointedly *felt* than in the past.** It was suggested that perhaps we were more comfortable with such uncertainty 20 years ago. It was also suggested that this sense of uncertainty may be rather temporary. Nevertheless, a Yorkshire and Humber dolphin perspective was that '[h]istory shows we can't predict the future. We are more uncertain than ever – every aspect of life from geo-politics down to local government organisation and policymaking seems very uncertain'.

Some acknowledgement was given to the fact that, in the age of digital communications and social media, we may be subject to greater awareness of apparent change than in the past.

[19]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Both West Midlands and East Midlands pups considered technological change both highly dynamic and uncertain. However, they noted too that the level of **uncertainty may be different from the level of impact arising from the uncertainty.**

The collective message from the workshops is that we should acknowledge that **we may well be living in more uncertain times but should be prepared to challenge that proposition.**

Generational Differences

Across the groups, there was an acknowledgement that different generations bring **different experiences and perspectives to bear on their outlook for, and influence on, the future of transport.** Successive generations shape the attitudes and behaviours of subsequent generations, but each generation imposes its own refinements or departures. One group of dolphins had decided that they were 'petrol heads' based upon their upbringing, with tacit acknowledgement that this was influencing their outlook for the future. Meanwhile, a group of pups was conscious of having grown up with 'Travellers' Paradise' parents. It was also recognised that generational difference was a contributor to future uncertainty.

Workshop discussions exposed the challenge of **reconciling the age you are versus the age you are in** when considering uncertainty and the future. A pup today may contemplate change differently than an owl today. Yet a pup today may struggle to conceive of existing as an owl in 30 years' time. The views of both will in many cases have been coloured by their parents, their children and their own lived experience over time. The East Midlands owls also suggested that **as we grow older, our ability to adapt to the change around us reduces**. This is likely to influence perspective on future change and its likelihood and effect.

Such issues must surely underline **the importance of giving a voice to different generations in examining the future to guard against decision biases** such as cognitive fluency and confirmation bias that may otherwise colour professional debate, decision-making assumptions and ultimately outcomes.

Multiple Drivers of Change

Across the workshops, discussions concerning the degree of uncertainty we face revealed an acknowledgement of the many drivers of change. This is reminiscent of the process of scenario planning itself which sets out to identify – through stakeholder engagement – the many factors of potential significance that may be at play in shaping the future. The challenge here is **determining which factors are incidental and which are instrumental in shaping the future.** In scenario planning itself, there is also the challenge of reconciling (what may be varied) stakeholder or expert opinion with historic observed data on trends and possible cause-effect relationships. The past may not be a good predictor of the future, but past trends can tend to colour how we are prepared to entertain factors and their influence going forward.

Technological Change

There was a broad sense that technological change would be at a greater pace than that for transport itself (at least in terms of transport infrastructure). Views from the pups included a twofold challenge that certain **technologies will advance more than transport planners appreciate** (implying risk of oversight) and that there will be uncertainty over behavioural responses to the potential of new technologies. In terms of technological change, it was considered that the future had the potential to be radically different. However, an important point raised by the North East and Cumbria pups was the question of where we are currently on the S-curve of the digital age (if indeed an S-curve is being followed). In other words, are unimaginable further developments to come, or have we nearly exhausted the possibilities of the digital age? Pups elsewhere suggested that perhaps sensory limits to digital connectivity would be reached.

Perhaps as a consequence of the workshops' design, discussions on self-driving vehicles were limited, although several referred to them in their introductory remarks. Partway through each workshop, a straw poll was taken for the following question: do you believe that in 30 years' time at least 1 in 5 vehicles on our roads will be self-driving? For the North West, South West / Wales, Yorkshire and the Humber, East of England and East Midlands workshops, a strong majority answered yes. For the Scotland, North East and Cumbria, Northern Ireland and West Midlands workshops, a similar number of participants answered yes as to those answering no. For the London and South East workshops, the majority answered no. Collectively this underlines an **uncertainty about the prospects for one (currently hyped) transport technology that may be a major disruptor for future transport.**

Spanning across workshops' consideration of technological change was a tacit recognition of the array of technological developments both inside and outside of transport and indeed the interactions between them.

Behaviour Change and Transport Infrastructure Stability

A number of groups across the workshops contrasted the scope for change in how the transport asset (in terms of its physical infrastructure) would be used with change in the asset itself along with the transport industry supply of transport.

Notwithstanding new pieces of flagship infrastructure, it was recognised that **the physical capacity of the transport system would not significantly change over the next 30 years.** It was also suggested that **the transport industry is slow to change** (and in some respects therefore more certain), looking to the future in terms of how it caters for demand.

Meanwhile, uncertainty was expected to come from how the physical infrastructure would be used. As a voice from the Yorkshire and the Humber pups put it, 'be very afraid of Uber'. A number of references were made across the workshops to **the prospects of the so-called sharing economy.**

Location Matters

As was recognised in the Future Demand project by the NZ MoT, the CIHT FUTURES participants acknowledged that, in addition to the factors contributing to the question of uncertainty already considered, **location will also continue to be an important determinant of how connectivity is exercised in society.** The distinction is most obviously between urban and rural locations—but also between major cities, notably London, and smaller urban areas. This is something identified within the 'peak car' literature[20] and underlines the importance of considering how, over time, urbanisation will continue to develop and how different people from different backgrounds, socioeconomic profiles and life stages will be distributed spatially[21].

The West Midlands dolphins also noted that scale mattered in terms of sensing uncertainty. Deep uncertainty seemed much more readily apparent at a global scale than at the local level.

Political Uncertainty for Transport and Its Profession

Across the groups and for most if not all workshops, **the importance of political uncertainty in terms of the future** was emphasised. This came through in two distinct respects. At the Yorkshire and Humber workshop, one group pointed to an ongoing nature of successive governments wishing to reassess and reinvent transport policy. Another group bemoaned the influence of politics on transport decisions and looked to the prospect that it might be one day removed or diminished. Concern was expressed in the South East workshop that political agendas (and in turn transport planning) were dislocated from actual need.

Meanwhile, the South West / Wales workshop made reference to inconsistency in transport policy implementation. This revealed a sense of frustration apparent across the workshops that, regardless of the uncertainty facing society more broadly, **the transport profession itself was facing uncertainty over its role because of uncertainty over the constituency and decisions of its political masters.** This said, the Northern Ireland workshop suggested political masters in the region provided more certainty in terms of consistent adherence to the importance (to the electorate) of the private car.

Professional Frustration from Uncertainty

More apparent amongst the dolphins and the pups than the owls was a sense of professional impotence

[20]Le Vine, S., and Jones, P. (2012). On the Move: Making Sense of Car and Train Travel Trends in Britain. RAC Foundation, London.
[21]Headicar, P. (2013). The Changing Spatial Distribution of the Population in England: Its Nature and Significance for 'Peak Car'. Transport Reviews, 33(3) – Special Issue on Peak Car: 310–324.

which seemed allied to matters of uncertainty. It was suggested that (transport) planners walk into the future looking backwards, that the transport industry is slow to change (i.e., not very adaptive or responsive) and that the transport profession always appears to be in, if anything, a reactive rather than proactive mode in relation to surrounding change. Different workshops each picked up further expressions of concern in terms of a transport profession unable to bring appropriate expertise to bear in exercising change (in responding to uncertainty): (i) **lack of national transport strategy does not help a sense of professional discomfort over uncertainty;** (ii) there is a sense that leadership is lacking in providing the profession with clarity on what is required (whereas instead direction seems more oriented towards budgetary and financing considerations); and (iii) there is a lack of skills within the transport profession to embrace change and confront the uncertainty faced.

Changing Actors and Influencers

With its recognition seemingly greatest amongst the owls was **the uncertain future over which actors and influencers would be shaping transport supply and demand.** New players are now recognising mobility as a potentially lucrative market, whether in terms of how transport is supplied to end users or how end users are assisted in the course of fulfilling their mobility needs and desires.

Uber has only been part of our lexicon for a short period, which is reflective of how much more agile than the transport authorities and transport industry such new organisations can be. The pups noted how the likes of Apple and Google have strongly recognised how travel is a huge factor in people's lives (after all, we travel consistently on average for one hour a day each as individuals in the UK). The owls saw the prospect that such corporations could become more influential over transport than politicians. **Disruptive change could be brought about by new private sector innovators potentially less encumbered by the requirements placed upon traditional transport industry providers**, less in the hands of government and less in the hands of the public purse in terms of funding. A possibly residual question then arises – **what will the future role be for the transport profession as it is known today?**

How comfortable are we with the plausibility of significantly different futures?

Key Messages

1. Each professional forms their own unique mental image of the plausible future scenarios which in turn enriches, informs and underlines the importance of expert discussion.

2. Being comfortable with the notion of significantly different futures does not necessarily equate to consensus of opinion on plausibility of particular scenarios.

3. The participants' engagement in the workshops underlines the importance of scenario planning in stretching thinking through embracing and visualising different future scenarios.

4. Scenarios can lead people to initially infer the depiction of 'extreme' futures, but this is moderated through discussion, albeit with an enduring acknowledgement of significant difference between alternative plausible futures.

5. The profiles (experience, expertise and biases) of the participants and the framing of the discussion significantly define the dynamic of engagement and potential collective outcome views.

6. Cognitive fluency was a bias at play in coming to terms with future scenarios, but the participants overall showed a willingness to rally against this natural bias of feeling more comfortable believing in things they could (more readily) understand.

7. Feeling comfortable with the plausibility of significantly different futures for many transport professionals appears inversely proportional to feeling comfortable with the processes followed in their day job (where uncertainty may be denied or concealed).

8. Transport system capacity, when provided, is typically well-used, and therefore there is an extent to which the transport sector designs the future.

9. The central government's lack of coherent strategy, coupled with a decimated local government capability, was seen by some to offer limited ability to steer the transport sector which may instead now be driven by new private sector entrants into the mobility market.

Embracing Uncertainty versus the Makeup of Specific Scenarios

The pups in particular across workshops were comfortable with the notion of uncertainty conveyed by the set of scenarios based upon the two critical uncertainties being considered. They acknowledged that they were therefore **comfortable with the prospect of different futures unfolding.** The same sentiment was also expressed, in some cases with a more critical eye, amongst the dolphins and owls.

Such a view arose in part for the very reason that there were differences of opinion between individuals across the workshops regarding the (relative) plausibility of the different specific scenarios. In some cases, individual groups would come to a united view on the 'pecking order' of scenarios or at least on the more likely direction of travel along one of the axes of critical uncertainty (e.g., believing a high energy cost future was more likely than a low energy cost future). In other cases, **groups would struggle to arrive at a consensus but recognised that this reflected collective acknowledgement of uncertainty** for the future and were generally comfortable with this.

Time within the workshop only permitted a limited description of each scenario[22]. It is important to recognise that an infinite number of 'specific' future scenarios exist once one embraces the notion of (deep) uncertainty. A scenario planning exercise will typically depict four scenarios as illustrative of possibilities, rather than to suggest that the chosen depictions are in some sense more 'right' than the many others that could have been described. Understandably, **each workshop participant was painting their own unique picture in their mind of what they perceived the canvas of the two critical uncertainty axes would lead them to.** This then became a catalyst for rich discussions within groups about how they viewed the nature and credibility of the individual scenarios and the scenario sets.

Reactions to the scenarios therefore included the following: From the South West and Wales pups came an early view that 'you'd have to be narrow-minded not to "get" these scenarios'. However, the London pups felt **comfortable with not knowing what the future was going to be but less comfortable with signing up to the believability of a particular scenario.** They suggested that they oversimplify society. The London owls had focused their attention on the challenge of making sense of the scenarios themselves as presented, more so than the underlying question of plausibility of divergent possible futures. The dolphins in Scotland also found the scenarios too simplistic. While they acknowledged how scenario planning raises the sense of needing to handle uncertainty, they found the four specific scenarios all 'equally implausible'. The North East and Cumbria dolphins also struggled to come to a view on whether any of the specific scenarios were plausible. The East of England pups were comfortable with different futures but found it hard to visualise the detail of each of the scenarios. Meanwhile, the dolphins in that region felt the scenarios helped to visualise uncertainty and stretch thinking. The owls tended collectively to endorse a sense of having issues with particular scenarios or their depiction but acknowledging the overall impression of uncertainty.

The workshop participants were mindful of the distinction between plausibility and desirability. Nevertheless, the latter has significant potential to be colouring views on the former. Desirability also influenced how comfortable the participants felt about different plausible futures. For example, a West Midlands owl exclaimed, 'Heaven forbid we are in a future of Digital Decadence – suicides will go up, won't they?'

It is perhaps worth noting that **some participants in the plausibility credits exercise (eight credits to be assigned across the four scenarios) could not bring themselves to deal in whole numbers but instead felt compelled to distribute the credits more 'precisely'.** One explanation is that this may have been signalling an internal struggle with embracing uncertainty. Individuals can be accustomed in the course of their professional lives with exercising authoritative judgement associated with quantitative tools that conjure up a sense of precision. This remains speculative and was not pursued particularly in workshop discussions.

Visualising and embracing uncertainty and stretching thinking is a key purpose of scenario planning. Across all the workshops, teams of transport professionals engaged willingly and constructively in pursuing this purpose – notwithstanding the limitations of the exercise in terms of the time available and the detail conveyed.

[22]Fully developed narratives of the four scenarios and pathways from the present to each of them are published and available: http://www.transport.govt.nz/ourwork/keystrategiesandplans/strategic-policy-programme/future-demand/

Senses of Extremes and Need for Context

Across several workshops, at least one of the groups expressed an (implied) sense of discomfort with what was felt to be the extreme nature of the scenarios. In a couple of instances, the suggestion was that the extremes will not be experienced, and we will end up 'somewhere along the spectrum' or that 'somewhere nearer the middle' was more likely or indeed at the centre with 'a bit of all scenarios'.

A telling observation was made by one of the South West and Wales dolphins during a discussion about how believable the Global Locals scenario was, with its 53 per cent reduction in total car travel distance compared to the present day. Concern (implied) was that this scenario depicted a world with drastically diminished motorised travel and opportunity for face-to-face encounter. The participant pointed out that a 53 per cent reduction still meant that nearly half of the amount of present-day car travel would still be taking place. Indeed, with possibilities of more cooperative behaviours in a future with high energy prices, vehicle occupancy levels could be higher, meaning that proportionately more passenger distance would be travelled by car compared to vehicle distance. Total travel, however, would be accommodating a larger population, implying a downwards pressure on travel per person on average. This example strongly highlighted **a tendency for some people to paint pictures of extremes in their minds,** even making an implied assumption of a binary choice for the future of (nearly) all access through physical travel or (nearly) all access through virtual connectivity rather than different blends of both.

A sense of extremes shows a tendency to diminish through the course of discussion and greater shared interpretation of what these future scenarios might be depicting. For example, the West Midlands dolphins arrived at a distinction between leisure and work-related activities with the former accounting for more physical travel and the latter accounting for more virtual connectivity in the future.

In the East of England workshop, the owls suggested that traits of each scenario could already be found today (as did the South East owls). The pups concluded that the scenarios were not perhaps as divergent as first appearing. They suggested that through accumulation of (behaviour) change over time, it would not take much to migrate from one scenario to another.

Closely related to making sense of degrees of extremity was **a recognition of the need to be more context specific in terms of conceiving of how each scenario could arise in practice.**

Context most notably concerned **the distinction between urban and rural locations as well as generational differences** – both in terms of how people of different ages would go about their lives in the future and in terms of how people of different ages and living in different locations now are able to conceive comfortably of the different futures being suggested. For example, one group pointed to a generalisation that younger people were likely to be more comfortable with (contemplating) digital communication than older people for whom face-to-face communication has been more dominant.

Such concerns are not confined to the scenario planning approach. Any aggregate depiction of the future – whether a forecast or a qualitative narrative of a plausible future – should be related to a more specific context when considering the implications for particular locations and populations.

Contextualising discussion about uncertainty and plausibility is important – **the profiles (experience, expertise and biases) of the participants and the framing of the discussion significantly define the dynamic and potential collective outcome views.** The CIHT FUTURES approach, involving regional workshops and workshop groupings, has been a necessary and important determinant of the insights arising from the initiative.

More Uncertainty Besides

Sometimes reflecting the challenge of the presumed task of 'signing up' to the offered scenarios, was a view expressed across some of the workshops and particularly by pups that this was not the full picture of uncertainty. Other candidate critical uncertainties exist (i.e., more axes to be added or substituted in). In so doing, more or alternative scenarios would emerge. Ultimately these observations **simultaneously signal an appreciation of not only the notion of, and subscription to, uncertainty but also the complexity of thinking through future plausibility** and the cognitive dissonance that can be felt in confining all this within a set of four rather simplistically depicted scenarios.

Encountering Decision Biases

Although the workshop participants did not have their attention drawn to it until later in the workshop process, **cognitive fluency was apparently at work as the participants sought to come to terms with how 'believable' each scenario was.**

It seemed that overall, the workshop participants were **comfortable with the criticality of the relative cost of energy and often of the view that it was indeed an uncertainty for the future** (notwithstanding that there was an overall tendency towards a greater confidence in higher future energy prices rather than lower future prices).

However, across a number of groups and most workshops, several participants found it hard to distinguish the two 'virtual accessibility' scenarios – Global Locals and Digital Decadence. It was also strongly apparent that some participants were more comfortable with the 'physical accessibility' scenarios (Travellers' Paradise and Cooperative and Close) than the 'virtual accessibility' scenarios. This was **stemming from the issue of familiarity (and doubtless also some shortcomings in how the set of scenarios was portrayed to the participants).** Physical accessibility being dominant is familiar territory to most if not all participants. Virtual accessibility is not something so strongly or fully engaged in by all participants in their own lives. This makes the task of envisaging a stronger tendency towards virtual accessibility harder to conceive. More challenging still is being able to make clear distinctions between how greater dominance of virtual accessibility would play out depending upon how relative cost of energy changes in the future. **People feel more comfortable believing in things they can (more readily) understand.**

The participants in several instances highlighted that a need for physical coming together was part of the human condition, and this too was contributing to how their views regarding the 'virtual accessibility' scenarios were formed. This said, **quite a number of participants were embracing of the plausibility (whether or not also the desirability) of futures in which virtual accessibility would become more prominent.** Indeed, alongside this, **on several instances across the workshops, scepticism was expressed about the likelihood of Travellers' Paradise coming to pass.** Such views are borne out in the results of the plausibility credits exercise discussed in the previous section of the report.

It is intriguing to note that the Yorkshire and the Humber owls were unclear how 35 per cent more car travel in Travellers' Paradise could be accommodated within the network that could be developed within the next 30 years or so – yet this scenario is the only one whose change in total car travel is within the range of forecasts for England from the DfT. Thus, **plausibility related less to the critical uncertainties themselves as to physical capacity constraints of the transport network** – something the East of England owls also referred to as a caveat for considering Travellers' Paradise plausible.

It would be reasonable to suggest that the confirmation bias was also an undercurrent in the discussions regarding the participants' views on plausibility. Hearing other participants espousing a scenario which for oneself might be more alien or objectionable could produce one of at least two responses. The first could be to offer a defence of one's objection, citing information in support of the objection and looking to endorse the views of others of similar view (confirmation bias). The second could be to acknowledge an internal cognitive dissonance and be prepared to overcome this, not by rejecting a contrary viewpoint but by being prepared to openly consider such a viewpoint and perhaps move towards it oneself. There was a sense that (within the setting of the workshop at least) the **participating individuals were generally inclined towards either graciously acknowledging and accommodating differences of viewpoint or making a conscious effort to rally against cognitive fluency and the confirmation bias.**

Uncomfortable Consequences of Subscribing to the Plausibility of Significantly Different Futures

Based on discussions in the workshops, **conceiving the notion of a *transport professionals' comfort formula* is possible.** This can be represented as follows:

$$C_{psdf} \propto \frac{1}{C_{pfdj}}$$

where

C_{psdf} is the level of comfort with the plausibility of significantly different futures and

C_{pfdj} is the level of comfort with processes followed in the day job.

In other words, **if transport professionals reject the notion of uncertainty (or at least deep uncertainty), then they can comfortably continue their work in a professional setting where the processes followed may deny or conceal such uncertainty.** Meanwhile, if they embrace the notion of (deep) uncertainty, then they may well be uncomfortable in following processes in their professional lives that seem not to expose or confront uncertainty.

As was summed up from the dolphins in Northern Ireland, 'when everything's fairly certain and fairly predictable, work and the work environment becomes an easier place to exist in'. Across pups and dolphins in East of England, doubt exists over wider professional buy-in to uncertainty and the plausibility of divergent futures, and especially over buy-in amongst clients and political masters. Indeed there was discomfort and a lack of clarity concerning whether and how transport professionals should communicate to their clients and political masters that they do not know what the future has in store. Perhaps a coping mechanism, as suggested by the pups in North East and Cumbria, is to assume that transport does not drive the agenda of pathways to the future but solves the problems that the agenda creates.

The Scotland owls acknowledged that they were deeply uncertain over transport in the longer term, and as a result, all of them were **going out of the workshop less confident and sure of themselves.** The owls in Northern Ireland perhaps consoled themselves with the fact that in their professional lives, they are only able to think 'business as usual' because of the narrower view of their political masters. They could not entertain policymakers taking the region in 'novel' directions, even though they could entertain the social change depicted in the scenarios. The North East and Cumbria owls similarly implied that **business as usual was the transport profession's coping mechanism for uncertainty** – circumstances change, and we (as transport professionals) then respond. The East of England dolphins also acknowledged that as transport professionals, we are so dependent upon the decisions in other areas and subject to how various global challenges unfold and are responded to.

Where Does an Uncertain Future Leave Us?

The matter of how we respond to an uncertain future is the central consideration later on in this report. However, a number of initial points of relevance emerged as part of the discussion of uncertainty and plausibility. The East Midlands pups pointed to human adaptability and hence our societal ability to accommodate uncertain change. This made them feel more comfortable about uncertainty. The London pups also emphasised that we should believe in the capacity of individuals to adapt, and therefore, rather than trying to predict future demand, we should more closely monitor trends to see how they are evolving. The Scotland pups suggested the need to plan on the basis that all the scenarios were plausible, which was pointing towards the importance of an adaptive transport network that could meet (unknown) future demands. For the London dolphins, however, the following question was rather left hanging: how does major investment in infrastructure setting a trajectory for the long term then cope with uncertainty? Allied to this, the East of England dolphins made a particularly important point: **transport system capacity when provided is typically well-used, and therefore, there is an extent to which we (the transport sector) design the future.**

Meanwhile, some observations implied a sense of some 'writing on the wall' for the transport profession and sector as currently known. The Yorkshire and the Humber dolphins pointed out that the motor industry is reinventing or rebranding itself because it believes the world is changing. They went on to suggest that the **central government's lack of coherent strategy, coupled with a decimated local government capability, offered limited ability to steer the transport sector.** Instead, transport seems increasingly likely to be steered towards a future by big business. Uncertainty for the transport sector and the profession itself was correspondingly rather aptly summed up on behalf of the Scotland owls: 'I think Uber Taxis, have they arrived in Edinburgh this week? There wasn't a referendum, there wasn't a planning process, there wasn't a vote at the council. It happened . . . . What does this do for our futures? If transport starts to work without us [transport professionals] doing our cost-benefit analysis for a new busway or new road link . . .'

What concerns are raised regarding our current approach to policymaking and investment?

Key Messages

1. Election imperatives are felt to stand in the way of seriously considering the longer term, with policymaking being high level, short term and seldom arising from listening to professionals.

2. Long-term planning is difficult when policy lurches through political cycles between fashionable ideas which seem easier to grasp in the face of uncertainty and no overall vision.

3. Without an overall vision and long-term plan, we are confined to seeking reactive funding to deal with problems as opposed to having a strategy to deliver outcomes – something that may be partially but not fully addressed through the National Infrastructure Commission.

4. The transport sector is subject to vested interests, risk aversion and a 'rearview mirror' mentality that results in inertia to change.

5. To the transport sector's hammer, everything risks looking like a nail – the sector needs to challenge its professional models and broaden its field of view.

6. Strategic planning and development is at the mercy of the mechanisms employed and motivations at play to arrive at decisions – a sense that the tail is wagging the dog.

7. We need to be brave and embrace the uncertainty of the future, recognising the opportunities that this presents to shape the future – but this requires that policymakers are engaged with the issues of uncertainty and response explored in CIHT FUTURES.

8. More effective engagement is necessary both with the public – beyond the 'usual suspects' – and within the profession, ensuring younger people especially can articulate their views and provide input and challenge to decision-making processes.

9. As public sector capacity is reduced, the balance of power between public and private bodies will further shift as new disruptive forces from 'tech innovators' exert influence over the transport sector.

10. Little support is provided to develop transport professionals beyond becoming chartered towards becoming leaders and developing the attributes that accompany strong leadership.

Politics Trumps Professional Opinion

Several groups acknowledged, with some resignation and frustration, the enduring influence of politics when it came to the future of transport. Politics was seen as reactive and protectionist with pandering to the voting public more apparent than addressing what is really necessary for society. **Election imperatives were felt to stand in the way of seriously considering the longer term.** This was seen to result in politicians being drawn to big schemes that would capture the public imagination. As one group of owls put it, 'one of the issues with politicians – local politicians are not interested in policy, they are interested in potholes, bins and street clearing, and nationally politicians are not interested in being unpopular'. Another group of owls indicated that **policymaking is high level, is short term and seldom arises from listening to professionals.** It was not uncommon for a sense of mismatch between the goals of politicians and professional opinion to be expressed in the workshops.

Short-term Political Cycles Trump Long-term Vision

A common frustration across the pups, dolphins and owls and across most regions was that **political cycles work against the need for long-term planning.** Five-yearly political cycles were seen to cause a constant state of flux within which some suggested spin, vanity projects and manipulation of evidence to suit decisions were at work. Dependence on such political cycles was not seen as a suitable means to deal with uncertainty – it is too reactive and short term to be effective in the longer term.

Some pups bemoaned the fact that policy was confusing and constantly changing. It was suggested that policymaking was produced in a rush, only to then be followed by a change of government before the cycle repeated itself. The dolphins expressed similar concerns. Schemes that have taken years to prepare get scrapped under new administrations. Indeed, the East Midlands dolphins bemoaned the fact that schemes can take longer to come to fruition than the time horizon of 30 years ahead in the scenario planning itself. The term 'planning' suggests something for the future, yet it seemed often employed to address current situations, self-reinforcing business as usual. **Long-term planning was considered difficult when policy lurches between fashionable ideas which seem easier to grasp in the face of uncertainty and no overall vision.**

It was acknowledged that delivering meaningful progress within the confines of a political cycle was hard to achieve. There was a sense of some implicit sympathy for the politicians having to operate to the tune of political cycles. At the same time, scepticism was expressed in terms of our current approach to policymaking and investment. As the East of England owls put it, 'is policymaking based on a false sense of certainty? Do we just take as read what the politicians are telling us? Do we question enough? Where is the credibility, the transparency to what they are saying?'

The workshop participants felt there was a need to detach transport strategy from the short sightedness of political cycles which makes it hard to have a long-term perspective. Perhaps this would be in the interests of transport professionals and politicians alike?

Failing to Plan Is Planning to Fail

'Something really handicapping the UK in particular is a lack of vision – what do we as citizens want our investment to be leading towards?' So said the Yorkshire and Humber owls with a frustration that without a vision, we are simply 'reacting to what the world throws at us'. The South West and Wales pups and dolphins considered the UK system of planning to be weak. The London pups considered it very prescriptive. However, argued the East of England pups, how could serious planning be entertained without some degree of cross-party agreement that is immune to vote-winning/vote-losing biases? The region's owls felt that nationally strategic and important issues should span political cycles with the need for the assurance of a long-term plan and investment framework that was not prone to boom and bust. As one Yorkshire and Humber dolphin put it, 'I'm concerned about the waste in changing policies – we need all-party agreement, to provide confidence in the long term: commit to a 10-year plan, it allows the [transport] industry to gear up and deliver'. A West Midlands owl pointed to a precedent for such cross-party 'understanding': 'In our era, motorways were developed. There was general acceptance that a motorway programme was necessary for the country – there is now general acceptance that the high-speed Internet access is important and no political party demurs from that, so these things happen by not objecting rather than by agreeing'.

Without an overall vision and long-term plan, it was suggested that we are confined to seeking reactive funding to deal with problems as opposed to having a strategy to deliver outcomes. The Northern Ireland participants expressed their frustration at a sense of vacuum: 'ten years ago we used to have a really good strategic development plan, strategic development policy which has faded away and there's really no direction [now]'.

The professional call for a long-term plan was clear, but so too was exasperation at the political influence over transport seemingly working against this. There was a feeling that this was particularly troublesome given the uncertainty being faced. It was acknowledged that **the National Infrastructure Commission offered some promise in rising above the constraints of five-year political cycles but would not necessarily constitute a means to deliver a higher-level vision and long-term plan for transport.**

Forces of Inertia

Across the workshops, there was a sense that **the transport sector is subject to vested interests, risk aversion and a 'rear-view mirror' mentality that results in inertia to change.**

While it was recognised that there are new players coming into the mobility marketplace, it was also pointed out that **established industries exert considerable influence over government thinking.** Some participants questioned how progressive the LEPs were, noting that the private sector had a big input and that there appeared to be a roads-oriented view to transport solutions rather than wider strategic thinking.

The East of England workshop across the groups felt that local politicians especially were of a certain age and liked their cars. More broadly it was considered that senior decision makers have a 'Travellers' Paradise' frame of experience and thinking. In the absence of more diverse advice, they would continue to favour the incumbent regime. Indeed, the approaches we follow to appraise decision options favour the current logic of doing what we have always done. It was aptly observed at one workshop that **'if you've got a hammer, everything looks like a nail'**. There was feeling across a number of the workshops that **CIHT needed to broaden from its roads focus** with a question raised as to what the 'H' might stand for rather than (only) 'Highways'. The North West pups felt that generational change would see a move away from the older engineers' reliance on the Design Manual for Roads and Bridges as a main frame of reference.

In the Scotland workshop, there was concern that we look back at past evidence too much and are risk averse about the future (influenced by the bias of cognitive fluency). Indeed, the owls in this workshop felt that **we are locked into professional models that make the transport sector vulnerable to (market) disruption.** This was echoed by owls in the North West. They were concerned that the sector is very conservative and backward looking rather than looking to the future. One owl expressed this conservatism as follows: 'It needs to be about "yes, if . . ." rather than "no, because . . ."' The owl felt that the majority of the transport profession was still in the 'no, because . . .' mode of thinking – resulting in innovative solutions getting watered down, as suggested by the Northern Ireland pups.

The decision-making process, and the transport profession in supporting this, has been **too fixated on time savings rather than focusing on broader considerations of quality of place – where people want to work, live and play.** The latter is more appropriate, especially in terms of the uncertainties faced. In this context, the London pups were concerned about how much emphasis is placed on models in terms of informing investment decisions. The South East owls were concerned by the influence of forecasting on decisions and the way in which the transport profession tends to automatically fall into line with official road traffic forecasts from the DfT rather than question them. The South West and Wales pups felt that some transport professionals were reluctant to stray from the comfort of top-down guidance. The Northern Ireland owls also felt that many transport professionals were conditioned by 'business-as-usual kind of forecasting'. They suggested that in relation to CIHT FUTURES, it was 'not a normal experience for us to start lifting our thinking'.

The Tail Wagging the Dog

In various respects, the participants felt that **strategic planning and development is at the mercy of the mechanisms employed to arrive at decisions.** Mechanisms for securing funding tend to constrain or dictate what sorts of solutions are eligible for funding rather than providing a more **devolved authority to invest flexibly in solutions and approaches which are most suited to the goals being pursued.** This was felt to be exacerbated by the fact that, as the Yorkshire and the Humber owls put it, 'current appraisal process forces planners to demonstrate a BCR to get any funding for anything'. The London pups pointed to the dominant voice of the Treasury in investment decisions such that demonstrable economic and financial benefits are given significant weight. The South West and Wales dolphins similarly felt that too many decisions are driven by economic rather than social imperatives. Production of benefit-cost ratios was questioned for their adequacy in capturing the full extent of benefits and costs with, for example, a feeling that appraisal techniques or their influence were biased against active travel.

There was frustration concerning what was referred to as retrospective evidence building. The pups in North East

and Cumbria referred to the apparent use of cost-benefit analysis to justify decisions rather than help explore options: **'This is the answer. Can you write a report to justify it?'** Similarly, the owls in London called for a stop to the approach that seems to begin with the idea after which the rationale is developed for pursuing it. Some felt we were in a 'decide and justify' paradigm where political **decision makers demand 'demonstrable' benefits using conventional tools to justify the spending of public money on their preferred initiatives.**

Living with Uncertainty

Earlier concerns regarding our current approach were in part amplified by the sense of uncertainty we face. There was concern that deep uncertainty could lead to white elephant infrastructure schemes that will not be needed, in the way we assume now, in 30 years' time. It was recognised that uncertainty required a flexible response and that we need to be more proactive. However, there is a risk that the transport sector remains reactive for the very reason that there is so much uncertainty. The South East dolphins suggested that the transport industry, in its reactive mode and rather slow evolution, may not sense as much uncertainty. Yet lack of awareness of uncertainty and change could be a serious threat to the industry.

One London dolphin offered a bold response to such concerns: **'We need to be brave and embrace the uncertainty of the future, recognising the opportunities that this presents to shape the future'.** However, as the South West and Wales dolphins also recognised, **political acceptance or acknowledgement of a reality of uncertainty for transport and society might be the main challenge to overcome,** especially in the face of political uncertainty as well. In Yorkshire and the Humber, it was suggested that the relationship between professionals and politicians has changed in the face of uncertainty. Indeed, it was noted that once upon a time, council members would stand up when the county surveyor came into the committee – not something that would now happen. In other words, perhaps politicians are aware of greater uncertainty and feel less able to defer to transport professionals to know how to respond. Professional standing is then diminished. Yet this needs to be challenged. The Northern Ireland owls felt that **decision makers themselves needed to be involved in the sorts of discussions created in CIHT FUTURES** to better appreciate how to respond appropriately to a changing world. They suggested a need for the profession to highlight the imperatives but a concern about doing so: 'We don't have a mature face of transport planning to be able to face up to politicians with confidence'.

Challenges of Engagement

In various respects, **shortcomings in how the public and other stakeholders are engaged with** were highlighted by the workshop participants. The dolphins in Scotland suggested a need to move away from 'predict, consult and provide' towards a greater engagement with the public to better understand what they want. The owls in Scotland also saw consultation as limited because **'the usual suspects stand up and say the same things'.** Conversely, as the South West and Wales pups identified, the voices of younger people are not adequately heard. The pups in Northern Ireland felt stakeholder engagement was very much 'us and them' rather than a dialogue. The South East owls emphasised that different age groups need meaningful input and influence in a professional as well as public context. We need to **ensure that younger professionals especially are encouraged to articulate their views and provide input and challenge to decision-making processes.**

Part of the engagement challenge concerns how we communicate new ways of thinking. As one owl put it with emphasised importance, 'how do we communicate the benefits of the policies going forward in a way that the public can understand and buy into?' It was suggested that transport professionals have a tendency towards presenting numbers. **We need more visual and engaging ways of communicating which help people grasp less familiar ideas and overcome cognitive fluency bias.**

Ineffective engagement with the public and other stakeholders was seen as contributing towards a sense of 'doing what we've always done and getting what we've always got'.

The Role of the Transport Profession

Across the workshops, concerns were expressed regarding the future prospects for the transport profession. At the very time when greater capacity to think and act within the transport profession might be called for in the face of uncertainty, capacity is under threat. Workshops in Yorkshire and the Humber and in London pointed to **the drastically depleted state of public sector bodies and local authorities** with concerns over staff losses and loss of institutional memory and of skills and knowledge. The West Midlands dolphins pointed to the value of testing proposed transport schemes (and their ability to fulfil intended goals) against future scenarios. However, the East Midlands pups, taking a local authority perspective, suggested it came down to thinking about future scenarios versus filling potholes with resources being so scarce.

It was felt that **as public sector capacity is reduced, the balance of power between public and private bodies will further shift.** Whilst easing pressure on the public purse, this might mean that shareholder interests could prevail over societal interests (not that the two are mutually exclusive).

Allied to such a dynamic was the recognition of the potentially increasingly **disruptive influence on the transport industry of new innovators – notably 'tech' companies and start-ups.** The London pups questioned how this would change the future role of the state. The Yorkshire and the Humber owls questioned whether the transport profession and its processes were already being bypassed or overtaken by such developments – 'Who planned Uber?' The South West and Wales dolphins suggested that a key change ahead could be a reshaping of the (self) perception of transport professionals and what they will be responsible for in the future.

It was suggested that more leadership was called for – both more symbolic, statesmanlike political leadership but also more leadership from within the transport profession. For the former, London and its mayors were held up as the prime example. In relation to both, devolution was seen as an opportunity to bring stronger vision and leadership. In relation to more leadership within the transport profession, an East of England dolphin articulated the potential problem: 'Within our industry, we are very good at working through graduate training programmes, and we are very good at ignoring people after chartership'. The participant suggested that **little support is provided to develop transport professionals beyond becoming chartered towards becoming leaders and developing the attributes that accompany strong leadership:** 'Challenging status quo, challenging how we approach modelling, looking at options analysis rather than demand forecasting, being able to consider a proactive rather than reactive approach'.

The enduring importance if not realisation of integrated thinking was also recognised across the workshops – the transport profession needs to work with other sectors against a broader agenda of supporting and improving society.

What pathway do you feel policymaking and investment is currently on, and why?

Key Messages

1. The regime-compliant pathway is very much seen to be the current approach to policymaking and investment in the UK.

2. Subnational settings are in some cases considered to have more orientation and movement towards regime testing.

3. 'Decide and provide' is followed by information sought to legitimise decisions – though 'decide and provide' in this context is not seen as necessarily regime-testing.

4. The regime-compliant pathway suits politicians who need to project an air of confidence in the investment decisions being made—a certainty and solidity is offered by numerically derived decisions; in short, 'people like numbers'.

5. The familiarity with what are seen as tried-and-tested approaches of the regime-compliant pathway significantly contributes to its continued prevalence, as do existing skillsets within the profession and resource constraints.

6. The question 'Is it DfT compliant?' holds significant sway over the need for local authorities to be following (at least in certain key respects) a regime-compliant pathway if they are to secure central government funding.

7. Transport professionals do not necessarily believe in the approaches they follow but which they feel compelled to follow nevertheless – leading to frustration for pups in particular and some implied concern over professional integrity.

8. Earlier career professionals do not have the confidence to challenge because they do not know what they are entitled to challenge and how far they can push and test the existing system.

9. A lack of evaluation is likely to allow the status quo to be maintained.

Predominantly Regime Compliant with Exceptions

The participants considered and then discussed the alternative decision pathways presented on page 17. The vast majority of groups across the set of workshops considered that **the regime-compliant pathway is very much the current approach to policymaking and investment.** 'Compliance' here does not mean to comply with the expected conventions of decision-making approaches, though such compliance is likely to be commonplace in any system. Rather, 'compliance' refers to a set of elements that align with the way of the world or 'regime' that has characterised transport and society in past decades. It is also important to note that the depictions of the two pathways are necessarily simplified.

While regime compliance was considered dominant overall as our approach to policymaking and investment, a number of exceptions to the elements of regime compliance were also noted in some groups, and with some sense that there might be a 'direction of travel' from regime-compliant to regime-testing. **Subnational settings are in some cases considered to have more orientation and movement towards regime-testing.** Notably, such views came from the North West workshop in Manchester (with the establishment of Transport for Greater Manchester), the South West and Wales workshop in Bristol (with its directly elected mayor) and the London workshop (also with a directly elected mayor). In such settings, more appetite for change seems to exist. However, even in these settings, it was noted that the need remained to justify to elected decision makers that value for money was being achieved following the 'checklist of regime-compliance'.

Only the dolphins in Scotland agreed to disagree on which pathway currently prevailed, but this was considered reflective of the different backgrounds and roles of the participants concerned and the types of schemes they had been working on. This highlighted that **the type of decision-making elements can be very context specific.** Some groups indicated a sense that (higher level) policymaking felt more regime-testing at times but that as policy progressed towards delivery and detail, regime-compliance prevailed. There were occasional indications that road investment was more subject to regime-compliance (including predict and provide) while rail investment and some urban realm schemes could be more subject to regime-testing (with decide and provide).

At least four of the workshops included indications that there was **some movement beyond transport-economy coupling towards access-economy coupling** (acknowledgement of multiple enablers of economic, social and environmental prosperity). Such indications notably came from the pups whose early career development has perhaps brought them into closer contact with the concept of accessibility planning[23]. However, it was noted in London that while TfL focused on wider benefits, decision making was still founded strongly upon transport-economy coupling given the prominence of the Treasury.

Across several groups, a view was held that 'decide and provide' is followed by information sought to legitimise decisions – though **'decide and provide' in this context is not seen as necessarily regime-testing** in all cases. As the Yorkshire and the Humber dolphins put it, 'they've decided they are going to build a road and you then go back and do the optioneering to prove that the road is the best option'. The North East and Cumbria pups suggested that a few individuals are driving decisions for which justification is sought, even though, when presented in the paperwork, an impression of guided decision making will be given. The London owls felt justified decision making was always happening to create results that support decisions. The London dolphins referred to this as 'provide and justify'. London nevertheless stood out as closest to 'decide and provide' as understood in the depicted regime-testing pathway, benefitting from the accountability held by the mayor. The London pups suggested that, even so, the same sort of modelling and cost-benefit analysis justification still happened.

A Need for Politicians to Project Confidence in Their Decisions

A feeling across the workshops was that **the regime-compliant pathway suits politicians who need to project an air of confidence in the investment decisions being made.** As the dolphins in the North West explained, politically driven decision making means a compelling story has to be told about a decision or investment which implies conveying a degree of certainty over what that is going to deliver. The North East and Cumbria owls emphasised that we live in a 'lowest cost culture', and several groups pointed to the decision makers' need therefore to have cost-benefit analysis underpinning investment decisions. The Yorkshire and the Humber dolphins also saw funding constraints stifling pursuit of new

[23] https://www.gov.uk/government/publications/accessibility-planning-policy-evaluation-and-future-directions

approaches. The London pups could see why the regime-compliant pathway was attractive – **a certainty and solidity is offered by numerically derived decisions; in short, 'people like numbers'.** The West Midlands dolphins summarised regime compliance as follows: 'It gives you defined answers – you have an input and an output'. However, one group of owls underlined the **prevailing sense of concealed uncertainty.** They suggested being used to slick stylised politicians who like to have all the answers and be decisive. They recalled 'examples of where the models had been built and developed and then the numbers didn't quite stack up and give the right answers so we were instructed in some cases to play with the numbers and come up with the right answers . . . discussion with clients about how you make the data support the decision you have already made'.

Of course the need to assess value for money may not be confined to the regime-compliant pathway. Real options analysis (ROA) as an alternative to cost-benefit analysis also involves assumptions and quantification. Occasional reference was made across the workshops to examples where ROA thinking was applied as part of the design consideration of investment decisions – for instance, individual station designs for Crossrail or space incorporated adjacent to motorway construction to allow for the later possibility of additional lanes.

Risk Aversion and DfT Compliance

The familiarity with what are seen by the participants as tried-and-tested approaches of the regime-compliant pathway significantly contributes to its continued prevalence. It is established thinking and practice that benefits from the cognitive fluency bias in comparison to the less familiar (for many) elements of the regime-testing pathway. According to a West Midlands owl, 'you could call the process a game – at least everyone knows the game and knows the rules of that game – so you do get a result and everybody follows that process'. Politicians are seen as very risk averse, which means that exposed uncertainty is unwelcome, and instead, there is a sense of needing to do things 'by the book'.

The first workshop in the North West suggested that **the question 'Is it DfT compliant?' holds significant sway over the need for local authorities to be following (at least in certain key respects) a regime-compliant pathway.** The sentiment of this also arose in later workshops. Failure to be DfT-compliant would risk invalidating local authorities' cases for central government funding. In this context, the significance of WebTAG[24] was underlined. The Yorkshire and the Humber dolphins debated how directive WebTAG was and suggested that while the guidance does not actually say, 'You must do this', this is the way it is often interpreted. Different analysts who employ WebTAG may do so with different interpretations. Nevertheless, the London pups who believed concealed uncertainty was part of the decision-making process suggested that WebTAG 'telling' people to use DfT forecasts was reinforcing such concealment.

Professional Capacity, Competency and Confidence

From workshop discussions emerged a view that **skillsets and resource constraints come together to promote a regime-compliant approach.** A relative lack of skills to address (some of the elements of) a regime-testing pathway, alongside funding limitations and limitation in human capital in pursuing support of decision making, contributes to inertia in relation to contemplating regime-testing approaches. By contrast, the London workshop acknowledged that TfL was better resourced than most authorities and with more human capacity to move towards a regime-testing approach.

Transport professionals do not necessarily believe in the approaches they follow but which they feel compelled to follow nevertheless. As the Yorkshire and the Humber owls put it, 'transport professionals are largely policy-takers rather than policy-makers'. The Northern Ireland dolphins pointed out that the 'industry is guilty of being very submissive to the client – across the board we tend to do what the client and the person who is paying the money wants us to do'. In some workshops, the **pups in particular expressed frustration at what bordered upon a threat to professional integrity.** The North East and Cumbria pups articulated the notion of being 'in the dock' – being in line with the expected approach to support decision making was seen as necessary to perform effectively at inquiries. To do otherwise could compromise career prospects. The East Midlands pups shared this view: 'Most decisions made are pretty much based on "if this was an inquiry, how would we defend it?"' The Yorkshire and the Humber pups did not feel they had much opportunity to change the status quo and were not happy about it. As they put it, 'we tell them what we've done before, we go back and do it again and nothing ever changes'. The East of England pups felt that **earlier career professionals do not have the confidence to**

[24]https://www.gov.uk/guidance/transport-analysis-guidance-webtag

challenge because they do not know what they are entitled to challenge and how far they can push and test the existing system. Instead, they suggested that 'you toe the line because that's what you think you should do'.

Lack of a Feedback Loop

While it did not emerge as a strong message overall from the workshops' discussions, certain groups did mention that **a lack of evaluation is likely to allow the status quo to be maintained.** While a regime-compliant approach may be seen as 'tried and tested', it in fact seems more tried than tested. We have not been good at going back to examine the consequences of investments previously made or checking whether the modelling and evidence presented to get a scheme through an inquiry bore any resemblance to the reality that transpired. It is noted, however, that the DfT now has a Monitoring and Evaluation Programme[25] in response to its Monitoring and Evaluation Strategy[26].

[25]https://www.gov.uk/government/publications/dft-monitoring-and-evaluation-programme-2015
[26]https://www.gov.uk/government/publications/monitoring-and-evaluation-strategy

What type of pathway should we be on, and is it practical to try to achieve this?

Key Messages

1. There is a strong call from transport professionals for change with a need to see more regime-testing as either a substitute for, or complement to, the regime-compliant approach that prevails at present.

2. The regime-compliant approach is like looking at things in black and white, while the regime-testing approach equates to seeing in technicolour.

3. The current approach has seen responsibility eroded in place of a growing culture of accountability, and this issue should be addressed.

4. In terms of both pragmatism and fitness for purpose, some combination of regime-compliant and regime-testing approaches is called for (and is deliverable).

5. Clear guidance should be developed to help assist a culture change towards a more regime-testing approach.

6. The notion of a sliding scale between regime-compliant and regime-testing for each stage in a decision-making process according to fitness for purpose seems appropriate (with it slid towards regime-testing for big picture thinking and development of strategy).

7. Many individual transport professionals want a change in approach but are unwilling or unable to act upon their wishes because they cannot rely upon others to do likewise.

8. The importance of leadership of change was emphasised with sources of leadership potentially including the central government, strong politicians, the National Infrastructure Commission, Highways England and the CIHT.

9. Limitations in resourcing are seen as a significant impediment to change from the current approach in terms of funding mechanisms, budgets and human resources.

10. Skillsets are perhaps the most challenging resource to address in terms of the need for creative thinking, willingness to collaborate, ability to communicate with other professions, and ability to engage with a wider consideration of societal objectives.

A Strong Call for Change

The consideration of decision-making pathways in the workshops will have had its own framing effects and biases at play. The language of 'regime-compliant' and 'regime-testing' and simply placing the former on the left and the latter on the right may have coloured people's thinking. Nevertheless, the participants were at liberty, and encouraged, to challenge and conceive their own ideas regarding the makeup of our current decision-making approach, and the sort of approach that would be appropriate for the circumstances we face.

An owl perspective from the South West and Wales workshop highlighted that views on a preferred approach could be coloured by the role one was in and whether thinking was in terms of what was best for the system or what was best for the individual in their professional role.

There was a united voice across all workshops and groups – a call for change from our current approach. With varying degrees of emphasis, **transport professionals want to see more regime-testing as either a substitute for, or complement to, the regime-compliant approach that prevails at present.**

A Move to Regime-testing

Many groups overall expressed a view that **there was a need to move more towards, if not entirely to, a regime-testing approach.**

The North East and Cumbria pups suggested that **the regime-compliant approach is like looking at things in black and white, while the regime-testing approach equates to seeing in technicolour.**

The Yorkshire and the Humber dolphins felt **regime-testing would provide better solutions with more flexibility allowing for unknown change.** It would counter the failure of the current approach to take account of the bigger picture of what transport should be supporting and influencing. Consultation would be a stronger element with regime-testing. The London pups also felt that a regime-testing approach would be more engaging, with more optioneering and better solutions that have outcome-led delivery (something they felt TfL had started to do). The owls in London added that regime-testing would be more open and flexible and would help get away from 'this is where we want to go and trying to make the data and arguments work for this'. The South East dolphins wanted to see a **greater openness to challenging our ideas that the regime-testing approach would bring.** They saw a lack of appropriate process or flexibility in current approaches. Within such approaches, we have techniques that self-reinforce in terms of outcome decisions and produce numbers that are used as comfort blankets in the face of a world that in practice is more complicated. The Scotland dolphins emphasised that policymaking should be more about regime-testing, whereas scheme implementation may be more about regime-compliance.

The Yorkshire and the Humber workshop drew out the distinction between accountability and responsibility: 'accountability is something that occurs when people cease to take responsibility'. It was suggested that **the current approach 'has got rid of individuals taking responsibility, instead making them accountable to the system – this breeds inertia as no one will try anything different'.** This was echoed by the South East dolphins who suggested that 'there's a danger that we are a bunch of technicians [following rule books by rote], not a bunch of designers'.

Proponents of moving to, or towards, regime-testing were nevertheless realistic about the challenges this would present. The London pups felt that entrenched opinions of senior management are making it hard for those who want to see change. They suggested that **decision makers have been part of a particular approach for many years now and would not want to admit that this approach might be 'wrong' or not the best way of doing things for fear of loss of credibility.** The West Midlands participants also pointed to self-serving bias and the sunk-cost fallacy being at work in resisting change for some stakeholders. The Northern Ireland dolphins saw the challenge of moving away from the many steps and hoops the current approach entails in reaching outcome decisions. They suggested that there would be a **need to develop clear guidance to support the credibility of moving towards and applying a regime-testing approach –** perhaps equivalent to the likes of WebTAG and the Design Manual for Roads and Bridges. The East of England owls endorsed this firstly underlining that there 'needs to be a move from pretending we know it all, "this is what's going to happen and these are going to be the consequences"' but then stressing that 'equally if we appear to know nothing and the politicians have to sign up to that as well, they will want some reassurance that there is something behind it'.

The Middle Ground or Best of Both

Alongside a strength of feeling for the need to bring in more of a regime-testing approach was a view that **in terms of both pragmatism and fitness for purpose, some combination of regime-compliant and regime-testing approaches is called for (and is deliverable).**

Across the workshops was a recognition that any wholesale move to a regime-testing approach would be unachievable in the short term so that while for some it might reflect an ideology, it was not practical to deliver. The East of England dolphins were also concerned it could exacerbate already lengthy timescales for delivery. In certain respects, elements of regime-compliance are almost part of the system's DNA – for example, as the Yorkshire and the Humber owls put it, 'BCR holds too much sway, it's a big thing to hit people with – it will often result in all the other considerations being kicked into touch'. The East of England pups reflected on the durability of cost-benefit analysis: 'If it didn't have a use, it wouldn't have lasted as long as it has done'. However, they concluded that its use was to satisfy the Treasury.

However, and perhaps more importantly, there was a sense across several groups that a mix of regime-compliant and regime-testing elements could be desirable. The North East and Cumbria workshop in particular took this view. Its owls articulated this as being **a third needs-led pathway that was a mixture of both.** The pups in this region suggested a pathway that might 'meander' between the two depicted (as did the Scotland owls) – for example, guided decisions with more seriously considered optioneering, followed by justified decisions to arrive at and support preferred options.

In different workshops, echoing the earlier view from the Scotland workshop, the participants could see merit of **regime-testing for big picture thinking and development of strategy, whereas a regime-compliant approach may be more appropriate for specific, smaller schemes** or where there are proven solutions or particular needs to be accountable for public money. At the same time, choice of pathway could be intervention-dependent. The South West and Wales pups gave the example of cycling schemes where, with less formalised guidance already in place, it may be easier to embrace a regime-testing approach.

Both the London pups and dolphins suggested the conceptual **notion of a sliding scale between regime-compliant and regime-testing for each stage in a decision-making process according to fitness for purpose.** This seemed to rather neatly encapsulate the thrust of thinking across many of the workshops' discussions. Scenario planning was a technique only the minority of the workshop participants had previously come across. This was, however, an example of where the sliding scale between concealed and exposed uncertainty could find favour – based on the views from the workshops. In other words, while we should draw some value from historic data, trends and relationships, there should be a greater questioning and an acknowledgement of the need to accommodate unknowns. The use of scenario planning therefore was welcomed by some.

Leading Change from the Top

Change of the sort desired, it seems, by the transport profession may well be evolutionary rather than revolutionary, but in any case, major cultural change will be required.

A social dilemma became apparent through the workshops – **many individuals want a change in approach but are unwilling or unable to act upon their wishes because they cannot rely upon others to do likewise.** The pups in Yorkshire and the Humber expressed their concern well (reminiscent of the earlier issue considered of 'being in the dock'): 'We feel that changes in approach would probably need to come from fairly high up because anyone individually trying to do some innovative work or put some of these changes into place might be financially penalised in the company or by the client or lose their reputation as someone you can go to'.

Across most workshops, **the importance of leadership of change was emphasised with sources of leadership potentially including the central government, strong politicians, the National Infrastructure Commission, Highways England and the CIHT.**

The Treasury has a strong influence over resources and permission to spend. If DfT were to change what it expected the sector to comply with, then this could be influential. Not for the first time came the suggestion that a Department for Accessibility (or Connectivity) may be more appropriate than a DfT.

Political champions were pointed to in London but also new (political) leadership and advocacy opportunity arising through the devolution of transport powers to local authorities.

The National Infrastructure Commission was seen as a possible enabler of the change sought, but suggestion

was also made for a broader independent Commission in relation to national planning that could transcend political short-termism to create and guide delivery of a long-term vision.

In the North East and Cumbria workshop, it was felt that Highways England should be responsible for establishing a new decision-making pathway that builds on the regime-compliant approach but takes account of the regime-testing elements. This was picked up by an East Midlands owl: 'The existing approach has consisted of "here's a functional specification, go away and give us a price" – very easy to do. Once you change this to saying "here's a set of outcomes I want to achieve, go away and tell me how I'm going to do that", you are then looking at being more innovative – those organisations that have the skills, capabilities and desire to deliver will be able to respond to that'. This owl's view was that Highways England appeared to be changing in this direction in terms of its supply chain.

CIHT was seen as an important voice on behalf of the transport profession that could help overcome the social dilemma and engage with the leadership channels above. There was a view that CIHT (like other professional institutions) can be too focused upon technical competence issues. Yet as the Yorkshire and the Humber pups suggested, 'institutions like CIHT and TPS and events like this can feed, well, should feed, up to the top and to policymakers and to the ones who can make those changes'.

Financial and Human Resources

Limitations in resourcing are seen as a significant impediment to change from the current approach in terms of funding mechanisms, budgets and human resources.

Funding mechanisms were mentioned on several occasions as inevitable drivers of behaviour in the sector. Spending is tied to particular financial years, and types of investment and funding initiatives have an orientation towards regime-compliance.

Budgets in the public sector are under very serious pressure. Some concerns were expressed that a regime-testing pathway could be more resource intensive in part because, as the North East and Cumbria owls pointed out, this is unfamiliar territory and with significantly less guidance. However, whilst perhaps not fully acknowledging the upskilling required of a move to regime-testing, the South West and Wales dolphins suggested that contrary to first impressions, regime-testing may not prove to be more resource intensive (depending perhaps upon the extent of rebalancing between accountability and responsibility).

However, **skillsets are perhaps the most challenging resource to address.** The South East dolphins suggested in broad terms that (part of) the transport profession faces a lack of skills of the sort required beyond infrastructure design and delivery. This was also identified by the North West dolphins and London owls. **Creative thinking, willingness to collaborate and ability to communicate with other professions and an ability to engage with wider consideration of the objectives of society are called for.** They illustrated a silo mentality reinforced by cognitive fluency that should be overcome: 'If you've got a knee problem and go to a physiotherapist, they will probably tell you to stretch; if you go to a surgeon, they will probably say you need a knee replacement; if you go to see a chiropractor, they will click your back for you. If you go and ask a traffic engineer what the solution is, it's probably a signal, a flare and maybe a grade-separated junction'.

Communication and engagement skills are seen as key in moving towards more regime-testing with several groups pointing to this as a challenge in relation to different constituencies. The Northern Ireland pups said, 'We firmly believe that other participants force a different perspective – if transportation professionals sit down with health professionals and education professionals, it does force them to think of other scenarios outside the traditional silos'. They recognised that wider engagement would expose biases at play within the regime-compliant approach but would also introduce new biases with a challenge to manage engagement and secure clarity of outcomes.

The East of England dolphins expressed further concern that the transport industry may not be attractive enough to newcomers who could enrich the overall skillsets. They also emphasised **the importance of client skillsets** being included with these concerns, suggesting that this was under pressure with budget cuts, outsourcing and ageing staff.

What's in a Name?

With the degree of appetite expressed across the workshops for more regime-testing emphasis in our approach to policymaking and investment, a comment on terminology was offered within the South East workshop: 'We've got regime-compliant and retime-testing. If we're talking about politicians, then something that isn't going to be compliant is immediately going to be worrying, so I think we need to think about the branding of what is a very, very powerful approach'. Once again the challenge of communication presents itself. It is worth reiterating the implied meaning of the two terms. The regime-compliant pathway 'is characterised by an (implicit) reliance on the way of the world as we have known it, in relation to transport, continuing'. Meanwhile, the regime-testing pathway 'is characterised by embracing uncertainty and indeed deep uncertainty, i.e., it is plausible that the incumbent regime is significantly weakening and that signs of regime transition are emerging'[27].

[27]Lyons, G., and Davidson, C. (2016). Guidance for Transport Planning and Policymaking in the Face of an Uncertain Future. Transportation Research A – Policy and Practice, 88, 104–116. http://dx.doi.org/10.1016/j.tra.2016.03.012

What key changes from business as usual are necessary or should be considered?

Key Messages

1. There is clear recognition of the need for the transport profession to adapt to the changing times it is in and to challenge the dogma inherent in our current system of decision making.

2. CIHT has an opportunity and responsibility to help with the change necessary, both through supporting continuing professional development and through broadening its external message, looking more widely at the contribution of the transport sector to society.

3. Further events similar to CIHT FUTURES workshops, which foster collaborative exchange of thinking and help individuals continue to learn and develop, would be beneficial not only for early career transport professionals but also for professionals from other sectors as well as decision makers themselves.

4. There is a need to more effectively engage with the publics in the process of decision making – use of the plural 'publics' is quite deliberate with a clear concern that engagement, or at least consultation, currently is skewed towards a particular demographic.

5. Silent support is overshadowed by vocal opposition; more creative and effective approaches to public engagement are called for, including the use of online mechanisms such as social media.

6. Stronger engagement is a potentially important source of creative ideas as well as buy-in if handled effectively.

7. The transport profession needs to be more engaged with the IT and other professions, and this could be facilitated by the CIHT working with its sister institutions such as the IET.

8. In terms of how transport policy and projects will be delivered, we are in a quite unprecedented time of change – this is a window of opportunity significantly in the hands of the transport profession and the approach it takes to address the challenges and needs brought to light through CIHT FUTURES.

The preceding section already identified suggestions for issues that must be addressed to move towards a more desirable approach to decision making and investment. The final question addressed by the groups in their workshop discussions extended this.

Continuing Professional Development towards Regime-testing

There was a **clear recognition of the need for the transport profession to adapt to the changing times it is in.** As one Yorkshire and the Humber owl put it, 'we are in a period of transition – it looks as though things are changing and the future is more uncertain than I've known it to be throughout my career, and also it could be threatening both on a personal basis and on a professional basis. The current processes which we use won't be fit for purpose in future, so we need to consider how the profession adapts to what's coming'. A North East and Cumbria owl felt **our current approach is far too dogmatic** and expanded upon this as follows: 'We are too system driven. We need to get back to individual, intuitive eureka moments that the system and processes do not allow because we've got to do CBA, we've got to go through transportation models. It's all mechanistic. It's all driven by the lowest common denominator – how easy is it to get the cheapest individual to get this through the process – we need to give much more insight into the intellectual input'. The West Midlands dolphins pointed to the Manual for Streets as an encouraging step away from rigid guidelines, representing a publication that prompts more thinking (though as another West Midlands participant then remarked, 'thinking will never catch on!'). An East Midlands participant aptly summarised the challenge for professional development: 'We need to change as an industry across all levels from being led by the solutions in our pockets which we can apply, to thinking about the outputs and what do we want to achieve, rather than what we can do'.

Calls for leadership of change have been mentioned in the previous section. Naturally **CIHT is considered a body with both an opportunity and a responsibility to help with the change needed.** This is seen not only in terms of an outward voice of engagement and influence but also in terms of supporting the continuing professional development of its members. A plea from Scotland (closely echoed by the West Midlands dolphins) was that 'professional bodies need to take a much more proactive lead, outspoken lead. Otherwise, the world will just carry on and bypass us'. A view from the South East workshop but also elsewhere was that **CIHT needs to broaden its external message, looking more widely at the contribution of the transport sector to society as opposed to approaches aimed at reducing congestion.** CIHT needs to support its members in developing their capability and confidence to engage with a more regime-testing approach. The Manchester pups felt that in the profession, 'the perception at the moment is that CIHT is very road focused. We talk about the standards we have to adhere to. There is no consideration of some of the wider thought processes that we have been discussing today. It has a role to make people more aware of what other guidance and assistance is out there to help us think along the more regime testing pathway'. The Yorkshire and the Humber pups saw **value in further events similar to CIHT FUTURES workshops which foster collaborative exchange of thinking and help earlier career professionals especially continue to learn and develop.** The possibility of a national 'young professionals group' was mooted.

Confidence to challenge dogma was seen as important for professionals at all career stages. As one East Midlands pup suggested, 'don't be afraid to ask why and how to go about things'. This may involve some personal risks being taken, but as one North East and Cumbria participant put it, 'don't be paralysed by precedent . . . if you do what you've always done, you'll get what you've always got'. In the South West and Wales workshop, it was suggested that not only do **clients need to be challenged more but also some clients are keen to see more creative and challenging thinking from their consultants.** At the same time, if offering challenge and new ideas is repeatedly 'turned down', then appetite to do so is eroded. Being faced with some personal risk invites professionals to empathise with the position of politicians. Suggestions were made that they also needed some exposure to the thinking within CIHT FUTURES and some upskilling.

The East of England dolphins saw upskilling of the transport profession as a high priority (as partially addressed in the previous section) but were rather sombre in acknowledging this was in the face of very limited training budgets, thinly spread local authorities and a profession that may not be seen as particularly glamorous at present in terms of attracting new entrants and skills. This does not, however, deflect the imperative of upskilling. The need for greater diversity in the profession was also mentioned in a number of workshops. One workshop participant was responsible for recruitment and saw a lesson from the workshop that there was a need to broaden the scope of recruitment to bring in new skills. This participant looked to the future as follows: 'Do not underestimate the current generation. **Having worked with young people for the last 25 years, there is a great deal of talent out there. The real challenge for the future for everyone**

in this room is how do we make sure we get them and retain them in the sector because they are the ones that are going to be answering the challenges'.

Better Engagement and Communication with Publics

What came over strongly across the different groups and regions was **the need to more effectively engage with the publics in the process of decision making.** Devolution was seen by the East Midlands owls as a potentially important enabler of better engagement. Use of the plural 'publics' is quite deliberate since there was clear concern that engagement, or at least consultation, currently is skewed towards a particular demographic.

Older people (often having lived in a particular area for some time) often have much stronger representation than younger people. The London dolphins suggested that NIMBYism[28] led to **more vocal opposition to change in a particular location for those more strongly tied to the area and with the time and inclination to express views.** Younger people can be more transient and therefore are likely to change their back yard over time or could choose to do so in response to how an area is developing. Yet their voice matters because back yards may become more permanent for them in later life.

The Northern Ireland pups noted that 'when it comes to consultation, it's the people who oppose things who shout the loudest whereas we are not necessarily engaging those who are supportive – and we need to get that support'. The South East owls were also concerned by **the imbalance of 'loudness' of representation of negative views compared to positive views from the public.** The South West and Wales dolphins pointed to an example of failed consultation. A council member had been subject to vociferous opposition for a particular scheme which was withdrawn as a result – only to discover that hundreds of people who silently supported the scheme then came forward to ask why it had been withdrawn.

There was a strong feeling that the profession needs to work harder not only to avoid skewed consultation but also to secure better engagement of, and with, the public. This would present significant challenges both in achieving it and in handling the consequences. The London owls cautioned that more public involvement could prolong decision-making processes and may not lead to better outcomes. It was noted that members of the public, as with professionals, would bring forward their own biases. Nevertheless, **stronger engagement was seen as a potentially important source of creative ideas as well as buy-in if handled effectively.** Indeed, in the South West and Wales workshop, it was suggested that good ideas coming from the public might get a different reception from council members than those coming from officers. There was concern that the profession can be inclined to refrain from going beyond public consultation to public engagement for fear of negative views. The Yorkshire and the Humber dolphins highlighted the need to beware of underestimating what the public know and understand.

It was felt that **engagement could help overcome the public 'running scared of unknowns'** (cognitive fluency). There is a place here not only for trials of new ideas and schemes but also, as suggested by the North West owls, for more resource and creativity of communication invested in selling and reinforcing the benefits of an idea or scheme to the public.

Online opportunities, including the use of social media, were considered something that offered **new possibilities of crowdsourcing ideas for, and public opinions on, policy proposals.** This should receive greater attention. Better engagement and communication points to the identification in the previous section of the importance of developing the profession's skillsets and to the challenge in terms of resource constraints. Moving towards a regime-testing approach will create more challenging territory, but the 'technicolour' of engagement could lead to ultimately better outcomes.

From Highways and Transportation to Connectivity

The design of the workshops explicitly emphasised the significance of thinking about connectivity beyond only highways and transportation as one means to that end. This thinking was often embraced across the workshop discussions in terms of how the digital age was influencing our personal and professional lives. Not only is the telecommunications system providing an alternative means of connectivity to the transport system, but the two are interacting. In a number of workshops, it was apparent that **the transport profession and IT profession need to be interacting more.** As one owl put it in Scotland, 'there is a fundamental change in that we've been appraising

[28]NIMBY—Not in My Back Yard

and designing items of infrastructure and systems. Why these other [IT] businesses are coming into the frame is because they deliver services to individuals – an understanding of service delivery is part of the skills change we face'. It was suggested that perhaps **CIHT should consider joint events with its sister institutions such as the IET.**

Opportunity for the Taking?

Implicit if not explicit across the workshops was the question of whether any difference to 'business as usual' would arise concerning the issues being explored within CIHT FUTURES. There may be a will for change, but is there a way to make it happen? One North East and Cumbria owl effectively outlined a **window of opportunity that may be before us.** The participant referred to the 'plethora of new bodies that have been established and are going to operate the system for better or for worse in ways we don't fully understand yet'. The participant continued, 'It seems to me **this is a quite unprecedented time of change almost in our lifetimes.** I would say there's been nothing like it since the 1968 Barbara Castle Transport Act through to the local government reorganisation 1972. There's been nothing like it since in terms of how transport policy and projects are going to be delivered with the new combined authorities, the devolution within England quite apart from the wider devolution and the work with the Local Enterprise Partnerships'.

While seen as potentially better suited to metropolitan areas than rural areas, **devolved transport powers are viewed as an opportunity to embrace a greater degree of regime-testing, not least in being able to help fill a 'vacuum of vision' that many feel is a current concern.** As expressed by the Northern Ireland owls in search of a vision, 'if you don't have vision, you end up running around like a headless chicken; if you don't have vision, no strategy, you are going nowhere'. It is far from a foregone conclusion that the opportunity of devolved transport powers will be seized. While the likes of Transport for Greater Manchester will be assuming responsibility for a number of decisions currently passed on to the DfT, one note of caution sounded at the North West workshop was that devolution could lead to 'a lot of mini DfTs' with the implication that a 'compliance culture' might still prevail. At the East Midlands workshop, it was stressed that devolution must come with funding opportunities that help foster innovation (with the example of the Nottingham tram supported by workplace parking charges). The West Midlands owls also pointed to the need for regional authorities to be able to create budgets with the flexibility to define appropriate regional investments. **What the current window of opportunity brings is, to a significant extent, in the hands of the transport profession and the approach it takes to address the challenges and needs brought to light through CIHT FUTURES.**

Recommendations

CIHT

1. CIHT should inform and support engagement with its wider membership over key messages emerging from CIHT FUTURES and produce an 'information pack' based on the CIHT FUTURES workshop material to help enable others to explore uncertainty.

2. CIHT should develop brief professional practice guidance for its members to foster a willingness to challenge and help evolve the existing policymaking pathways. This should include a call for transport professionals to adhere to 'responsible reporting of quantitative results' by refraining from overuse of decimal places and significant figures.

3. CIHT should develop the www.ciht.org.uk/futures content into a wider set of resources (perhaps including video and wiki pages) that professionals can draw on and contribute to as a collaborative and developmental resource.

4. CIHT should consider seeking funding to establish a 'Transport Revisions Network' – possibly as a virtual group – that would be run by early career professionals for early career professionals to critically examine development of the profession and build confidence to engage and challenge.

5. CIHT should build on guidance such as 'Involving the Public and Other Stakeholders' (2015) and consider ways of promoting and celebrating best practice in public engagement.

TRANSPORT PROFESSIONALS

6. Those responsible for strategic planning should set aside a modest part of their budget to introduce constructive challenge from a regime-testing perspective and thereby potentially improve robustness of outcomes.

7. Those responsible for overseeing and supporting relevant professional qualifications should look to establish whether candidates can demonstrate both an awareness and application of the regime-testing approach and a capacity to challenge dogma.

8. Key organisations in the transport sector are encouraged to join forces to establish a 'changing practices for changing times' leadership development programme.

STRATEGIC BODIES

9. Key organisations that now have the opportunity in an era of devolution to shape future planning and investment are urged to consider and respond to the issues set out in this report.

10. The Transport Select Committee is asked to consider the need for an inquiry into the processes that inform and influence transport policy and investment in the face of deep uncertainty about the future.

Reflecting upon the insights and key messages through engagement with a diversity of transport professionals, the following recommendations are proposed to help ensure an appropriate way ahead for the transport profession and ultimately the evolution of our transport system.

Amplifying or Questioning Key Messages from CIHT FUTURES

CIHT FUTURES has directly engaged with just over 200 CIHT members. The CIHT membership is in excess of 13,000. It is recommended that CIHT engages its wider membership concerning their views on some of the key messages arising from the initiative. Such views should act as a barometer of the transport profession's outlook and inform ongoing debate and action and CIHT's responsibilities as a learned society and voice for the profession.

Extending the Dialogue

CIHT nationally and its regional committees and members should consider engaging a wider set of players and constituencies in the dialogue fostered through the CIHT FUTURES workshops. There is a need for more transport professionals, policymakers and professionals from other sectors to be involved together in challenging their thinking and approaches to decision making and investment in an uncertain world. CIHT may consider developing an 'information pack' based on the CIHT FUTURES approach and this resulting report that others can use to structure their own events.

Development of New Professional Practice Guidance

CIHT should consider using this report as a basis for producing guidance that parallels its more established tradition of producing design guidelines. Professional practice guidance concerns advising and encouraging professionals (including clients) on how they can introduce a stronger flavour of regime testing into their existing processes and why it is important to do so.

Campaigning for the Removal of Illusions of Accuracy

A very specific way that transport professionals can help nudge thinking and practice towards better embracing uncertainty is to refrain from reporting key quantitative analysis to too many decimal places or significant figures. Current practices are often simply misleading[29].

CIHT should consider establishing a 'Know Your Limits' campaign in which it encourages organisations to 'sign up' to a principle of responsible reporting of quantitative results.

Resources for Thinking Differently

CIHT should consider signposting key resources available online that can be drawn upon by those within the transport sector with the appetite and conviction to explore greater regime testing in their professional work. This could include identification of key documents that offer a learning resource in terms of less familiar techniques such as scenario planning as well as critical reflection on more familiar techniques such as those embodied within transport appraisal[30]. CIHT might also prepare new, bespoke resources and encourage others to engage in doing so – for example, production of short videos or briefings that portray expert opinion, critique and guidance or which reflect case study evidence of effective application of regime-testing methods.

Transport Revisions Network

Early career transport professionals need a platform for networking, to exchange their experiences and views of professional practice in a changing world and to marshal collective expression. CIHT should consider taking a case to funding bodies for establishing a 'Transport Revisions Network' that is modelled on the Transport Visions Network which ran from 2000 to 2003 and was funded by the EPSRC, DETR and Rees Jeffreys Road Fund. The idea would be to establish a structured initiative run by early career professionals for early career professionals that through events, online discussion and report writing would provide a forum for professional development in a climate of constrained training budgets. Its focus (and hence title) would not principally be upon visions for the future but instead concern itself with questioning how we might revise our approaches to engaging with an uncertain future.

Promoting Best Practice in Public Engagement

CIHT should consider, in partnership with others, a campaign to encourage change in the nature and extent of public engagement on transport issues (building on guidance such as 'Involving the Public and Other Stakeholders'[31]). Specifically, best practice examples should be identified, promoted and celebrated where consultation and the minority voice of usual suspects

[29]In line with misuse number 5 in Hollander, Y. (2015). Who Will Save Us from the Misuse of Transport Models? CTThink, November.

[30]For a recent examination of transport appraisal and its fitness for purpose, see Worsley, T., and Mackie, P. (2015). Transport Policy, Appraisal and Decision Making. RAC Foundation, May, London.

has been replaced by engagement with a broader cross section of public thinking. This may include case studies being made available online, an annual national award (CIHT awards have no existing category for this) and potentially funding from DfT to encourage innovation and higher achievement in this important area of transport planning.

Challenging Standard Approaches

Those involved in strategic planning should consider setting aside at least a small portion of their budget to introduce constructive challenge, from a regime-testing perspective, to standard approaches that may be more regime compliant. One local authority has already taken this initiative, prompted by CIHT FUTURES[32]. The intention is to facilitate a means by which key actors and stakeholders associated with strategic planning can be exposed in their thinking to issues of uncertainty and change and how to consider appropriate responses.

Review of Professional Qualifications' Skills Coverage

The CIHT and Transport Planning Society should consider a critical review of the skills areas for which competencies are examined for the Transport Planning Professional qualification. Such a review might question how skills areas are interpreted and in turn how competencies are developed in individuals and whether sufficient challenge to dogma and encouragement to contemplate regime testing thinking is apparent or expected. It would be appropriate to directly engage universities in any such review. Similar consideration would be appropriate for other professional qualifications.

Leadership Development Programme

Key organisations in the transport sector should be encouraged to join forces to enable the establishment of a leadership development programme which is targeted at individuals who represent emergent or future leaders in the sector. Such a programme should focus upon 'changing practices for changing times' and the importance of critical thinking and constructive challenge and a willingness to champion regime-testing attitudes. It would need the support of existing leaders (and might include opportunities and encouragement to job shadow existing leaders and challenge their thinking).

Engaging with Key Bodies with 'Top Down' Influence

The sense of professional impotence and the strong call for change from so many transport professionals cannot be ignored – especially at a time of significant change in organisational structure for policymaking and investment. Key organisations, including the DfT, Highways England, Transport Scotland, Transport NI, the Welsh Government, LEPs and the National Infrastructure Commission and the (embryonic) devolved transport authorities, should consider the findings of CIHT FUTURES and are strongly encouraged to respond and engage. If professional concerns and a need for more regime testing in our approaches are considered unfounded, then these need justification. If they are legitimate, then steps towards addressing them need to be identified.

Transport Select Committee Consideration

New Zealand's Transport and Industrial Relations Select Committee in late 2015 initiated an inquiry into the future of New Zealand's mobility. The UK Transport Select Committee should consider whether a similar examination is becoming timely. This could reflect upon the appropriateness of decision-making approaches and how they are informed, given the significant changes and uncertainties not only in mobility and society but also in the administrative and advisory structures for UK transport policy and delivery.

[31]http://www.ciht.org.uk/download.cfm/docid/8BC0682B-958E-435E-BD5E44ED67E01964

[32]Devon County Council undertook workshops with some of its key stakeholders as part of its examination of possible local development patterns out to 2045. The workshops involved a scenario planning exercise, used in turn to test the likely robustness of different patterns against future uncertainty.

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Chartered Institution of Highways & Transportation

CIHT is a membership organisation representing those who work in the highways and transportation sector.

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