Barriers to Innovation

BARRIERS TO THE ADOPTION OF NEW TECHNOLOGY AND INNOVATION IN THE TRAFFIC TECHNOLOGY SECTOR
About the Forum

This document has been prepared by the Transport Technology Forum to help drive more effective and efficient management of existing and new road networks, as a key national opportunity.

Road transport will remain a key pillar of how people and goods move across the nation, not just on strategic roads. Improving road travel through technology is a core aim of the Forum. We provide a neutral meeting place for senior policymakers and investors (government, industry and network operators) who are investing in technology for roads management and operation.

The Forum promotes a collaborative culture to open the opportunity and address the caution that has historically impeded efficiency and innovation.
The barriers to the technology adoption and innovation workstream examined how technology and innovation can be procured by local authorities more effectively and efficiently. The Forum’s aim is to bring together key parties to identify the key issues and develop better ways of working that include collaborative working. Specifically, this initial research project aimed to:

- identify and rank the top five procurement challenges for authorities and suppliers by March 2018;
- in parallel, the Forum will work with the TTF User Group to maximize efficiency and minimize risk; and
- develop, define and launch a procurement improvement programme which is to be mapped and launched beyond 2017/18.

This document presents the final set of survey results based upon the 96 responses.

The top five barriers as perceived by public sector respondents are:

- Complex partnerships. Both private sector and public-sector respondents see the need for improved collaboration and cooperation as a route to accelerated progress;
- A lack of funding was also routinely cited by participants who called for ring-fenced funding, further pilots and limited step-by-step approaches to innovation projects to help ease the uncertainty and perceived risks of innovation and technology projects;
- Risk averseness was rated as the highest perceived barrier by the private sector at 8.3. The data also reflects some misalignment between procuring and technical teams;
- Overly-prescriptive procurement stifling innovation; and
- A limited use of pre-competitive procurement methods. Initial actions have been taken in conjunction with the Crown Commercial services to develop greater awareness of methods and options during the research phase.
These findings mirror several UK and international studies (see the section on additional desk research) as general themes, with a lack of funding being the most significantly strongest barrier;

- Public-sector innovation capability. Managing innovation is challenging for local authorities, caused by a combination of the speed of technology change and reduced budgets. The lack of a clearly-identified technology or innovation leader was identified as an issue, coupled with limited innovation or technology strategies being in place to provide clear market signals to the private sector to encourage medium to longer-term action.

- Public-sector bodies with a stronger innovation management capability have clear advantages. Where individual public-sector organisations rated their capability as high a greater number answered positively to having an innovation strategy in place and generally perceived the barriers to be significantly less, by 50% in most cases; and

- Key themes for action. Respondents, both private and public sector, identified clear guidance and the need for the adoption of more novel and flexible approaches to procurement as key enablers. This included applying alternate success criteria to technology or innovation projects and progressing via collaborative frameworks.

Private-sector research results reflected higher capability (driven by their sector focus and core business) and perceived risk averseness as the key public-sector barrier they encounter.
Recommendations for action

Recommendation 1  Provide improved guidance and remove misconceptions around procurement requirements. A range of myths exists around what is currently possible within UK procurement practices. Nationally, a concerted effort needs to be made to support public sector ITS leaders and procurement teams in local authorities by providing enhanced guidance, which will include the Atkins guidance project.

Recommendation 2  Develop alternate approaches to the use of Revenue/Capital. Funding rules need to be relaxed to enable further trials and service-based offerings to be developed by the market. A change in capital and revenue regulations should be pursued by the Department to favour ‘service’ based procurements.

Recommendation 3  Significant support and investment needs to be made in shifting procurement towards challenge or problem-based purchasing, and providing greater support to local authority through learning and training opportunities. Further support is needed to make purchasing for technology and innovation challenge-based, need-based and focussed on the outcomes rather than the product. Case studies should be used to highlight best practice. A national programme across local authorities’ is needed to build innovation management capability. This could be in conjunction with partners such as the Civil Service College, business schools and innovation centres.

Recommendation 4  Technology roadmaps and vision. Develop and implement an Intelligent Transport Systems (ITS) technology road map that incorporates the future ITS vision and maps key technology trends. Articulate a clear end-state vision and how to achieve it as a coalescing direction for the industry, government and local authorities.

Recommendation 5  Innovation networks and communications. Existing knowledge sharing networks need further investment. Levels of knowledge sharing need to be increased between local authorities and the private sector, with evidence provided that includes project return on investment and business cases. Strong innovation networks need to be established, bringing together both innovation leads from the public sector with relevant industry sectors via InnovateUK and the Catapults, to understand and apply best practices in buying technology. Local authorities need support in upskilling and, through the provision of innovator events, to enable SMEs to meet and access the market.

Recommendation 6  Funding a major demonstrator for the digital transformation of traffic management. Explore and develop a major demonstrator with InnovateUK support to drive further progress towards smarter traffic management. For example, this may build on recent European projects on floating data in the Netherlands and EU innovative procurement projects in ITS. The aim is to integrate technology procurement and shared learning around collaborative innovation buying and stronger capability development for local authorities.
The summary methodology includes two phases to develop an analysis of the key barriers through surveys, interviews and workshops. The phase one survey included:

- A review of capability models, initial reports on example barriers from desktop reviews, meetings with Atkins, Crown Commercial Service and York City Council and subsequent questionnaire development;
- Survey development which included two key elements, barriers and capability, segmented by public authority type (see Appendix C and D); and
- Distribution at the Local Authority and User Group meeting on the 28 November 2017 and subsequently by Crown Commercial Services, Innovate UK and via ITS (UK) conference in March 2018

In phase two the dataset was expanded by a web-based survey in collaboration with InnovateUK and 12 additional private sector telephone surveys.

The survey base for this report is based upon 96 respondents of which 66 are public sector. A post survey consolidation workshop, which included the Department for Transport, InnovateUK, Crown Commercial Services, Atkins Global, the Local Government Authority, was conducted around the top five barriers to develop aligned summary recommendations for a programme of action for 2018-19.
The following dataset represents the final assessment where respondents rated barriers against the questions. Funding and risk averseness were identified as the top two perceived barriers. The private sector perceived different barriers to innovation, with risk averseness, inability to fund innovations and overly-prescriptive procurement practices inhibiting innovation.

Barriers to technology and innovation - Public sector only (Draft results) - figure 2

The top five barriers are illustrated in figure 2 with funding being a clear priority issues across most respondents. The sixth barrier (misalignment between commissioning department and procurement) falls just below the overall threshold yet is above the mean of all barriers.

It is recommended that when addressing barriers, a wider more comprehensive approach is taken to developing a strategic response, as several easy wins may be achieved through better communications and closer working with Crown Commercial Services, for example.
Public sector respondents perceived **funding and risk averseness** as key barriers. In the limited sample from the first-wave survey, private sector respondents rated risk averseness (**8.6**) and concerns about inability to fund (**7.0**) as key concerns.
Barriers to public sector bodies

Public sector - private sector comparisons on key barriers - figure 4

<table>
<thead>
<tr>
<th></th>
<th>(Public sector only)</th>
<th>Private sector ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership Complexity</td>
<td>7.3</td>
<td>5</td>
</tr>
<tr>
<td>Inability to fund</td>
<td>7.3</td>
<td>2</td>
</tr>
<tr>
<td>Risk averseness</td>
<td>7.1</td>
<td>1</td>
</tr>
<tr>
<td>Procurement governance / over prescription</td>
<td>6.7</td>
<td>3</td>
</tr>
<tr>
<td>Misalignment between commissioning/procurement</td>
<td>6.5</td>
<td>4</td>
</tr>
<tr>
<td>Limited use of PCP mechanism</td>
<td>6.5</td>
<td>8</td>
</tr>
<tr>
<td>Mean</td>
<td>6.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Lack of time</td>
<td>6.4</td>
<td>9</td>
</tr>
<tr>
<td>Concerns about intellectual property</td>
<td>6.2</td>
<td>7</td>
</tr>
<tr>
<td>Lack of knowledge of mechanisms for funding innovative</td>
<td>6.1</td>
<td>6</td>
</tr>
<tr>
<td>Suppliers do not engage with new ideas</td>
<td>4.6</td>
<td>10</td>
</tr>
</tbody>
</table>

Respondents’ recommendations for action

Common recommendations and ideas for action included better guidance, funding methods and alternate ways of developing and procuring innovation and technology projects.

See Appendix A for a full set of histograms identifying public sector perceived barriers to innovation and the adoption of technology.

Procurement is heavily risk averse and tend to want to prescribe narrow tender requirements that limit innovation and flexibility
- County Council

Dealing with risk aversity - it’s tricly when money cannot be risked (stuff will always go wrong)
- Unitary authority

Opportunities to join national frameworks. Not sure how we can make legal/procurement less risk averse
- County Council
段落结果 - 县级委员会

在分析中，由于公共部门机构之间的较小段落大小，显示了一定数量的分析。对于县级委员会相比所有公共部门机构的比较数据在下面的图表中进行说明。

县级委员会与所有公共部门的比较 - 顶部五个 - 图表5

- 我们无法资助创新解决方案的发展
- 与供应商、LEPs和其它机构合作开发新解决方案是复杂的
- 采购治理导致对所需解决方案的过度规定
- 风险意识阻碍了对创新解决方案的采购
- 我们没有时间与供应商分享新的想法

障碍强度 - 低到高

- 全部公共部门
- 县级
Capability assessment

The questionnaire used a small illustrative set of questions drawn from a rapid innovation audit approach. This approach assessed at high-level five distinct elements of capability to manage innovation:

- Innovation leaderships - has the organisation a visible innovation leader?
- Innovation strategy - is there a written innovation strategy?
- Ideas management - what approaches exist to filter and manage ideas?
- Prioritisation - what techniques does the organisation use?
- Implementation - are best practice methodologies used?

Innovation has nothing to do with how many R & D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more on R & D. It’s not about money. It’s about the people you have, how you’re led, and how much you get it
- Steve Jobs

Training education at all levels with local authority to change ways of working and expectations

Lack of vision from Chief Officers to look at parking solutions management as a business is the sole contributor

Simpler guidance requirements for aspects of LEP, or better training for specific staff member to lead internal teams in the process

Get all parties on the same page and the same awareness of options to deliver innovation

1 Goffin and Mitchell "Innovation Management, Strategy and implementation using the pentathlon framework", 2010
Capability is an essential enabler and the survey will develop a segmented set of results by public sector agency which will support appropriate interventions. Both NESTA and European Union studies identified risk averseness, capability, and a conservative mindset as issues to be overcome. (See appendix A)

Overall capability was widely dispersed with respondents from the private sector, from largely technology-based firms, showing higher levels of capability. The weakest area was the lack of an innovation strategy. A robust innovation strategy should signal to the market the overall direction, harness internal resources, and develop the capability, focus and resources required to address potential market solutions.

There are wide disparities in strength between local authorities is evident.

**Organisational capability - (Final results) - figure 6**

- We have a leader responsible for innovation and technology: 6.5
- We collate and access creative ideas regularly: 6.4
- Implementation of innovation of new technology uses best practice methodologies: 6.2
- We have an approach to prioritise innovations: 6.1
- We have an innovation strategy: 5.9

Goffin and Mitchell “Innovation Management, Strategy and implementation using the pentathlon framework” 2010
A sample of the 66 public-sector responses was assessed and the top two and bottom five authorities compared against an index of both barriers to innovation and their perceived capability on a 1-10 scale. The top two local authorities that assessed themselves as relatively strong on innovation capability had a marked 51% advantage (in terms of experiencing fewer barriers) against those that rated themselves as having low capability. See the figure below. Two factors were closely aligned: having an innovation leader and having an innovation strategy. Where major organisations rated highly for having a technology leader in place, in most cases innovation strategy was positively affected (see figure 4) and there was greater confidence in being able to address barriers. The need for capability building, its methods and sharing of best practice, will need to be developed once a full survey is completed.

See Appendix B for a full set of histograms identifying public-sector perceived barriers to innovation and the adoption of technology.

### Organisational capability - (Final results) - figure 8

<table>
<thead>
<tr>
<th>Capability</th>
<th>Distribution of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5</td>
</tr>
<tr>
<td>We have a leader responsible for innovation and technology</td>
<td>5.2</td>
</tr>
<tr>
<td>We collate and access creative ideas regularly</td>
<td>5.0</td>
</tr>
<tr>
<td>Implementation of innovation of new technology uses best practice methodologies</td>
<td>4.7</td>
</tr>
<tr>
<td>We have an approach to prioritise innovations</td>
<td>4.7</td>
</tr>
<tr>
<td>We have an innovation strategy</td>
<td>4.5</td>
</tr>
</tbody>
</table>
UK and international Research into barriers for innovation in the public sector

Research has already been conducted into the barriers to technology adoption and innovation within the UK and beyond. Policy makers can learn from the generic lessons and issues arising from this. Collectively, we will need to develop a framework for action that addresses both hard and soft factors affecting the ability of local authorities to continue to progress at a pace that enables UK competitive capability and accelerates benefits for citizens.

A small sample of this research is included from the European Union, NESTA and McKinsey. It should be noted that other aligned transport sectors (rail and aviation, for example) have conducted industry-level analysis and ‘removal of barriers’ work as part of their innovation journey, and lessons can be applied.

EU Report - Mapping Innovation in the Transport Sector. In this 2008 analysis the two main drivers across the transport industry were identified as:

- the ambition to increase the range and improve the quality of transportation equipment and services; and
- regulatory and fiscal policies, since they can steer innovation efforts by stimulating the rapid adoption of innovative technologies and create significant market transformations.

Barriers. The key common barriers included: the capital intensity required by industry, funding, uncertainties in the volume and structure of market demand, a conservative mindset, markets that are dominated by a few suppliers with subsequent high barriers of entry, and a lack of skills and qualified people.

Policy interventions. The report identified several key policy approaches that can be adopted, including:

- providing a set of stable long-term signals with a common vision coupled with clear and reliable future-oriented policy targets of key players, highlighting objectives that are stringent enough to stimulate investment in innovation while allowing for the necessary time to undertake the required investments;
- market demand stimulation, balancing short-term and long-term objectives and leveraging on the most promising environments for the adoption of innovation;
- direct financial support for innovation and risk mitigation for innovators;
- policies to ensure a skilled workforce, i.e. education and training; and
- adequate enforcement of private-property rights, e.g. by ensuring patent protection and a balance between incentives for innovation and competition.

This report stressed the need to have different policy instruments adapted to the different nature of the radical and incremental innovations.

“Mapping innovation in the European transport sector. An Assessment of R&D efforts and priorities, institutional capabilities, drivers and barriers to innovation”. Wiensenthal et al 2008
NESTA – Connected Councils – A digital Vision for Local Government in 2025. This report focused on the need for digitalization of councils and established some visionary aims and goals which align to the traffic technology challenges faced by local-authority transport leaders. With the Spending Review and the Local Government Settlement, councils are challenged by budget reductions. Further opportunities may be presented by devolution. Digital technologies provide part of the answer to the challenges faced by local authorities.

Three of the six key recommendations (relevant to transport) included:

- Councils become digital by default, moving all transactional services online and fully digitising their back offices by 2020;
- Leading councils should come together to create a market for new digital products in cases where local authority needs are not currently being met by off-the-peg solutions. City regions should be required to establish an Office of Data Analytics (ODA) as part of devolution settlements. The ODA – modelled on the Mayor’s Office of Data Analytics pioneered in New York City – should be tasked with helping city leaders and public bodies bring together and analyse data to support regional economic growth and local public-sector reform; and
- The Cabinet Office should review and publish detailed guidance on the ethical dimensions of data sharing and algorithm-supported decision-making.

As part of the study, Social Finance modelled likely cost increases from demographic change, to project how much could be saved from digitalisation. Based on best in class case studies compiled by the Local Government Association and original case studies, the model shows that if average savings from digitisation programmes can be replicated across local government, an average unitary council could save up to 13 per cent of its total budget by 2025, compared to the status quo. This is a conservative estimate, as it assumes the fundamental business model of councils remains unchanged. The implication is that for transport, substantial benefits could be realised through economic growth, health and congestion reduction. It is recommended that a simple, pragmatic baseline for measuring progress must be established in any future programme and include both soft and hard metrics.

Local Government Association. Their 2017 report on encouraging innovation in local authorities has several relevant solutions and recommendations for procurement. They found that meeting future user needs requires the adoption of innovative solutions and the deployment of innovative technology.

In summary, the report finds that this requires a political and executive leadership that welcomes new ideas and that there is a designated leader to act as the focal point.

Local Authorities (LAs) can become market makers and promoters of innovation by using channels such as Pre-Competitive Procurement which has been used successfully in the US and across the EU for many years. Working in partnership and sharing best practice is seen as a key way of driving efficiencies and managing risk.

Local Government Authority, “Encouraging innovation in local government procurement”, 2017
UK and international Research into barriers for innovation in the public sector

To help mainstream innovation into procurement:

- Innovation should be embedded into decision making from the start of the commissioning cycle;
- Procurement teams should be part of the decision-making process, and all the innovative possibilities offered by a wide range of instruments should be evaluated;
- Regular mapping of existing technology and prospective new developments needs to be conducted; and
- Early engagement with suppliers and encouraging ideas will help councils to exploit innovative technologies.

The rethinking of local authorities’ procurement policy and procedures can act as a catalyst for change. Innovation needs to be embedded from the start of the commissioning cycle and LAs need to move to more outcomes-based procurement. To support the move to outcomes-based procurement:

- Desired outcomes and unmet needs should be defined in the most open way possible;
- Suppliers should not be constrained by implied solutions or technologies; and
- Authorities should consider wide consultations involving citizens and stakeholders in defining unmet needs.

Finally, a range of reports by the McKinsey Centre for Open Government identifies the different capabilities that public-sector bodies need in order to manage innovation in general, including open source data, rapid prototypes with changes informed by user feedback, and digital projects that are jointly owned with businesses driving design. Their US study of the core capabilities required by digital authorities included:

- Strategy – having a close connection with broader government priorities, focusing attention on citizen and business experience:
- Governance and accountability for pace, scale and collaboration;
- Funding mechanisms for collaboration, innovation and efficiency;
- Two-speed models for rapidly deploying new services and agile development at scale; and
- Data sharing that is peer to peer.

To achieve further collaboration, local authorities may be able to access support from the Governments Digital Service, to enhance capability and resolve time-consuming issues such as data protection and cyber concerns.

5 McKinsey, “Transforming government through digitalisation”, November 2017
Appendix A – Barriers to innovation
(Public sector)

The following charts represent the perceived barriers to the adoption of innovative technology and innovation across the sample, shown as histograms with ratings illustrated as percentages. The top six are illustrated below.

- Working to develop new solutions in partnership with suppliers LEP’s and other agencies is complex (public sector only)
- We are unable to fund the development of innovative solutions (public sector only)
- Risk averseness hinders the procurement of innovative solutions (public sector only)
- Procurement governance leads to over-population of the required solution (public sector only)
- There is a misalignment between the needs of the commissioning department and procurement colleagues (public sector only)
- We make limited use of pre-competitive procurement (PCP) (public sector only)
The following charts represent the perceived innovation capability across the sample, shown as histograms with ratings illustrated as percentages. This is a top-level set of questions only intended to identify emerging key issues required to develop capability.
Appendix C – Public sector questionnaire

**Barriers to procuring innovative transport technology solutions**

This questionnaire is part of a Department for Transport sponsored project to support local government authorities in planning, procuring and implementing technology and innovative solutions. Your responses will remain confidential and only the aggregate data will be used.

Which of the following do you perceive as key barriers to the adoption of technology or innovation? Please rank (tick) accordingly – Strongly Disagree = 1, Strongly Agree = 10

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers do not engage with us with new ideas and technology solutions</td>
<td></td>
<td></td>
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<tr>
<td>We lack the time to engage with suppliers new ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We are unable to fund the development of innovative solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We lack knowledge of mechanisms to procure funding for innovative ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement governance leads to over-prescription of the required solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a misalignment between the needs of the commissioning department and procurement colleagues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We make limited use of pre-competitive procurement (PCP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working to develop new solutions in partnership with suppliers, LEPs and other agencies is complex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk averseness hinders the procurement of innovative solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concerns about intellectual property hamper the way we procure services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please identify what actions could be taken to help resolve one of these barriers:
Appendix C –
Public sector questionnaire

Boosting Innovation Performance. Please rate the following questions on the perception of your organisation's current innovation capability:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have a leader responsible for innovation and technology</td>
</tr>
<tr>
<td>We have an innovation strategy</td>
</tr>
<tr>
<td>We collate and assess creative ideas regularly</td>
</tr>
<tr>
<td>We have an approach to prioritise innovations</td>
</tr>
<tr>
<td>Implementation of innovation of new technology uses best practice</td>
</tr>
<tr>
<td>methodologies</td>
</tr>
</tbody>
</table>

**About yourself**

Job title: 
Organisation: (please tick as appropriate)
- County
- District
- Unitary
- Metropolitan
- London Borough
- Private Sector

Other please state:

I would be willing to support further action plans around the top five barriers to innovation and technology (optional):

Name: 
Email: 
Organisation: 
Telephone: 

**About the Transport Technology Forum**

The Forum is a voluntary association of senior representatives of all the major types of public and private sector investors and policymakers with an interest in transport technology. It exists to facilitate uptake and innovation in technologies and solutions used in connection with the enhanced management and operation of transport networks.

The Forum seeks to enable significant economic, social and UK business benefit in line with efforts to develop more cohesive mobility solutions. The Forum’s remit includes: Intelligent Transport Systems (ITS), including Connected ITS (C-ITS); automotive; Smart Mobility and Mobility as a Service (MaaS); Smart Cities and communities; logistics; and ICT and related developments including Cloud computing and Big Data.

The Transport Technology Forum receives funding from the Department for Transport and Innovate UK.

You can contact us directly using info@ttf.uk.net

http://ttf.uk.net/
Appendix C –
Public sector questionnaire

**Barriers to procuring innovative transport technology solutions**

This questionnaire is for private sector respondents. As part of a Department for Transport sponsored project to support local government authorities in planning, procuring and implementing technology and innovative solutions. Your responses will remain confidential and only the aggregate data will be used.

Which of the following do you perceive as key barriers to the adoption of technology or innovation?

Please rank (tick) accordingly – Strongly Disagree = 1, Strongly Agree = 10

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fear of failure hinders ambition for new technology in this sector</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Procurement for technology does not enable flexible pilots</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Inability to fund the development of innovative solutions</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>A lack of knowledge of mechanisms to secure funding for innovative ideas</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Procurement governance leads to over-prescription of the required solution</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>There is a misalignment between the needs of the commissioning department and procurement colleagues</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Limited use of pre-competitive procurement (PCP)</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Lack of public sector resources hinders adoption</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Risk averseness hinders the procurement of innovative solutions</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
<tr>
<td><strong>Concerns about intellectual property hamper technology procurement</strong></td>
<td>1 2 3 4 5 6 7 8 9 10 N/A</td>
</tr>
</tbody>
</table>

Please identify what actions could be taken to help resolve one of these barriers:
Appendix C – Public sector questionnaire

What best practice(s) do you believe public sector authorities should adopt to help improve procurement of technology and innovation?

Which authorities (county, metropolitan, unitary, London Borough, district, or international) have good technology procurement capability or practices that other public sector bodies could learn from?

About yourself

Job title: ........................................................................................................

Organisation: (please tick as appropriate)

Business size
- 1-49 employees
- 49-250 employees
- 250+

Other please state: .........................................................................................

I would be willing to support further action plans around the top five barriers to innovation and technology (optional):

Name: ........................................................................................................

Email: ........................................................................................................

Organisation: ................................................................................................

Telephone: .................................................................................................

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