TRANSFORM

TRANSFORM

Towards Low Carbon Zero Emission Transport Solutions

Good Practice Innovation Procurement Report

Pilot Innovation Procurement Projects in Barcelona, Birmingham and Rotterdam

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SEVENTH FRAMEWORK PROGRAMME

In March 2015, the smog in Paris, attributed to carbon monoxide and PM10 particles from vehicles, an absence of wind to disperse the pollutants and other meteorological conditions including sunshine coupled with a drop in temperature led to a stagnant cover of warm air over Paris. The City authorities were forced to implement a number of measures to restrict traffic.

Globally, health experts have warned that more and more deaths are to be expected from air pollution. Road transport is responsible for roughly half the air pollution in OECD countries, according to a report published in 2015 by OECD.

"The cost of air pollution from transport and other sources falls to society, in the form of quality of life, ill-health and cost to the healthcare services.
Given the size of the economic cost of the health effects of air pollution, the benefits of reducing that burden could easily outweigh the monetary cost of investments in more ambitious programmes to reduce pollution"

The Cost of Air Pollution Health Impacts of Road Transport, OECD, 2015[1]

Paris photograph © 2012 Yann Caradec

"The TRANSFORM partner Cities of Rotterdam, Birmingham and Barcelona all agreed the need to improve air quality was the most significant driver for greening transport."

Angus Hunter, TRANSFORM Coordination Team

[1] OECD (2015) The Cost of Air Pollution: Health Impacts of Road Transport http://www.oecd.org/env/the-cost-of-air-pollution-9789264210448-en.htm [Downloaded 15/09/2015]

TRANSFORM

Towards Sustainable Zero Carbon Transport through Innovation Procurement

The TRANSFORM Project set out to explore the use of innovation procurement modalities to stimulate and enable innovation in the supply chain in pursuit of low carbon, zero emission transport.

Public procurement accounts for some 19% of the EU's GDP. This represents a huge and important lead market for the innovation community particularly in grand challenge areas such as climate change, energy, health and mobility. The procurement of better, innovative products and services is vital for improving the quality and efficiency of public services at a time of budget and resource constraints, delivering more for less. Yet the re-orientation of public procurement to stimulate and support innovation remains limited and public procurement markets remain fragmented across Europe. Thus, they fail to achieve the critical scale needed to trigger innovative investments and to give value for money in the long term.

Transport activities are at the heart of Europe's economy and mobility is a condition for prosperity and welfare, but transport systems are also harmful to the economy (through creating congestion), and people and the environment (through pollution, CO_2 emissions and the use of scarce resources). These issues represent some of the major societal challenges that face Europe. The means to make transport more reliable, safer, cleaner and quieter are urgently needed, including how to radically cut CO_2 emissions and other sources of pollution in particular in cities, use of alternative sources of energy, and substitutes for increasingly scarce raw materials.

The content of this report is based on the experience of the TRANSFORM Pilot Innovation Procurement Projects and describes the practical journey of the three City Authorities in adopting innovation procurement approaches for transport and mobility related procurements.

Although the report is limited to a small number of case examples undertaken in a limited timeframe, the TRANSFORM partners hope that their learning will provide useful insights into the implementation of innovation procurement projects in City Authorities.

Ajuntament de Barcelona · Birmingham City Council · City of Rotterdam

University of Cambridge Institute for Sustainability Leadership · Innovate UK · optimat · CDTI Centro para el Desarrollo Tecnológico Industrial · Department for Business Innovation & Skills · JERA consulting · SCITI

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Executive Summary

The TRANSFORM Project set out to explore the use of innovation procurement modalities to stimulate and enable innovation in the supply chain in pursuit of low carbon, zero emission transport within procurement projects concerned with mobility.

Individual innovation procurement pilot projects were undertaken by the City Councils of Barcelona, Birmingham and Rotterdam City Councils over a three-year period ending in September 2015. All the projects made good progress in adopting innovation procurement practices and applying them to projects related to mobility and transport.

Innovation procurement methods were unfamiliar and in most cases completely novel to the city stakeholders involved. The pilot projects therefore provided a framework for introducing new procurement approaches based on the Forward Commitment Procurement innovation[2] procurement methodology. The pilots identified a number of adjustments to the typical procurement process that City Councils can make in order to support and encourage innovation in pursuit of better, greener outcomes in transport and mobility related projects:

- Provide long-term consistent messages to the market backed up by policy and leadership commitment that are consistent with the procurement decisions
- Involve stakeholders in examining the current situation and determining the outcomes that are needed and enrolling them in the adoption of new technology. This ensures that the new solutions meet the needs of stakeholders and that they have ownership of the process and new solutions
- Dare to be ambitious in what is asked of the supply chain, focusing on what needs to be delivered, not what is considered possible or affordable

[2] Described in Section 1 of this report

- Don't limit specifications to technology or solutions that are currently available, challenge the supply chain to deliver new solutions
- Communicate what is needed in terms of outcomes rather than detailed specifications allowing room for supply chain innovation
- Demonstrate a credible commitment to a direction of travel for the adoption of low carbon, zero emission, clean transport for cities
- Undertake early and ongoing engagement with the market making clear the outcomes that need to be delivered and by when
- Set out the progressive improvements that are needed in emissions over time to allow suppliers time to respond and make adjustments to their development route maps
- Collaborate with other Cities to send strong signals of demand for common requirements to the market
- Create baseline conditions for innovation procurement in the organisation. For example by incorporating innovation procurement as a strategy within transport and fleet policies; raising awareness of innovation procurement methods; and providing training in innovation procurement
- Understand the suppliers' perspective. To be successful in using procurement to support and drive innovation in the transport supply chain requires an understanding of the suppliers' perspective and communicating with suppliers in a way that demonstrates a serious and credible demand
- Start early. It takes time to engage stakeholders, determine the unmet needs and required outcomes and to embed the project in the organisation. It takes time for suppliers to develop innovative solutions and make adjustments to their business and investment plans and adapt to delivering new requirements
- Finally, the orientation of procurement practices towards innovation needs organisations to change their internal processes, thinking and behaviours. Organisational change takes time and requires commitment throughout the organisation.

Adopting innovation procurement processes within an organisation requires new organisational processes and the capability to manage them can be challenging. This is particularly the case in procurements that are considered high risk, involve high cost and are often high profile; all features common to many transport related projects. It is therefore not surprising that the partners reported a number of common barriers that needed to be overcome over the course of the pilot projects.

Although innovation procurement practices were successfully adopted in the pilots, in the field of transport and mobility, procurement is one of a number of demand side measures that needs to be deployed to bring about a more rapid shift to smart, green, integrated transport in Cities. Other measures such as European, national and local regulation, low emission zones, tender regulation and grant support play an important role in creating the conditions to support innovation procurement by putting in place clear drivers and enablers for the adoption of green transport solutions.

What do we mean by Innovation?

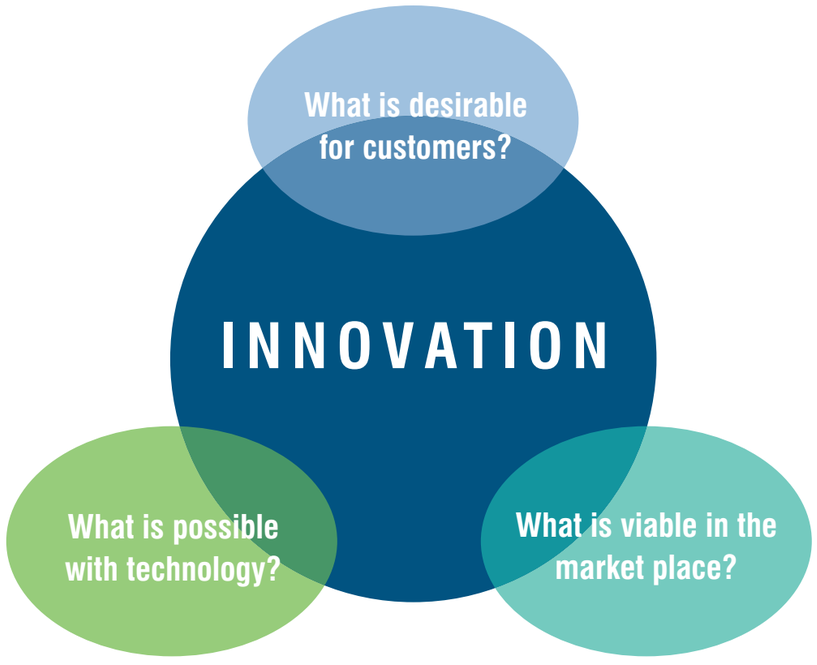
Innovation is the process of translating technology and knowledge into new usable products and services. The key success factor for innovation is an accurate understanding of the unmet need it is targeting.

What do we mean by Innovation Procurement?

The TRANSFORM Partners defined innovation procurement in the context of the project as follows:

> ‘Undertaking procurement in a way that stimulates the supply chain to invest in developing new goods, works and services that meet the unmet needs of the organisation and have progressively lower transport emissions’

Innovation procurement aims to bridge the gap between customer needs and the market potential and seeks answers to three key questions:



1. Project Approach and Methods

The TRANSFORM Project set out to explore the practical adoption of innovation procurement practices in transport and mobility related procurements in the three cities of Barcelona, Birmingham and Rotterdam.

Innovation procurement aims to solve **the buyer / supplier paradox** (see figure 1) by presenting a credible articulated demand to the market and creating conditions within the procuring organisation to support the procurement of innovative solutions to meet this demand.

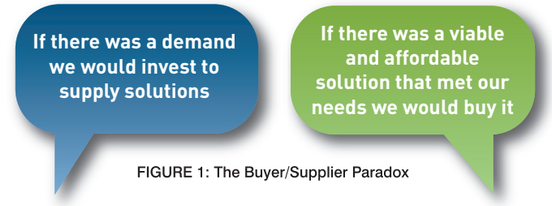


FIGURE 1: The Buyer/Supplier Paradox

TRANSFORM set out to test the hypothesis that innovation procurement methods used successfully in other areas and sectors, for example healthcare, could be applied successfully to the transport sector and adopted by City Authorities. Specifically, the innovation procurement methodology known as Forward Commitment Procurement (FCP) has been used to good effect in a number of successful pilot projects. FCP provides a framework of actions that together can change the market situation to one that supports the delivery of the outcomes the customer requires.

“FCP provides a useful reference and training framework for exploring the innovation procurement process”

Gaynor Whyles, TRANSFORM Coordination Team

The Forward Commitment Procurement (FCP) methodology was used to provide a framework for three innovation procurement pilot projects conducted by each of the City Authorities: Barcelona, Birmingham and Rotterdam.

FIGURE 2: The FCP process distinguishes three phases of innovation procurement: Identify unmet need and embed in the organisation; engage the market by presenting a credible demand; implement pro-innovation procurement process.

The actions in FCP together form a coherent and incremental process that procuring organisations can follow (see figure 2). It enables both customers and suppliers to approach innovation procurement in stages whereby decisions are made to proceed or withdraw based on the outcome of the preceding stage. It is reassuring for both parties to know that they can withdraw at any stage in the process having incurred only the justifiable ‘opportunity costs’ and only progress should the market and organisational conditions justify the investment.

In addition, each action in the FCP process has a defined approach or method, answering the question of ‘how’ to conduct innovation procurement. For example, best practice guidance highlights the importance of market engagement. FCP provides a defined approach to conducting a market engagement process.

The combination of the incremental process, the gradual adjustment of standard procurement approaches, together with methods and examples of how to implement each stage that are consistent with procurement regulations, facilitates the acceptance of innovation procurement within an organisation.

About Forward Commitment Procurement (FCP)

The FCP methodology was first developed in the UK by the Environmental Innovations Advisory Group (EIAG, 2005-2008) which was set up to examine the relative failure of the environmental sector to bring innovations to market and to make recommendations on how this could be remedied. EIAG paid particular attention to the risks faced by the supplier.

The analysis carried out by EIAG highlighted that the time of maximum risk for a supplier is not during the research and development phase, which is relatively inexpensive. Rather it is when much larger amounts of money and time are spent on demonstrations and scaling up before commercial sales prove that the market will buy the product. State Aid rules mean that this is a phase when grants are not readily available, while public procurement practice means that very rarely will there be any firm indication that commercial sales will result once the product is available (DTI 2006).

The EIAG concluded that rather than focusing on a funding gap producing a 'valley of death' between the relatively low cost and risk of the R&D phase of product development and the revenue flow in the commercialisation phase, suppliers faced a 'mountain of risk' (see Figure 3). The uncertainty of future sales, rather than the lack of funds, were identified as the dominant barrier, i.e. rather than any lack of research, invention or innovative aspiration, the relative failure of environmental innovation was due to a lack of 'credible articulated demand'. The EIAG felt that this could be remedied by the Government taking action to mobilise the supply chain to deliver environmental innovations through intelligent supply chain management.

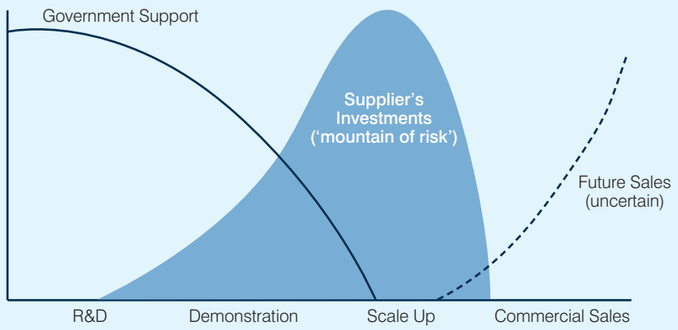


FIGURE 3: The EIAG re-imagined the 'valley of death' as a 'mountain of risk'. Shown in the figure is the risk profile of a supplier of innovation. The time of maximum risk (indicated as the 'mountain of risk') occurs during demonstration and scaling up. Suppliers have to invest while there is uncertainty about future commercial sales. (Adapted by Van Meerveld, Nauta and Whyles (2014) from DTI (2006)).

It was on this basis that the EIAG conceived, developed and tested a public procurement methodology, which could be capable of driving environmental innovation, and called it 'Forward Commitment Procurement'.

"In essence, the approach involves providing advance information of future needs, searching out and engaging with potential suppliers and, critically, incentivising them through a Forward Commitment - the promise of current and future business to promote investment in innovative new product development" (DTI 2006)[3]

[3] Bridging the Gap Between Environmental Necessity and Economic Opportunity, DTI, 2006. http://webarchive.nationalarchives.gov.uk/+/http:/www.bis.gov.uk/files/file34987.pdf

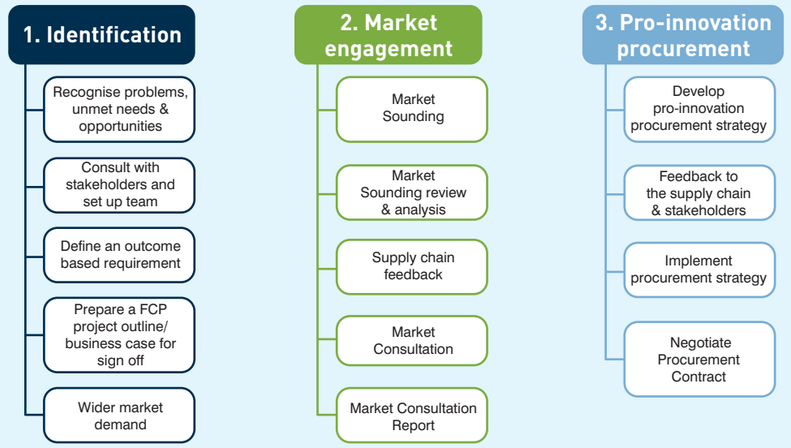
FCP provides a market pull mechanism. Delivering social objectives, such as low carbon zero emission transport, requires new solutions that are either not available in the market or are available at excessive cost. Because they aren't available, customers don't demand them; because there is no demand, the solutions do not receive the investment required to enter and be competitive in the market. Consequently, public sector objectives are compromised by lack of affordable and effective products and services to deliver them. FCP aims to unlock this stalemate by making the market aware of genuine needs and requirements. It offers to buy solutions that meet these needs once they are available at a price commensurate with their benefits. This 'credible articulated demand' provides the necessary market pull to galvanise supply chains and unlock investment to deliver the requirement.

The supply and demand of innovation. A critical factor for suppliers of new products is the confidence that there will be a market once the solution is proven. The amount of investment made by product developers and by their supply chain depends on this confidence. The future customers of the new products can significantly affect investment decisions by making the future market as certain as possible (while retaining competition). FCP is a way for public procurers to make this future market visible and credible without either procurer or supplier incurring unmanageable risks.

FCP mirrors the approach of the private sector. The FCP model taken by business translates into the public sector by using supply chain management and procurement to promote investment in new products. Private sector companies actively manage their supply chains to promote investment in innovation and new or improved products. They do this by engaging with their suppliers and providing credible information about their future requirements and purchases. This provides the incentive and security for the supply chain to invest to deliver what is needed, when it is needed and at a price that is affordable. By mirroring this approach FCP provides tools for the public sector to create the conditions for their supply chains to flourish and deliver new cost effective solutions in a way that manages the risk for the customer and the supplier.

The motor industry and their electronics suppliers share plans and ambitions many years ahead of products reaching the market. The electronics suppliers align themselves behind the goals of their customers and invest in the development of products to meet their customer's future needs. To fail to do so would exclude them from the future market. Competition is maintained and at the same time this active management of the supply chain leads to unprecedented innovation in vehicle electronics, in a cost effective way. Every year cars can do more, perform better and cost less. This is in no small part due to the motor industries effective management of their supply chain.

FIGURE 4: Overview of the FCP methodology



Pilot Innovation Procurement Projects

Barcelona City Council

Accessible Pedestrian Crossing Solution

Barcelona City Council identified the unmet need to increase the safety and access of all pedestrians through the introduction of an innovative Pedestrian Crossing Signal (PCS) solution.

Birmingham City Council

Low Carbon Mini Buses for Adults and Communities services

Following a strategic review of the fleet operated by Adult and Community Services and in line with targets set by the Green Fleet Strategy, an unmet need was identified to replace the fleet of diesel minibuses currently deployed by Adult and Communities Services with zero / low carbon minibuses as soon as possible.

Rotterdam City Council

Customer Oriented Low Emission Social Transport Solution

Rotterdam City Council offers transportation services to certain inhabitants on medical and social grounds serving up to 25,000 people a day. Historically, this service was delivered by a number of contracts with individual suppliers. Pressures on the social care budget led to this approach being questioned and a new contract structure envisaged for delivery of these services; one which integrates all social transport services within a single contract. This shift in contract mode opened up the possibility to put the client's needs at the centre of the operation and introduce new requirements, moving away from a simple logistical, 'A to B' transport model.

2. The Pilot Innovation Procurement Projects

The following transport and mobility related procurement projects were selected as suitable pilots for the adoption of innovation procurement methods:

Barcelona City Council

Accessible Pedestrian Crossing Solution (Innovative pedestrian traffic signal crossing device)

Birmingham City Council

Low Carbon Mini Buses for Adults and Communities Services

Rotterdam City Council

Integrated Customer Oriented Low Emission Social Transport Solution

The pilot projects were all coordinated by a local facilitator(s) with the support of the wider TRANSFORM team. The starting point was to identify forthcoming transport related procurements within the timeframe of the project and to use this procurement as a test case for the introduction of new ways of working to create conditions for innovation in the supply chain and in the customer organisation. Each of the local facilitators had different roles within their organisations and these different roles were reflected in their approach and focus.

Innovation procurement methods were unfamiliar to both the local facilitators and the City Authorities before they embarked on the TRANSFORM project and hence the projects served as valuable 'action-learning' opportunities.

Innovation Procurement Good Practice Actions

Informed by the FCP method, the following actions were undertaken in one or more of the pilot projects as part of the pilot innovation procurement approach. Each of these actions are described in the following report and illustrated by examples from the pilot projects.

1. Identification

- **Analysis and scoping**
- **Stakeholder engagement**
- **Unmet need expressed as an outcome based requirement**
- **Alignment with the policy framework and embedding in the organisation**
- **Sign posting wider market demand**

2. Market engagement

- **Market sounding**
- **Market consultation events**

3. Pro-innovation procurement

- **Pro-innovation Forward Plans**
- **Pro-active tender communications**

More information about the pilot projects can be found in the case study reports at:

http://www.TRANSFORM -europe.eu/

2.1 Identification

1. Identification → 2. Market engagement → 3. Pro-innovation procurement

About the identification stage

The FCP innovation procurement method starts with an identification phase in which the customer identifies unmet needs or opportunities within the organisation that require innovation, engages and consults the relevant stakeholders, and embeds the project within the organisation. Edquist et al (2015) distinguish the first stage of innovation procurement by public sector organisations as "the identification of a public agency mission need or of a grand challenge and its formulation in terms of a lack of satisfaction of a human need or an unsolved societal problem"[4].

The end point of the identification stage is a genuine, credible unmet need expressed as an outcome based requirement.

All the actions undertaken in the identification stage are to achieve this result.

The identification stage puts importance on the engagement and consultation of internal stakeholders, including end users so that the budget holder alone does not define the requirement. This breaks down any barriers between the person responsible for the procurement decision and those that have to deal with the practical or financial implications of a procurement decision.

Once an unmet need is identified and the requirement defined based on user consultation, an FCP project outline and / or outline business case is prepared. It is critical that the outcome-based requirement identified is genuine, accurate and credible (DTI 2006)[5]. A business case that is signed-off at an appropriate level within the organisation ensures that there is leadership support and backing for the project, formal endorsement of the outcome based requirement at a senior level and confirms the strategic fit with the organisation's forward plan and budgets.

Overall, the identification stage aims to create the conditions necessary for credible engagement with the market, by providing the missing 'credible articulated demand'. In terms of the development of innovation procurement good practice it is an important part of the process, creating the conditions for innovation in the organisation and a firm foundation for the credible engagement with the market. It is however part of the process that is often over looked in discussions of good innovation procurement practice.

Pilot project selection

The pilot innovation procurement projects were selected on the basis of the following criteria:

1. Unmet need present
   - A genuine, credible unmet need and need for innovation was a necessary pre-condition for the project and there was scope for innovation
2. Sufficient time available
   - The anticipated tender date should be at the end of the TRANSFORM project period or later to allow time for the introduction of new approaches and for supply chain innovations to be mobilised
3. Scope for influencing the tender
   - Political backing, policy alignment, management support and stakeholders willing to adopt new approaches to procurement were a necessary pre-condition for progressing the projects

[4] Edquist et al (2015) Public Procurement of Innovation

[5] DTI (2006) Environmental Innovation: Bridging the gap between environmental necessity and economic opportunity

Defining the current situation

Barcelona is active in tendering services and equipment to deliver the key actions contained in its Sustainable Urban Mobility Plan (SUMP)[6].

This plan contains operational SUMP objectives in terms of mode share targets; for walking, a 10% increase is sought.

Improving the accessibility of pedestrian crossings at road junctions (some 1,700 junctions are signal-controlled) is key to the implementation of this strategy. Like most of Europe, Barcelona has an ageing population and improving walking will also contribute to the SUMP goals of a more equitable mobility for all road users.

There is a local demand to increase the safety and access of all pedestrians through the introduction of a Pedestrian Crossing Signal (PCS) solution. These systems usually take the form of digital devices for communicating to pedestrians crossing at signal-controlled crossings via a 'count down' of the seconds remaining for the pedestrian to cross.

Research has shown that:

- There has been a lack of standardisation of this topic at Pan-European level[7]
- Barcelona participates on traffic signal standards Working Group at national level but little progress has been made to guide local initiatives to implement PCS
- Europe's cities have been slower to take up this technology than their counterparts in North America, where initial trials have led to standards development
- Whilst the pilots that have so far been realised by European cities show positive impacts they also identify issues that still need to be addressed

The importance of data collection

The Green Fleet Manager at Birmingham City Council carried out an evidence-based study of the Adult and Community service area to demonstrate to the Adult and Communities Fleet Manager that the current system is both economically and environmentally unsustainable.

By collecting data and presenting it in a way that stakeholders like the Fleet Manager, budget holder and end-users could understand, the Green Fleet Manager was able to show the costs and issues with the current situation and benefits that new solutions could offer both in practical and policy terms.

Group	Registration Date	Vehicle Description	Vehicle Class	Passenger Access	Number of passengers per day (average)	Capacity (Seated)	Capacity (Wheel chair)	Fuel Type	Daily Cost of AM/PM transport (per service user)	Daily average mileage	Travel Times - AM	Travel Times - PM	Number of stops and starts	Allocated Day Centre	Post Code Areas Covered
07	9-Nov-99	LDV 400 Convoy Minibus	CB Body	Tail Lift	28	16	4	Diesel	£14.06	30.00	8.45-10.30	2.45-4.00.	28	St. Stephens DC	LADYWOOD, HANDSWORTH ASTON, PERRY BARR
07	9-Nov-99	LDV 400 Convoy Minibus	CB Body	Tail Lift	12	16	4	Diesel	£14.06	25.00	8.45-10.30	3.00-4.30	12.00	Shakti DC	HALL GREEN, SPARKBROOK, SPARKHILL, BALSALL HEATH
07	9-Nov-99	LDV 400 Convoy Minibus	CB Body	Tail Lift	10	16	4	Diesel	£14.06	20	9.00-10.15	3.00-4.15	10.00	Marsh Lane DC	ERDINGTON, SUTTON COLDFIELD, CASTLE VALE, BOLDMERE & KINGSTANDIN
07	9-Nov-99	LDV 400 Convoy Minibus	CB Body	Tail Lift	6	16	4	Diesel	£14.06	20.00	9.15-11.00	2.45-4.30	10.00	Weatheroaks DC ROBIN	MOSELEY, STIRCHLEY, KINGS HEATH, HALL GREEN,

[6] More information about the SUMP can be found at: http://mobilitat.ajuntament.barcelona.cat/en

[7] None of the (142) standards published by CEN TC278 concern traffic signals and none of the 50 current work topics address Pedestrian Countdown Signals: http://standards.cen.eu/dyn/www/f?p=204:22:0::::FSP_ORG_ID:6259&cs=1EA16FFFE1883E02CD366E9E7EADFA6F7

The identification stage in practice

The identification stage is an iterative process involving a number of different actions and processes. In the following section, these different actions are considered as a sequence of actions for ease of presentation and analysis of good practice.

The identification of a suitable project itself was not without difficulties due to the unfamiliarity of the processes and concerns among the customer departments that the process would lead to increased costs or require additional staff resource. In some cases projects were simply too far advanced or too urgent for consideration. In others, traditional views on supplier engagement prevailed and budget holders believed that adoption of new approaches and the drive for innovation was too technically risky and too expensive to pursue.

In each of the Cities these concerns led to potential projects being discounted or stalling at an early stage. The reasons included perceptions that innovation procurement would increase risk, add cost or require too much time and resource.

A condition for success was identified early on in the project selection process: budget holders, operational leads and procurement category managers all needed to be willing to adopt unfamiliar innovation procurement processes. This meant that pilot project local facilitators in the Cities had to find ways to enrol and engage operational leads and reassure them that the process would deliver better, more efficient outcomes.

"We had to learn to present the case for change by understanding the procurement from the customer's perspective"

Léon Dijk, Advisor Responsible for Procurement, Rotterdam City Council

"We were able to use case examples of other successful innovation procurement projects to demonstrate the potential benefits to technical leads"

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council

2.1.1 Analysis and scoping

This action involves carrying out a detailed examination of the elements, structure of the opportunity or unmet need. The analysis and scoping stage explores the subject of the procurement (the problem or opportunity) from first principles. In the first instance it provides the basis for understanding the current situation and initiating informed discussions with internal stakeholders. As the identification stage continues this understanding deepens and brings on board wider perspectives.

The analysis and scoping stage enables the project to reflect the current situation back to managers and other stakeholders to demonstrate the potential, value and / or need for innovation. The end result of analysis and scoping is a clear and common view of the current situation.

Within the pilots the analysis and scoping actions carried out by the local facilitators was found to be an essential preparatory stage to create a firm foundation for the project and was judged to be worth the investment of time and resource. In most cases, the analysis and scoping and stakeholder engagement actions are closely related as it is the stakeholders that have the detailed knowledge of the current situation and needs.

A valuable aspect of the analysis and scoping actions was to identify good practice and case examples from other European Cities. This proved to be a useful tool for stakeholder engagement. Finding these case examples confirmed that other cities faced the same or similar problems and had common unmet needs and also demonstrated the adoption of innovation procurement methods elsewhere.

Increasing the scope and impact of the social transportation tender

Rotterdam City Council offers transportation services to certain inhabitants on medical and social grounds. It is operated by contractors that deploy their own fleet to serve up to 25,000 people a day. Social transport services covering five different target groups entail considerable expenses which are over 30 million euro per year (ex VAT). As budgets have been cut on social services generally, there is a serious incentive for the Council to save on expenditures for transport associated with social activities.

above all improve the experience for end-users, i.e. the ultimate 'client' of the services.

It was also clear that any procurement that concerned transport and mobility should be aligned with the overall aim of Rotterdam City Council to reduce harmful emissions from transport and consider the impact of poor air quality on human health.

This broader and considered analysis provided a solid basis for a meaningful engagement with stakeholders about the purpose and potential of the contract, looking beyond simple cost saving.

FCP phase	Activities	Planning
Strategy & engagement	Identification of objectives, policies and stakeholders	
	Identification of unmet needs	
	Market communication	
	Procurement strategy document	August 2015
Tendering	Preselection document	September 2015
	Review of notifications	
	Competative dialogue dissemination	January 2016
Final Offer	Review of tenderers	
	Signing contract	November 2016
Implementation		January 2017

Formally let as separate contracts, a Council decision in 2013 determined that when re-tendering the aim should be to integrate all social transport services into a single contract. The main incentive for this change in the contracting model was cost saving. Evidence from case examples in other Cities suggested that clustering transport services could reduce costs.

Looking into the procurement requirement more deeply and drawing on other case studies led the project team to question the logistical and mobility emphasis of the procurement and look at the potential to widen the scope and influence and

Involving stakeholders in the analysis and scoping of the project

In order to understand the current situation, a number of internal meetings were held bringing together stakeholders such as social transport contract managers, policy makers and client representatives who had requested the transport services. A 'heat-map' was obtained from the current supplier showing the distribution of travel bookings within the city.

Analysis and scoping in practice

At Barcelona City Council, the project facilitator was able to revisit a persistent and unsolved problem from a fresh starting point and present the current situation in objective terms to the different stakeholders involved to bring about agreement to use innovation procurement processes to uncover a solution. The analysis looked at the current state of the art with regard to pedestrian crossing solutions globally, identified the relevant policy and demand drivers, noted the lack of a satisfactory conclusion to the problem and identified possible approaches to adopting appropriate emerging solutions.

In Birmingham the first step was to identify an area where emission reductions were needed and a procurement opportunity existed. The Adult and Community Vehicle Fleet was identified on the basis of its age, carbon emissions and fitness for purpose.

"The case for change is best established by obtaining an in depth understanding of current requirements, how they are met, what needs to be improved and what needs are currently unmet."

Sylvia Broadley, Green Fleet Change Manager,
Birmingham City Council

Once the focus for the pilot project had been identified, the facilitator identified potential barriers, drivers and motivators for adoption of innovative solutions and where there were gaps in her knowledge about the current fleet and operational needs.

Barriers identified included:

- The lack of data to present a business case for alternatively fuelled vehicles
- Concerns about changing models of service provision and adoption of new vehicle technology among stakeholders
- Delays in the approval of the Green Fleet Strategy, the policy basis for greening the fleet

Although the need for cost savings was ever present in the minds of Birmingham City Council staff, the persistent and consistent messages to staff about greening Birmingham and the Council, delivered over the last few years, meant that budget holders and operational leads were open to new approaches that could deliver a cost effective green solution.

"The value of the "Making Birmingham Greener' message that has been communicated to staff over the last few years was evident in the early meetings with stakeholders. They were attuned to the fact that theirjob involved not only finding cost savings but to finding a greener solution."

Sylvia Broadley, Green Fleet Change Manager,
Birmingham City Council

In Rotterdam, a review of up-coming transport related projects revealed a number of future procurements that could be suitable for pilot projects. One of these failed to progress following a period of stakeholder engagement. However, a second set of procurements related to social transport provision were identified and researched. The analysis of the services provided, how they operated, service requirements, etc. revealed opportunities both for innovation in the service delivery model and (by widening the scope and required impact of the procurement) to include environmental and social outcomes.

This analysis also revealed opportunities for stakeholder engagement, namely that the Council had made a decision to move from a multi-contract to a single, integrated contract. This meant that change and new approaches had to be considered by stakeholders and provided an opening for the introduction for new approaches i.e. there was a genuine unmet need.

Pilot projects

Stakeholder engagement and technology socialization

Nissan Leaf Trial in Birmingham

A collaborative trial was undertaken by Birmingham City Council to assess the feasibility of operating a Nissan Leaf in the Adults and Communities directorate undertaking night care services to the elderly and disabled over the city's South service route.

The trial was undertaken to inform the business case for adoption of electric vehicles and to socialize the new technology among the stakeholders in order to create conditions for the adoption of alternatively fuelled vehicles. These had been recognised as barriers to change by the local facilitator.

Nissan was enrolled to provide the trial vehicle, while a leading Centre of Excellence for Low Carbon and Fuel Cell technologies (Cenex) provided independent trial management, analysis and reporting services. Telematics were fitted to the vehicle providing detailed energy use and driving information enabling a direct comparison with the existing diesel vehicles.

Benefits

The trial showed that the Nissan Leaf was capable of providing the following benefits:

- Zero tailpipe emissions (CO_2, NOx, PM)
- 35% well-to-wheel CO_2 savings (this includes emission created during fuel extraction and manufacture) compared to the regular Citroen C5 vehicles is use
- £1660 (17%) whole life cost savings (over €2000) from a four year vehicle lease based on 16500 miles per annum
- 83 miles - the average real-world driving range available from a single battery charge
- 3.3 pence per mile running costs (fuel only) compared to 9.5 pence per mile to run for the comparator diesel vehicle

2.1.2 Stakeholder Engagement

There are a wide-range of internal stakeholders involved in and affected by any procurement, for example the budget holder, the operational managers, end-users, environmental managers and finance managers and of course procurement staff. These stakeholders have an investment in the solution and are best placed to determine the shortcomings with existing solutions and what the solution needs to deliver.

The purpose of stakeholder engagement is to gather practical insights into the current situation surrounding the procurement in question, how requirements may need to change to adjust to future conditions and how it could be improved. Consultation and engagement also served to engage staff in the acceptance of new solutions.

Identifying and enrolling the necessary stakeholders was seen as an essential starting point for the pilot projects.

"The stakeholder engagement process aims to create a firm foundation for the project implementation within the organisation and its importance is often under-rated in innovation procurement projects."

Gaynor Whyles, TRANSFORM Coordination Team

The pilot projects found that the identification and enrolment of key stakeholders was essential to the success of the project in order to:

1. Establish willing participation in the adoption of new procurement approaches
2. Enable the accurate definition of the unmet needs and supply requirement
3. Ensure all opinions were heard
4. Provide a forum for assumptions to be challenged and the status quo questioned
5. Support acceptance of new solutions and technology

The TRANSFORM project used a number of approaches to ensure that stakeholders were engaged including an electric vehicle technology trial and data collection, a thorough analysis of the different internal and external stakeholders, stakeholder workshops, early involvement of the procurement department, and setting up a cross-departmental project team or Decision Making Unit.

In order to determine unmet needs and requirements accurately, consultation and communication needs to be open and honest, respecting the perspectives, needs and concerns of each stakeholder.

Stakeholder engagement: Setting up a Decision Making Unit in Rotterdam

The Rotterdam project is being managed by a 'decision making unit' (DMU) composed of key stakeholders

As the project got underway, the project team identified that tenders were usually dealt with by different groups who were not in close communication. The team soon realised that these stakeholders needed to be brought together to discuss and agree the project scope and bring their different experience and perspectives to define the outcomes needed. Importantly, end user representatives were also included.

A DMU is a group of employees made responsible for finalising major decisions, usually involving a purchase. Major purchases typically require input from various parts of the organisation. Highly technical purchases, such as medical equipment, also require the expertise of technical specialists. In some cases the DMU is an informal ad hoc group, but in this case, it was created as a formally sanctioned group with specific mandates.

There are typically six roles within a DMU:

1. Initiator who suggests purchasing a product or service.
2. Influencers who try to affect the outcome decision with their opinions.
3. Deciders who have the final decision.
4. Buyers who are responsible for the contract.
5. End users of the item being purchased.
6. Gatekeepers who control the flow of information.

These six roles are formal roles. A procurement consultant provided an external perspective and played a key role by acting as innovation procurement coach and project facilitator, helping coordinate the project, assist team members and question the seemingly obvious.

Important lessons from the pilot project included:

- Identify the decision making group as early as possible.
- Make clear the role they play and influence they have during the procurement process and the priorities each of the involved persons has (this can differ significantly).
- Remind them of this during the process.
- Make sure the team is complete (have we forgotten an important influencer?)
- A final but vital issue is to get the team recognized and enabled by senior management.

"The DMU was created in order to give all stakeholders, including client representatives, a voice and made sure that they were both represented and informed."

Jeroen Veenendaal, Procurement Manager: Integrated User Centred Social Transport, Rotterdam City Council

Stakeholder engagement in practice

In Birmingham, one of the main barriers identified early on was the lack of data to support the business case.

Ongoing stakeholder engagement was an important feature of the Birmingham City Council project. Once the Fleet Manager was engaged more departmental staff, such as those responsible for the client well-being and service delivery, were involved in the process to discuss their needs and define the requirement. Stakeholder engagement involved gathering information and insights into the services delivered, the client needs and the different duty cycles of the fleet vehicles. This created a situation where stakeholders were open to new approaches, making suggestions about alternative solutions and discussing the potential of, and concerns about, new technology.

The need for leadership and commitment at the team level was something that had been discussed in the first TRANSFORM Workshop[8] and picked up as an important success factor by the local facilitator in Birmingham. The Green Fleet Manager was also mindful to bring on board the procurement department at an early stage.

"It is important to involve the procurement department at an early stage in any procurement project, but it is essential for a successful innovation procurement project"

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council

The Green Fleet Manager drew on wider experience and examples to explain the principles of innovation procurement:

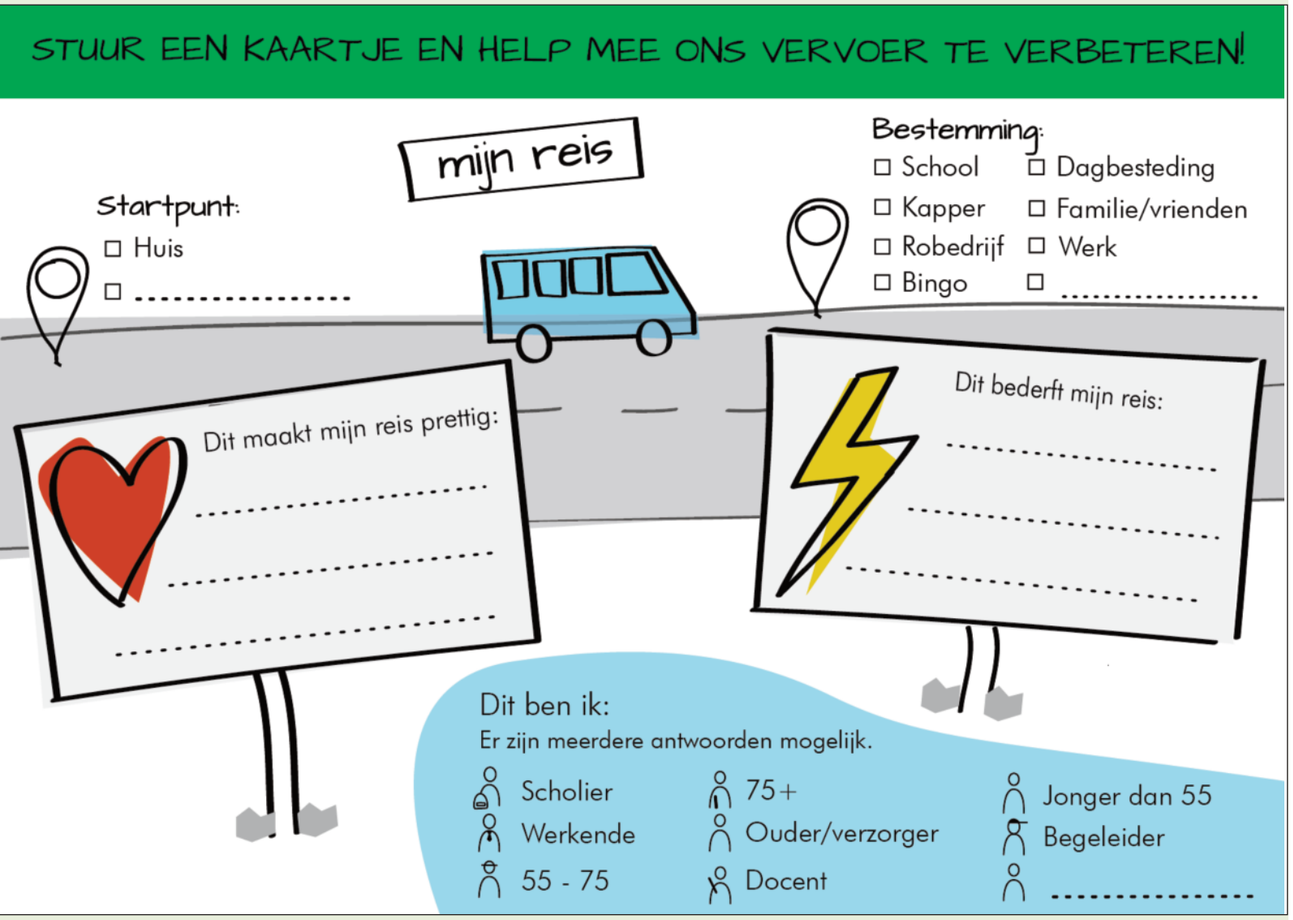
"Through our internal workshop discussions we identified the importance of articulating future demand through a formalised approach and how this would offer motor manufacturers a reduced risk when developing new technologies to bring through to market. We were mindful of the way the State of California has used progressive 'technology-forcing' emissions regulations to communicate future demand and thereby help to stimulate technology advances in vehicle emissions control and alternative fuels, to help deliver cleaner air."

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council

Director for Mobility addressing second TRANSFORM Workshop

In Barcelona, the strong support of the Director for Mobility enabled the project to be mobilised quickly and for the project facilitator to engage successfully with wider stakeholders in the organisation. The Director's commitment to addressing this issue was announced at the second TRANSFORM Workshop in Barcelona.

[8] See http://www.transform-europe.eu/resource/



In Rotterdam a detailed analysis of the unmet needs involved end-user consultation. Postcards were distributed to clients to investigate their unmet needs and perceptions of the service and the results helped to redefine the service requirements towards genuine client needs.

In Rotterdam, stakeholder engagement firstly involved identifying and developing a positive relationship with the internal stakeholders and introducing a new approach to procurement i.e. innovation procurement, and gaining their trust. The facilitators undertook a thorough review and created a database of all the stakeholders. It was necessary to communicate the benefits of market sounding and outcome based requirements rather than detailed technical specifications, the opportunity to request progressive environmental standards to achieve zero emissions and the potential to deliver wider social outcomes and ensure that end user needs were addressed.

"Above all, the aim was to have a clear and accurate understanding of the requirements seen from the client and the Council perspectives and provide a mechanism for the stakeholders to question assumptions and challenge the status quo."

Jeroen Veenendaal, Procurement Manager: Integrated User Centred Social Transport, Rotterdam City Council

The process was more difficult than had been expected due to the complexity of the internal stakeholder environment, the scale of the procurement (over €200 million and a 7 year contract) and the level of perceived risk among the stakeholders. It was also established early on that the there were concerns about underlying tensions in the client-supplier relationships in the social transport supply chain in general which needed to be taken into account when planning the market engagement process.

"We introduced the new approach to stakeholders and how we would define outcomes to support innovation and challenge the supply chain to respond. This was helped by the use of case studies, and we also emphasized that this made procurement more interesting and fun. The stakeholders were quick to see the advantages this approach could offer. Their main concern was that this was a radical departure from the normal supplier-customer relations in this field, which had a heritage of conflict and distrust that would need to be overcome. Also some were concerned that setting emission standards too high would discourage smaller companies."

Léon Dijk, Advisor Responsible for Procurement,
Rotterdam City Council

"Social transport involves a range of different stakeholders and budget holders who all needed to be engaged over time to ensure that all views and concerns were addressed prior to market engagement, and that there was general agreement on the opportunity to explore the potential with the market for a single contract solution and for the procurement to deliver wider benefits to clients and society in a cost effective way. This takes time."

Marieke van Putten, Program Manager Innovation Procurement, Ministry of Economic Affairs (Netherlands)

The project team also realised, that to put the client back in the centre of service, they needed to consult the client base. A research consultant (Muzus) was commissioned to undertake an extensive investigation of the client needs. Mainly based on personal interviews, but also with the use of 'client cards' that were distributed widely among end-users. The results led to a complete re-orientation of the project team's thinking and definitions of client groups that are completely different from the original client groups (i.e. such as elderly, children, disabled etc.) which were based on the service provider's perception rather than the client's self-perception. The clients will now be divided based on their unmet needs instead of supply based social categories.

Defining an outcome based requirement in Barcelona

Barcelona City Council wishes to increase the safety and access of all pedestrians through the introduction of an innovative pedestrian crossing solution. In many towns and cities, mechanisms have been introduced that provide pedestrians with auditory and visual information on the time available to cross a road.

These visual systems usually take the form of digital devices for communicating to pedestrians at signal-controlled crossings via a "count down" of the seconds remaining for the pedestrian. Some systems (those showing green time for the pedestrian to cross) have been trialled at certain junctions in Barcelona where dynamic signal control does not operate, but the incompatibility with dynamic signal control was seen to be a fundamental barrier to a more generalised deployment.

Systems showing only the time for clearing the pedestrian crossing area are not appropriate since clearance times are kept short for other safety considerations, and the basic idea is to help pedestrians to cross from the start of their crossing phase.

Requirement for Accessible Pedestrian Crossing Signals

Barcelona City Council wishes to increase the accessibility and safety of pedestrian crossings currently controlled via its dynamic traffic management signal control system.

The unmet need is for an innovative pedestrian road crossing information system that provides all pedestrians with accurate information on the time available to cross the road *from the start of the pedestrian crossing phase* without compromising traffic flow or the safety of any group of road user.

Barcelona City Council has identified a requirement for an innovative pedestrian road crossing solution that:

- Increases the safety and confidence of pedestrians when crossing roads
- Is usable and accessible to all pedestrians
- Will integrate seamlessly with current traffic control systems
- Does not have a negative impact on traffic flow and punctuality of public transport
- Is resource and energy efficient
- Conforms and is compliant with the relevant UNE standards
- Has the potential for EU and global adoption
- Is cost effective.

2.1.3 Unmet need expressed as an outcome based requirement

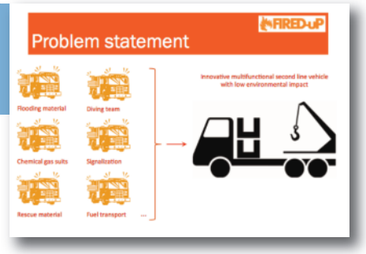
An unmet need is a requirement that you have now, or (preferably) one that you will have in the future, that current products, services or arrangements cannot meet, or can only do so at excessive cost or with unacceptable risk.

The potential for finding an innovative solution is greatest when buyers specify what they want in terms of outputs or outcomes. An outcome based specification focuses on the desired outcomes that are required from goods or services rather than a detailed technical specification. This allows providers scope to propose innovative solutions that might not have occurred to the delivery team. Outcome based specifications are also known as 'functional specifications'.

Focusing on the outcomes that are required rather than on how they are to be achieved allows scope for creativity and innovation in the supply chain. For example, a requirement for 'electric vehicles' defines the answer; a technology neutral requirement would be 'low carbon zero emission vehicle'.

The accurate definition of the unmet need and requirement is fundamental to the success of an innovation procurement project. Scoping and analysis and stakeholder engagement both ensure that the requirement expressed to the market is as accurate as possible. However, the translation of the unmet need or challenge into an outcome based or function requirement pre-supposes a high degree of competence on the part of the procuring organisation[9].

A case example from another innovation procurement project, FIRED-Up gives a graphic illustration of an unmet need and outcome requirement:
From presentation at Fired-up Final Conference, London, July 8, 2015



Each of the pilot projects defined their problem and expressed their unmet needs in terms of outcomes:

Barcelona City Council

Unmet need: pedestrian road crossing information system that provides all pedestrians with accurate information on the time available to cross the road from the start of the pedestrian crossing phase without compromising traffic flow or the safety of any group of road user

Outcome: Accessible Pedestrian Crossing Solution (Innovative pedestrian traffic signal crossing device)

Birmingham City Council

Unmet need: Emissions from old diesel vans and vehicles not fit for use, low emission versions not currently available on the market.

Outcome: Low Carbon Mini Buses for Adults and Communities services

Rotterdam City Council

Unmet need: New contract and delivery models for social transport needed to put the client at the centre of the service and improving service quality, supporting client self-reliance and supporting the Council's policy to reduce harmful emissions from transport, delivering added value in terms of wider social outcomes and delivering total cost savings and delivered according to client's needs.

Outcome: Customer Oriented Low Emission Social Transport Solution

[9] Georghiou et al. 2013, Policy instruments for public procurement of innovation: choice, design and assessment.

Pilot projects

Defining an outcome based requirement in Birmingham

Requirement for low carbon transport for Adult and Community Services

Transport is a major contributor to carbon emissions and poor air quality across the world's cities. With transport emissions accounting for 25% of Birmingham's controllable CO_2 emissions, it is also recognised that diesel vehicles are the main source of Nitrogen Oxides (NOx) and Particulate Matter (PM2.5 and PM10) emissions.

A key challenge for Birmingham, therefore, is to target the reduction of carbon and improve air quality related emissions by enabling the take-up of ultra-low emission vehicles, from small cars and vans to HGVs, buses and refuse trucks.

In 2014, Birmingham's Green Commission[10] outlined the ambition to build a leading green city and reduce total carbon emissions by 60% by 2027. One of the decisive factors in achieving this ambition will be the ability to build an efficient, effective and low carbon transport system.

The Council is in the process of greening its entire fleet and has put in place a forward plan which includes a Green Fleet Strategy and a 'Blueprint' for low/zero Carbon re- fuelling infrastructure to support and enable this transition.

Birmingham City Council need to ensure the safe and secure transport of around 800 people to and from their day-care or learning location every working day and ensure that they are in the right place, at the right time, while making minimum impact on the environment and delivering a high quality user experience.

Following a review of the fleet operated by Adult and Community Services and in line with targets set by the Green Fleet Strategy, an urgent need to replace current diesel minibuses with zero/low carbon minibuses has been identified.

By 2030, these and other fleet vehicles need to be capable of providing the transport requirements demanded by Birmingham City Council with zero tailpipe emissions. In the interim period ongoing improvements in emissions will be required, with new vehicles being able to cover a growing proportion of miles with zero emissions.

[10] Birmingham's Green Commission www.birmingham.gov.uk/greencommission

Pilot projects

Initiating market dialogue in Rotterdam

Rotterdam City Council set out the opportunity and requirement to the supply chain in an initial market consultation meeting in May 2015. Defining the requirement is an iterative process. As a result of this consultation process and on-going engagement with internal stakeholders and service clients this was later refined and developed as an outcome based requirement and an 'in-tender' market engagement process was developed.

Innovative, customer-focused special needs transportation services with improvements in accessibility, quality of life and safety

For whom and why

Rotterdam City Council has created several facilities for citizens who are unable to travel by public transport or by using their own mode of transport. Transporting these people is important for them to be able to participate in society. The costs of these facilities amount to €34 million per year, benefitting about 16,000 Rotterdam citizens.

The Council needs solutions that will provide practical and workable solutions to deliver cost effective, added value transportation services to our Clients in support of the following requirements:

Move towards self-reliance: The expansion of the duty of care and the associated decentralisation are giving the City of Rotterdam the opportunity to define its policies on self-reliance more thoroughly. This will have an impact on special needs transportation services. Providing transportation to our residents is not a goal unto itself. The transportation is intended to bring our Clients to an environment where they can be helped to build their self-reliance.

A central focus on the client: Transport should be tailored towards the needs of the client, whether these are direct or latent needs. This means that more aspects should be considered than simply transportation from A to B. Transport enables a client to participate in society, while at the same time increasing self-reliance and preventing isolation. Self-reliant where possible, organised where required. At the same time it is important to arrange easy, comfortable and reliable transportation for the client, from journey planning, to requesting transportation, to the journey itself.

A congestion-free Rotterdam: Currently, transport for people with special needs is a major contributor to traffic congestion in Rotterdam. This situation can – and should – change. The transport needs of our clients often peak concurrently throughout the day. Daytime activities, schools, commuting to and from work, all these activities tend to have the same starting and ending times, resulting in peak hour congestion. Combining and spreading transport needs could help us to address this issue. Clients will also have a positive feeling about a fast and congestion-free transport experience. All partners in the chain will have to be on board if we are to fight traffic congestion effectively.

A green and healthy Rotterdam: We want to ensure that people can enjoy everything the city has to offer without being exposed to air and noise pollution. It is important for the municipal council to set a good example so private parties will also feel encouraged to do the right thing. So far our focus has primarily been on a cleaner fleet of municipal vehicles, installing charging stations for electric vehicles, and free audits and advice about vehicle fleet management for local businesses. However, the city also contributes substantially to traffic volumes due to the sheer volume of special needs transportation. We need a mobility solution that improves the liveability of Rotterdam and helps reduce transport providers' fuel consumption.

Value for money: Rotterdam City Council is determined to get the most out of each euro spent. We can only make this happen by being ambitious and challenging our partners and giving them the scope they need to work with the city and partners in the supply chain to provide sustainable and cost effective solutions.

Policy Frameworks

Barcelona

The Sustainable Urban Mobility Plan (SUMP)7 for Barcelona City Council provided the basis for the project and procurement. This plan contains operational SUMP objectives, which include mode share targets; for walking, a 10% increase is sought. Improving the accessibility of pedestrian crossings at road junctions (some 1,700 junctions are signal-controlled) is key to the implementation of this strategy and delivery of the target.

"We look to apply a range of tools available to us to cut transport emissions. These tools include leveraging technological change in vehicle types and fuelling, as well as behavioural change in terms of adapting consumer and commercial patterns of transportation, including encouraging modal shift from passenger cars to public transport."

Isabel Montane Mur, Coordinator of International Projects (Mobility Services), Barcelona City Council

Birmingham

In 2014 Birmingham's Green Commission outlined the ambition to build a leading green city and reduce total carbon emissions by 60% by 2027 (from 1990 levels). In order for the City Council to achieve this, it has developed Green Fleet Strategy recommendations devised to ensure Birmingham City Council has a zero cost strategy that provides for an exemplar sustainable Council fleet that is Safe, Environmentally Friendly, Efficient & Smart and meets the 60% carbon reduction targets by 2027 through ensuring:

"We have a duty of care to local citizens to seek to minimize pollutant and GHG emissions through our operational policies. We seek to translate this principle of responsibility into the policy and practices of our city for all aspects of service provision."

Jackie Homan, Sustainability and Science City Manager, Birmingham City Council

Rotterdam

Rotterdam City Council policy directives aim to create a lively, clean and healthy city. This clearly involves an incentive to improve air quality standards without compromising the health of citizens and our local environment. According to the Rotterdam Air Quality Plan 2014, there is an urgent need to reduce air pollution levels. It has been estimated that Rotterdam would need to ban more than 50% of all local traffic to cut down NO2 emissions to acceptable levels in 2015.

"Mobility is a key societal requirement for cities but this should not be at the expense of worsening health risks and environmental impacts. The requirement for low carbon low emission should form part of all mobility related tenders."

Léon Dijk, Advisor Responsible for Procurement, Rotterdam City Council

2.1.4 Alignment with the policy framework and embedding

One of the problems talked about in public sector procurement is the 'policy-procurement gap', i.e. the gap that sometimes exists between the policy aspirations of a public sector body and the procurement decisions that are made. Procurement is often treated as a purely financial and administrative task and so is not aligned with broader policy objectives (e.g. health, environment, transport)[11].

Embedding entails implanting the project within the organisation so that it becomes part of the forward plan and has senior management approvals for both the outcomes being targeted and the process being followed. This is critical to credibility of the market engagement stage.

In all the pilot projects, it was seen as essential that the procurement objectives were in line with agreed policy. In some cases the policy surrounding the subject of greening transport was still in development or being updated leading to delays in the project progressing.

The need for political engagement in green fleet policy and practice

At the first TRANSFORM Workshop in Rotterdam, Stockholm City Officials highlighted the importance of first developing and then maintaining a high level of political and cross-party support for green vehicle initiatives. The Stockholm officials built in regular (six-monthly) reviews of progress with associated publicity events that actively involved elected officials, providing them with regular updates as to the progress including hands-on ride and drive activities with the latest green vehicles added to the city and to supplier's fleets.

Pilot projects: Policy alignment and embedding in practice

Rotterdam City Council has the ambition to reduce total carbon emissions by 50% by 2025 as part of the Rotterdam Climate Initiative. The council is also serious about the reduction of traffic related air emissions that cause adverse health effects. One of the decisive factors in achieving this ambition will be the ability to build an efficient, effective and low carbon transport system. The council is in the process of greening its entire fleet and has put in place a forward plan for fuelling infrastructure to support this transition.

Other relevant policy objectives with which to align the social transport contract were identified including social return on investment, client involvement and supporting self-reliance.

In Barcelona, the appreciation of the need to address the challenge came directly from the Director of Mobility Services. This strong leadership gave the project traction across departments and mobilised stakeholders around a common objective.

In Birmingham, the Green Fleet Strategy (GFS) was to provide the focal point for embedding the project, giving clear targets for Birmingham City Council to reduce carbon and other emissions from its fleet. However, the GFS was still in consultation at the start of the project and its approval was further delayed as it became apparent that a strategy and plan for the roll out of an alternative fuel network was a pre-condition for the delivery of the GFS. The decision was therefore made to delay market consultation until these two key documents were in place.

"In order to present a credible demand to the market and to maintain buy-in from internal stakeholders we had to ensure that the all the relevant policies were in place before launching the market engagement"

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council

"The pilot project gave us the knowledge and incentive to propose changes to the GFS in support of innovation procurement and this helps us to bring those responsible for the procurement on board."

Jackie Homan, Sustainability and Science City Manager, Birmingham City Council

[11] Guidance for public authorities on Public Procurement of Innovation, Procurement of Innovation Platform https://www.innovation-procurement.org/

Making Use of Existing Networks

Existing networks provide a valuable communication tool, helping to engage a wider market and providing access to case examples and good practice.

Core Cities is a unique and united local authority voice in the UK to promote the role of cities in driving economic growth and the case for city devolution. It represents the councils of England's eight largest city economies outside London along with Glasgow and Cardiff.

These cities drive local, and underpin, national economies. Working in partnership, they aim to enable each City to enhance their economic performance and make them better places to live, work, visit and do business.

The **Clean Fleets** project assists public authorities and fleet operators with the implementation of the Clean Vehicles Directive and the procurement or leasing of clean and energy-efficient vehicles. The project aims to accelerate a broad market introduction of vehicles with higher energy and environmental standards and thereby reduce energy consumption, noise, CO_2 and pollutant emissions.

Polis is a network of European cities and regions cooperating for innovative transport solutions.

Climate-KIC is the EU's main climate innovation initiative.

FREVUE - Freight Electric Vehicles in Urban Europe. Towards zero emission deliveries on your doorstep

C40 cities. Cities are where the future happens first. The C40 Cities Climate Leadership Group, now in its 10th year, connects more than 75 of the world's greatest cities, representing 500+ million people and one quarter of the global economy. Created and led by cities, C40 is focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks, while increasing the health, wellbeing and economic opportunities of urban citizens.

Procurement of Innovation Platform: A European platform bringing together innovation procurement practitioners and providing resources and case studies to raise awareness of innovation procurement.

2.1.5 Signposting wider market demand

As discussed in the introductory section, the main risk for a supplier investing in developing and commercializing innovative goods and services is the issue of having developed a new offering, will customers buy it? Innovation procurement aims to reduce this risk by making visible a customer's unmet needs and presenting a clear and credible future demand in the form of an outcome-based requirement and forward commitment to buy solutions that deliver the outcomes.

Although the articulation of demand from one customer is helpful, an expression of a common demand from a number of customers presents a more attractive and convincing proposition to suppliers. This is particularly true of complex markets like transport with long product development cycles. For this reason, innovation procurement good practice recommends that, wherever possible, cities should come together to express common unmet needs.

The transport supply chain needs a strong and convincing argument to change or speed up their development cycles and suppliers bringing forward new solutions need a ready market to enable their alternative options to become a commercial reality before investment runs out.

A number of actions were taken within the Pilot Projects to help establish and demonstrate a wider market demand.

In the Birmingham project, other cities were contacted to assess the common need for Low Carbon Mini-buses. A number of them confirmed that they also had the same or similar requirement and some agreed to add their logo to the Market Sounding Prospectus and /or attended the Market Sounding Workshop as a demonstration of their support for a solution. In addition, the local facilitator utilised a range of intermediary organisations with links to both the supply side and demand side to support communication actions. These included the UK Office for Low Emission Vehicles (OLEV), the Energy Saving Trust and CENEX.

"Representing every city/region in Scotland, the Scottish Cities Alliance supports the manufacture of green transportation and minibuses are no exception and are very much a part of our low carbon objectives to ensure that Scotland is a greener, cleaner and healthier place to live"

Fiona Goodenough, Scottish Cities Alliance Hydrogen Project Officer, Scottish Cities Alliance

In Rotterdam and Barcelona good use was made of the Cities involvement in thematic networks and projects such as Polis, Clean Fleets and Frevue. Rotterdam City Council presented the TRANSFORM project and their pilot project at the FREVUE Sustainable Energy Policy Conference, 15-19 June 2015, Brussels.

Joint Statements of Demand for Zero Emission Urban Transport Solutions

TRANSFORM developed Joint Statements of Demand to demonstrate a common need for new solutions.

Joint Statements of Demand offer an aggregated means of communicating common unmet needs to the market in a way that demonstrates scale and replicability. Three such unmet needs have been identified:

1. Zero emission urban deliveries to city authorities (proposed by Rotterdam City Council)

2. Zero emission public transport in historical cities (proposed by the City Council of Avila)

3. Zero emission capable minibuses for social care transport (proposed by Birmingham City Council)

2.2 Market Engagement

About the market engagement stage

The market engagement phase is a ‘pre-procurement’ activity i.e. it takes place before a formal procurement procedure begins. Its purpose is to assess the appetite, capacity and capability of the market to respond to the customer’s requirements. It is never used to assess or evaluate suppliers.

Usually, the market engagement phase has two stages; a market sounding stage and a market consultation stage. The market sounding stage typically involves remote consultation with the market and the use of a response form where the respondent is asked questions regarding their reply to the expressed outcome requirement. The market consultation stage typically involves direct contact with potential suppliers in a workshop or event.

The feedback from the market-sounding phase enables the customer to assess the capacity, capability and willingness of the supply chain to deliver a solution based on the information it has provided. It also enables the supply chain to comment on the requirement that will contribute to the customers’ refinement of the requirement. Aligning customers’ needs and market capabilities is an important factor in the success of innovation procurement.

If alignment is necessary (public demand and market capabilities do not match), the project, approach or requirement may need to be refined before procurement begins.

Market engagement enables customers to get greater insights into the supplier perspective and understand the framework conditions for innovation. For example, information about regulatory and other barriers that suppliers may face.

Successful market engagement not only provides advance notice to suppliers of a customer’s needs, it also serves to break down barriers between customers and suppliers, and helps to determine the procurement strategy that is most likely to deliver the desired outcomes.

Typically, market engagement involves customers providing written communication to the market, launching the market engagement in a way that ensures all potential suppliers are aware of the opportunity, for example using a Prior Information Notice (PIN) and the physical engagement of suppliers in a workshop and / or meetings.

Market engagement is the opportunity for customers to demonstrate that they are serious, committed customers.

Some procurers may be concerned about preliminary market consultation based on the public procurement restrictions. However, the new EU Procurement Directive states that preliminary market consultations can be carried out provided that they do not distort any later competition. The Treaty principles of transparency and non-discrimination apply to preliminary market consultations[12].

[12] Guidance for public authorities on Public Procurement of Innovation, Procurement of Innovation Platform

Birmingham City Council

Birmingham City Council launched a market consultation through the publication of a Market Sounding Prospectus.

Barcelona City Council

Barcelona City Council published a Prior Information Notice to launch a market consultation and prepared a Market Sounding Prospectus.

http://ted.europa.eu/udl?uri=TED:NOTICE:107738-2015:TEXT:EN:HTML


Spain-Barcelona: Sound or visual signalling apparatus

2015/S 062-107738

Prior information notice

Supplies

Directive 2004/18/EC

Section I: Contracting authority

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E-mail: psim_secretaria_delegada@bcn.cat
Fax: +34 932915060
Internet address(es):
General address of the contracting authority: http://www.bcn.cat/perfildecontractant
Further information can be obtained from: The above mentioned contact point(s)

I.2) **Type of the contracting authority**
Regional or local authority

I.3) **Main activity**
Other: Local Administration: City of Barcelona

I.4) **Contract award on behalf of other contracting authorities**
The contracting authority is purchasing on behalf of other contracting authorities: no

Section II.B: Object of the contract (Supplies or services)

II.1) **Title attributed to the contract by the contracting authority:**
DoE Notice of Market Sounding Exercise / Invitation for ideas for an innovative pedestrian traffic signal crossing device.

II.2) **Type of contract and place of delivery or of performance**
Supplies
Barcelona (Spain).
NUTS code ES511

II.3) **Information on framework agreement**
The notice involves the establishment of a framework agreement: no

II.4) **Short description of nature and quantity or value of supplies or services:**
Barcelona City Council wishes to increase the safety and access of all pedestrians through the introduction of an innovative pedestrian crossing solution. In many towns and c
introduced that provide pedestrians with auditory and visual information on the time available to cross a road. These systems usually take the form of digital devices for comm
signal-controlled crossings via a "count down" of the seconds remaining for the pedestrian. Some systems (those showing green time for the pedestrian to cross) have been t
Barcelona where dynamic signal control does not operate, but the incompatibility with dynamic signal control is seen to be a fundamental barrier to a more generalized deploy


Innovatief, cliënt georiënteerd doelgroepenvervoer met verbetering van de bereikbaarheid leefbaarheid en veiligheid

Meedenken, meedelen en meebewegen

"Rotterdam moet sterker, veiliger, levendiger en gezelliger. Rotterdam staat er, met zijn wereldhaven, economisch goed voor. Maar ondanks het voorzichtige economisch herstel staan we voor enorme uitdagingen. Om die uitdagingen de komende jaren aan te gaan en de kansen te benutten, is lef, daadkracht en een open vizier nodig. We moeten het gaspedaal intrappen en samen dingen uitproberen. Rotterdam is een stad voor stoere mensen. Voor de komende vier jaar hebben we de Rotterdamse branie nodig."

Uit het coalitieakoord Gemeente Rotterdam 2014 - 2018.

Rotterdam

Doelgroepenvervoer

Voor wie en waarom

Voor inwoners van Rotterdam voor wie het niet mogelijk is om zich met eigen of openbaar vervoer te verplaatsen heeft de Gemeente Rotterdam diverse voorzieningen getroffen. Het vervoeren van deze inwoners is belangrijk om hen te laten participeren in de samenleving. Momenteel heeft de gemeente de volgende voorzieningen. De voorzieningen kosten € 34 miljoen per jaar en betreffen ongeveer 16.000 inwoners.

Vervoor op Maat

Vervoer op Maat is een collectief systeem van aangepaste busjes dat gehandicapten en mensen van 75 jaar en ouder van deur tot deur brengt.

Leerlingenvervoer

Voor kinderen die vanwege een ziekte, handicap of gedragsprobleem niet zelfstandig naar school kunnen.

WsW Vervoor

Vervoer voor inwoners met een lichamelijke, psychische of verstandelijke handicap die vaak moeilijk een baan kunnen vinden. Voor deze doelgroep gaat het om woon/werkverkeer van en naar de werkplaatsen.

Vervoor naar een locatie voor dagbesteding

Voor inwoners welke een indicatie voor een dagbesteding hebben gekregen en vanwege een medische beperking niet in staat zijn zelf het vervoer te regelen.

Vervoor Participatiewet

Gemeente Rotterdam wordt verantwoordelijk voor vervoersbewegingen volgend uit deze wet. Momenteel is nog niet duidelijk om welk type welk soort vervoer het gaat.

Rotterdam City Council

Rotterdam City Council presented its unmet need at a national event and advertised through the publication of a market communication leaflet.

Market engagement in practice

Once the Cities had identified and defined a credible market demand message, they prepared to present this message to the market. The credibility of the demand was seen as a critical pre-condition for progression to the market engagement stage.

Credibility derives from a thorough identification process that ensures that the requirement is in line with policy, has the full support and engagement of stakeholders and the backing of senior managers and political leaders.

Market engagement tools used in the pilot projects included:

- Prior Information Notice
- Market Sounding Prospectus
- Market Consultation Questionnaire or Response Form
- Market Communication Leaflet
- Market Workshops

2.2.1 Market Sounding

Market sounding is the process of assessing the reaction of the market to a proposed requirement and should begin at the earliest possible stage in the procurement process. It focuses on suppliers as a whole, rather than the merits of individual suppliers. At no point does it involve supplier selection or evaluation. The manner in which the market sounding is carried out is particularly important in FCP projects. The process needs to support the development of trust and credibility with the supply chain. It is vital to ensure that the market sounding process remains open and that the suppliers involved are treated with fairness and equality. All possible efforts should be made to preserve a 'level playing field' and the process should be formally documented.

Each of the pilot projects produced a market sounding document setting out the unmet need, requirement and context of the forthcoming procurement and invited the supply chain to respond.

"The aim was to assess the appetite, capacity and capability of the market to respond to the outcome based requirement and uncover the barriers and pre-conditions for a solution to be delivered."

Gaynor Whyles, TRANSFORM Coordination Team

What information is typically included in a Market Sounding Prospectus?

- **Why you are conducting market sounding and what it aims to achieve**
- **How suppliers can participate**
- **The outcome based requirement.**
- **The context and drivers**
- **The wider market opportunity.**
- **The market engagement and procurement schedule**

Pilot projects

All three of the pilot projects invited potential suppliers and other stakeholders to Market Consultation Workshops.

Market consultation events enable you to:

- Develop the dialogue with the supply chain
- Identify any perceived barriers
- Involve other stakeholders and buyers
- Understand the range of views present in the supply chain
- Provide a forum for supplier networking and cross fertilization

The Director of Mobility Services of Barcelona City Council presented the Council's requirement at the Market Consultation Workshop.

A market engagement workshop brought together customers and suppliers to discuss the requirement for Low Carbon Mini-buses.

"The FCP Market Sounding framework is a key methodology within innovation procurement practice."

Sylvia Broadley, Green Fleet change Manager, Birmingham City Council

Rotterdam City Council and the Dutch Ministry of Economic Affairs organised a national event about public procurement of innovation and mobility in the Rotterdam World Trade Centre on the 25th of November. The event hosted several presentations on innovation procurement, zero emission distribution and innovative mobility solutions and provided a forum to initiate market consultation regarding the social transport requirements of Rotterdam City Council.

Market sounding in practice

Barcelona City Council published a Prior Information Notice in the Official Journal of the European Union (OJEU) to announce its unmet need and launch a period of market engagement. It provided a response form for suppliers to complete, this enabled responses to be standardised and feedback sought on particular aspects of the procurement.

Birmingham City Council developed a Market Sounding Prospectus that set out the policy context and detailed the requirements needed for a low carbon mini-bus for Adult and Community services.

"In Birmingham, we identified an unmet market need for 'green' minibuses for the Council's Adults & Communities department. We found others had the same need. Our approach was to prepare a Market Sounding Prospectus (MSP) to advertise our demand for a low carbon, zero emission mini-bus. The MSP was launched on the 6th July 2015 at a workshop involving a broad range of relevant stakeholders, including vehicle manufacturers, public and private sector service providers of mini bus transport for both Adults & Communities and Home to School transport. Other important invitees included leasing companies, as well as Local Authority fleet managers, procurement and commissioning personnel."

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council.

Rotterdam City Council published a market consultation questionnaire on TenderNed on 18 July 2014 to ask the supply chain their views on the different options that are, or could be available, in particular the feasibility of zero emission transport services and the shift to a single contract.

2.2.2 Market Consultation

Workshops and Meetings

The market sounding exercise is carried out remotely with little if any direct contact with the supply chain. Although it provides a wealth of valuable information it is often not comprehensive. In addition new issues and questions are often brought into focus and need to be explored in more detail before you can decide on the most effective procurement approach.

Market consultation events provide an opportunity to explore the requirement, timeframes and options with the supply chain and stakeholders in more detail. It also gives the supply chain an opportunity to give you valuable information on the practicalities of delivering a solution and potential barriers so that an effective procurement strategy can be developed.

"A market consultation workshop involving a cross section of the supply chain, stakeholders and other potential customers provides a forum to explain what you are looking for and why. It also gives an opportunity for the supply chain to ask questions and get a better understanding of your needs. These workshops also facilitate networking among suppliers."

Jackie Homan, Sustainability and Science City Manager, Birmingham City Council.

Market consultation events in practice

Barcelona City Council used the workshop to launch the Market Sounding Prospectus and invite suppliers and stakeholders to send back written responses to key questions posed in a Market Sounding Response Form.

The workshop was an opportunity for suppliers from all parts of the supply chain to find out more about the Council's initiative, the requirements, and to contribute to discussions regarding the finalisation of the specification and the procurement strategy.

"We were unsure how a market engagement workshop would operate but we were surprised and delighted at the level of interest of the supply chain and the engagement of neighbouring Cities and our City partners"

Teresa Ossio Bustillos, Resource Management, Administrative Management of TRANSFORM, Barcelona City Council

Pilot projects

Towards Customer Centered Social Transport Services

A need to adjust the market and tender strategy was identified through the market engagement process in Rotterdam.

Following the Market Engagement event and follow up discussions with suppliers, it emerged that the pre-existing market conditions were not conducive to an open market engagement. There had been a break down in trust between the suppliers and customers of social transport provision. This meant that the Council found it difficult to convince the supply chain that it was serious in its intention to bring about a step-change in social transport provision.

The new approach to social transport is a radical deviation from the normal model, moving from a logistical, vehicle based, and cost based approach to a more sophisticated care-based model that addressed first and foremost the real needs of the end-user, while minimising emission and moving to zero carbon, encouraging SME involvement and providing wider social benefits such as the employment of the long-term unemployed. Although there are savings targets to be made through the contract there will also be a requirement for progressive improvements in service, positive social impact and carbon.

"An important lesson we will take from the market engagement process was that we needed to maintain our high level of ambition and expectations that the supply chain would respond creatively but at the same time respect the need to listen to the feedback from suppliers regarding the need for in-tender dialogue."

Léon Dijk, Advisor Responsible for Procurement,
Rotterdam City Council

Towards Zero Emission Social Transport Services in Rotterdam

The market engagement process led to the following conclusions regarding the transition to zero emission social transport.

- For this type of transportation service (9 persons minivans and wheel chair buses) no electric vehicle alternatives are available on the market at present. In addition, due to a short range of electric-only vehicles, these fleets need a developed infrastructure of charging stations.
- A critical success factor for the implementation of zero emission transportation for social transport is the availability of zero-emission vehicles. Because these vehicles are owned by the taxi companies that deliver the service, they fully bear the cost and risks. Existing examples (e.g. in Amsterdam) of electric vehicle minivans that are already available on the market showed that additional funding is still needed to create a business case for taxi companies.
- Apart from zero emission vehicles, short term benefits can be obtained by the use of sophisticated logistical planning systems that reduce the kilometres driven and support the optimisation of the use of accessible zero emission public transport options.
- Ride sharing could also lead to lower emissions and lower costs; however the possibilities are limited as the client categories have diverging characteristics and needs.
- Key challenges in the development and implementation of zero-emission targets in contracted social transportation require interdisciplinary (political) support. In the Rotterdam City Council case, the transportation is financed by health care funds that are dedicated to client satisfaction without any additional budget to reach zero-emission ambitions.

Birmingham City Council held a market consultation event to bring together suppliers of mini-buses, technology providers with internal stakeholder and a wider group of customers from other UK Cities.

"Involving other customers demonstrated to the suppliers attending the event that Birmingham City Council was not alone and that there was a wider demand for Low carbon Mini-buses"

Sylvia Broadley, Green Fleet Change Manager,
Birmingham City Council

Rotterdam City Council held an initial 'sounding' workshop at a national event about Innovation Procurement in Transport in November 2014. A market information leaflet was prepared in advance of the national workshop. The leaflet set out both the opportunity and the requirements to the supply chain, explaining the innovation procurement approach and highlighting the requirements for low carbon zero emissions and putting the client back to the centre of services.

"The key message presented to suppliers in the workshop was that Rotterdam City Council needed to 'put its foot on the accelerator' to bring about a TRANSFORM ation of mobility in the City, to improve mobility for citizens and significantly improve air quality."

Léon Dijk, Advisor Responsible for Procurement,
Rotterdam City Council

At the event "mobility and innovation procurement" on 25 November, Rotterdam City Council organized a leader led workshop on 'Innovative, customer-focused special needs transportation services with improvements in accessibility, quality of life and safety'.

Although the taxi sector has a reputation for a reluctance to innovate and a negative attitude towards public procurement in general, during the workshop they showed interest and openness in the innovation orientated approach presented by Rotterdam and expressed a willingness to get involved in new ways of facilitating social transport. They welcomed the focus on communicating what was needed (i.e. outcomes), instead of prescribing solutions. This was seen as a considerable breakthrough and an indication of the importance of dialogue with the supply chain.

Having reflected on the outcomes of the initial dialogue, the project team organised a second phase of market meetings in May 2015. The purpose of these meetings was to inform the market about the upcoming tender strategy and competitive dialogue and to determine if there was any market resistance to the procurement approach and ensure that the market was engaged and accepting of the new strategy. The market response was very positive and encouraging and informed by the outcomes of these talks the procurement strategy was further developed.

"By the end of several rounds of market engagement, both supplier and customer had a much better understanding of each other's position, creating a positive environment to progress to the procurement stage."

Jeroen Veenendaal, Procurement Manager: Integrated User Centred Social Transport, Rotterdam City Council

Towards an Accessible Pedestrian Crossing Solution (PCS) in Barcelona

Key messages from the market engagement process regarding the technology included:

- Appropriate countdown solutions for fixed-time signal plans are available that have far-side kerb displays
- No clear evidence of a promising solution using analogue displays with added value
- There is a lack of EU and national standards
- There is a need for local re-configuration of clearance times
- PCS solutions induce traffic (especially two-wheelers) to initiate early starts
- There are clear concerns as to how PCS will work with junctions operating under dynamic control but signals engineering options could deliver workable solutions
- Multi-media Integration solutions could be a valuable mechanism to help crossing solutions meet the varied needs and access issues of pedestrians.

In conclusion, there is a strong case for undertaking a trial aimed at integrating the pedestrian crossing solution technology at some of the junctions in Barcelona that operate under fixed-time signal plans. Traffic engineering work will be required in order to select appropriate pilot sites and to prepare signal plans that would present pedestrians with improved crossing information. A countdown pilot would feature as a complementary signal to the intermittent green man that is currently used to communicate the clearance phase in Spain. Within the trial, research would be conducted to assess the acceptability and comprehension to end users.

Towards Low Carbon Mini-Buses for Adult and Community Services in Birmingham

The key learning points that can be drawn from the market engagement process:

- It is technically feasible to introduce lower emissions minibuses now to cities such as Birmingham, especially if more mature technologies such as gas are considered. The issues are mainly commercial in creating viability for importing or adapting existing European vehicles, or for pilot projects. This can be further investigated but also critically align with development work to establish relevant low/zero emission re-fuelling infrastructure
- Currently the scale of the 100,000 minibus market is not sufficient to command the major investment required for early production ahead of EU legislative changes of 2040
- However, by co-coordinating effort across different stakeholders, customer organisations can demonstrate to converters and manufacturers that there is an unmet market need and potentially overcome the commercial viability barrier
- Public Services/Local Authorities can remove barriers by developing flexible but consistent specifications for vehicles and Low Emission Zones and common or shared purchasing/procurement systems and adopting longer term contracts.

To enable the market for Low Carbon Mini-buses, cities need to:

- Review and change procurement policies and systems now to allow and enable adoption of local exhaust ventilation (LEV) minibuses by 2017
- Start discussions with providers of services and vehicles regarding potential pilot projects in the near-term
- Work with compressed natural gas (CNG) and other low/zero carbon re-fuelling industries to establish relevant re-fuelling infrastructure to support demand and supply side needs
- Work with other UK Cities (e.g. utilising Core Cities Network) on consistent and common vehicle and low emission zone (LEZ) definitions
- Commit to developing the wider market by engaging other partners regionally (such as healthcare providers, van users) to co-ordinate effort and scale up market demand
- Work with national agencies such as the Energy Savings Trust to communicate customer needs to Central Government and enable proactive engagement with them to create the necessary policy and funding support.

2.3 Pro-innovation Procurement

Much of the work of innovation procurement is undertaken before the formal procurement process gets underway. Having worked to create the conditions for innovation in the customer organisation and supply chain, the procurement process needs to be orientated in its approach to support and enable innovative solutions to be presented and given due consideration.

Pro-innovation procurement plans are a recommended part of innovation procurement good practice. They provide a valuable framework to bring together internal stakeholders around common objectives and address any divergences of opinion before the formal procurement process begins.
Typical features of a pro-innovation procurement strategy include:

- **Outcome based / functional specification**
- **Pro-innovation specifications**
- **Competitive dialogue**
- **Emphasis on innovation maintained**
  e.g. In the Pre-qualification Questionnaire (PQQ)
- **Demanding and committed customers**
- **Forward commitment**
- **Balanced evaluation criteria**
- **Whole-life costing / total cost of ownership**
- **Stimulating wider demand**

The pilot projects were all at the stage of developing their forward plans as the TRANSFORM project concluded in September 2015. In the case of Rotterdam City Council a tender will be launched in September 2015 following the formal approval of a Strategic Plan.

At the end of the project each of the City Councils are well placed to pursue the outcomes they need and have developed forward plans and strategies to implement the procurement phase in a way that supports and enables innovation in the supply chain.

The forward plans will consider how to proceed with the procurement in a way that supports and enables innovation and further engages stakeholders in pursing innovative solutions and progressive improvements.

Strategic Planning for an innovative Customer Orientated Low Emission Social Transport Solution in Rotterdam

The strategic plan was developed following a thorough preparation phase. The plan created a solid basis for the project team to proceed to the procurement with confirmed backing of the Council and senior managers.

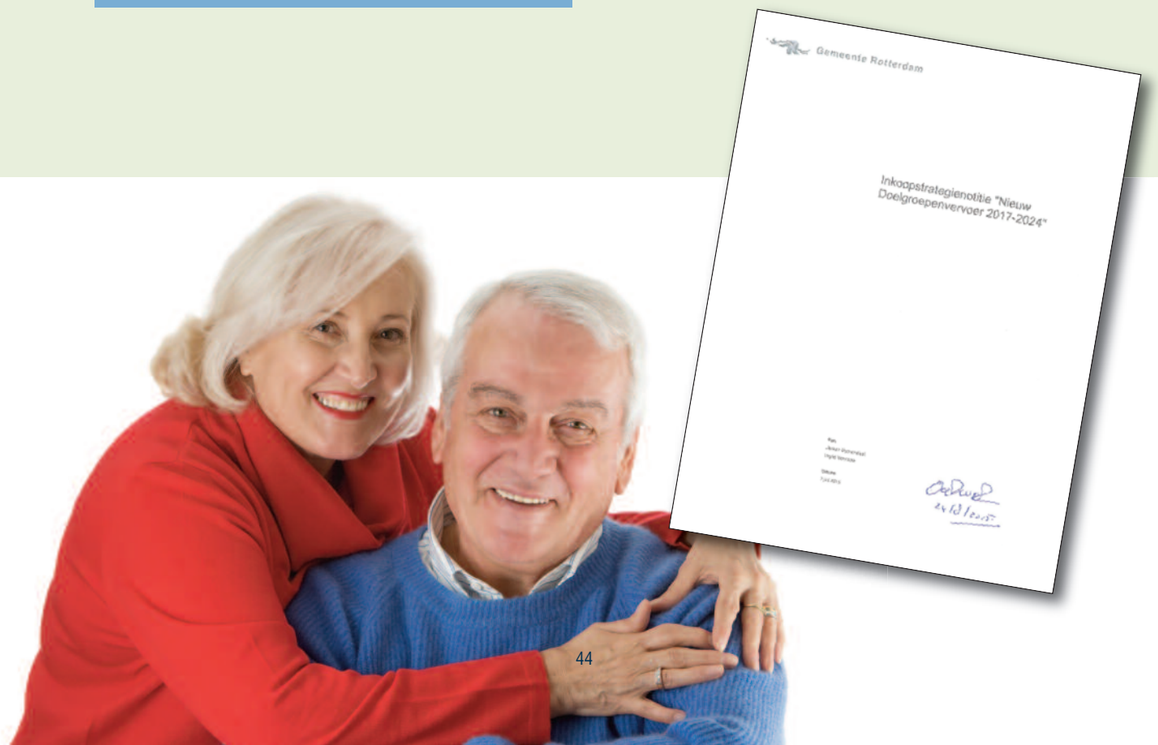
The outcome of the innovation procurement process is reflected in the strategic plan: a radical TRANSFORM action in the nature of the tendering and award criteria allowing space for supplier innovation and in support of social and 'towards zero emission' outcomes.

The key features of the defined procurement strategy for Customer Orientated Low Emission Social Transport Solution:

- **Use of the Competitive Dialogue procedure.**
- **Outcome based specification.**
- **Non-cost based award criteria, with the award criteria being:**
  1. **Client satisfaction**
  2. **Zero Emissions**
  3. **Social Return**
  4. **Added value to social support programs for self-reliance**
- **Due to cost savings throughout the Rotterdam City Council, social transport has to work out a strategy where budgets are being controlled and reduced over time.**

"One key element of the strategic plan is the outcome-based specification. Following the internal and external engagement, the tender will not be based simply on the legal obligation to provide special needs transportation. The end-user clients and their wishes are crucial to the acceptability and success of the provided service and will therefore be the main focus in the tender together with the need to progressively reduce carbon and other harmful emissions."

Arjan Meurs, Programme Manager for Transportation of People with Disabilities, Rotterdam City Council



Forward planning in practice

In Rotterdam, following the market engagement and stakeholder engagement actions, a strategic plan was developed. This was an important step as it confirmed through a formal document the new approach to social transport provision, the use of pro-innovation procurement actions and had the agreement from all stakeholders.

"The new approach to procurement inspired stakeholders to define additional outcomes related to quality of service, end user experience, cost effectiveness, reducing carbon and other harmful tailpipe emissions, and in support of wider policy objectives such as accessibility of public transport and Social Return on Investment."

Léon Dijk, Advisor Responsible for Procurement, Rotterdam City Council

"As a result of the thorough preparation of this tender, the full engagement of internal stakeholder and the open market engagement process we have high expectations that this tender will result in a step-change in the delivery of social transport and a model that can be adopted by other cities"

Jeroen Veenendaal, Procurement Manager: Integrated User Centred Social Transport, Rotterdam City Council

The tender will be opened in September 2015 and the Competitive Dialogue Procedure will be used to facilitate a constructive dialogue and support the development of innovative solutions.

Following the findings of the market engagement process the tendering process will be adapted to enable a period of in-tender pro-active market communication. This is seen as critical in order to demonstrate customer commitment to achieving the outcomes and establishing a new type of relationship with suppliers.

In September, October and November three market engagement meetings will be organised, within the pre selection phase of the tender.

The topics of the meetings will be:

1. Putting back the client in the center of service
2. Connecting through social transport (e.g. zero emissions)
3. Innovation as a bridge

"Following the market engagement we were clear that we would have a better chance of stimulating and engaging the supply chain within a dialogue based tender approach as this demonstrated the commitment of the Council to the new approach and delivering the outcomes."

Arjan Meurs, Programme Manager for Transportation of People with Disabilities, Rotterdam City Council

"As this is a new contract structure with wider scope it will need suppliers to come together and build consortia to provide a solution. We would like to see consortia forming where SMEs have a key supply role. The pro-active communication actions will ensure that suppliers have a clear understanding of the Councils needs and understand the new approach before the Competitive Dialogue gets underway.'

Jeroen Veenendaal, Procurement Manager: Integrated User Centred Social Transport, Rotterdam City Council

Innovation procurement created the conditions for innovation in Birmingham

In Birmingham as a result of the innovation procurement process and learning from TRANSFORM, the following forward actions have been agreed:

- Determine service level requirements and engage stakeholders in transition to low/zero carbon transport
  - o Engage with service-specific stakeholders such as Fleet Managers and their staff to identify service specific needs and fleet requirements and determine low /zero carbon re-fuelling infrastructure needs and downsizing, disposals and replacement options, green vehicle procurement and costs efficiencies through total cost of ownership models
- Fuelling infrastructure as a condition for transition
  - o Support the transition to low emission vehicles by development of low/zero carbon re-fuelling infrastructure, including working with low/zero carbon re-fuelling industries to establish an infrastructure to meet emerging needs
- Adoption of Innovation Procurement Approaches
- Collaborate closely with Procurement Services and Transportation Policy teams to adopt progressive standards and specifications for vehicles in alignment with the implementation of low emission zones
- Adopt Market Sounding as a key methodology within procurement innovation practice to also support the development of procurement contract specifications for vehicle leasing/feet service delivery with longer term contracts, building in flexibility and progressive standards into procurement policy for developing specification to address what is available now and what could be available in next 15 years
- Pursue proactively measures to bring low emission vehicle mini-buses to the market
  - o Specifically review and change procurement systems now to allow and enable adoption of LEV minibuses by 2017, by working collaboratively with vehicle OEMS and supply chain companies in demonstrator and piloting projects assisted through UK and EU funding, to fast track low/zero emission vehicles ahead of 2040 EU regulation, enabling low/zero emission vehicles to be market ready and available within the next 2-5 years
- Create wider market demand for low emission zone mini-buses
  - o Work with other UK Cities (for example via the Core Cities Network) on consistent and common vehicle and low emission definitions
  - o Exploit the Council's wider sphere of influence by engaging local partners such as the health services who have a common need for accessible mini-buses and LEV Vans to co-ordinate effort and build market demand
- Communicate findings of TRANSFROM Pilot and promote wider adoption of market engagement
  - o Work with national agencies such as Energy Savings Trust to communicate the benefits and results of innovation procurement practices such as Market Sounding events/analysis to Central Government and seek the necessary policy and funding programme support

"We are using the momentum of the market engagement event to kick start a transition and bring about early wins with the alternative refuelling infrastructure development."

Sylvia Broadley, Green Fleet Change Manager,
Birmingham City Council

Creating a framework for solving an unmet need through innovation procurement in Barcelona

In Barcelona, the forward plan will involve inviting suppliers to equip the selected junctions with signal head and controller equipment so as to realise "countdown" according to the crossing signal sequence and junction crossings identified, as explained below.

Signal Crossing Sequence

The signal crossing phases that comprise the first scheme contemplate "countdown" for:

- Green Man: cross
- Flashing Green Man: clearance.

Note: unlike Terrassa, the Red Man time is NOT "counted down", but the clearance phase (Flashing green man) IS counted down.

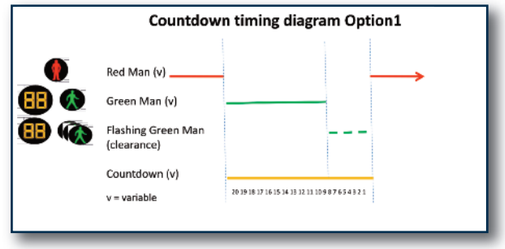


FIGURE 5: Countdown timing Option 1

Junction Crossings Identified

Four sites have been selected. The sites include two that were proposed by Les Corts District (which prompted earlier demonstration of some limitations with PCS technology), plus additional sites where bus priority is regulated (Via Augusta - Bonanova) and where trials have been made of technology that gives acoustic solution assisting blind people to cross (Llansa - Sepulveda).

Suppliers will be invited to show how their pilot solution can be interfaced within Barcelona's existing traffic signal operational framework (in terms of data communication to and storage at the Control Centre (at Pi I Sunyer, 8-10) and in terms of existing signal maintenance requirements).

The pilots will be realized in 2016 at the selected 4 sites (Figure 5 and 6) for at least 3 months, with an assessment activity able to demonstrate: level of user acceptance, levels of pedestrian / vehicle conflict (particularly any loss of bus priority).

It is an objective of the Forward Plan to confirm that this approach can be undertaken within the limits of standard contracting procedures. Cost estimates will be developed with the signal manufacturer that participated in the market-sounding exercise.

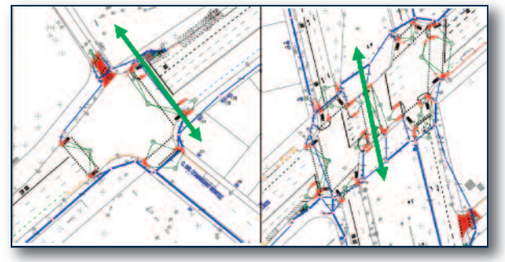


FIGURE 6: Junctions selected from Les Corts and Eixample Districts

Evaluation Criteria

Received proposals will be assessed on the basis of "value-for-money". Costs of supplying PCS should be disaggregated by junction (so that the Municipality can choose to equip a sub-set of the proposed 4 sites. Cost will represent up to 50% of the award criteria.

30% of the evaluation points awarded will be associated with the degree to which a supplier shows how data will be collected and analysed with regard to the generating knowledge regarding the trial assessment (described above).

A further 10% will be assigned with regard to the way the proposal addresses the possibility of a later trial implementation of the sequence which cannot be trialed under existing national regulations. Suppliers are invited to articulate possible ways trailing this signal sequence.

A further 10% will be assigned based on the quality of the references that the Supplier is able to provide regarding PCS systems installed / being installed in other cities / countries.

"Without TRANSFORM, a key technology for improving pedestrian crossings (countdown displays) would have remained side-lined since it was deemed incompatible with other actions such as bus priority at dynamically-controlled junctions and requires a major review of crossing clearance policy. TRANSFORM has helped to confirm that this technology will be of central importance in facilitating pedestrians' crossing at signals, and has articulated an appropriate approach for an initial deployment."

Roberto Rios, Traffic Signals Manager, Barcelona City Council

3. Concluding and Closing Remarks

In each of the three cities the pilot projects have provided a valuable learning experience for innovation procurement methods, which were largely unfamiliar and in most cases completely novel to the stakeholders involved. This lack of prior experience meant that the activation energy for the projects was considerable. Adopting innovation procurement processes within an organisation requires new organisational processes and the capability to manage them,[13] which can be challenging. Transport and mobility related procurements are particularly difficult to influence as they are considered high risk, have a low tolerance of technical failure, usually involve large budgets and often have a high political profile. It is perhaps therefore not surprising that the local facilitators reported a number of barriers that needed to be overcome over the duration of the project:

- A reluctance to adopt new procurement approaches
- A nervousness in stepping away from detailed specifications
- Concern that the process would lead to higher costs and a failure to deliver a solution
- Limited time and staff resource
- Political cycles and elections brought uncertainly to procurement budgets and policy priorities
- Lack of familiarity and staff know-how in the strategic use of procurement to drive innovation
- Over reliance on the motivation and commitment of certain individuals to drive projects forward
- Innovation in mobility projects is perceived as high risk

Despite these barriers encountered all the projects made good progress in adopting innovation procurement practices and applying them in practice. The FCP method proved to be a practical tool for introducing innovation procurement, with the incremental FCP framework providing a series of discrete and practical steps. In each of the pilot projects changes to ‘standard’ procurement processes were brought about that increased the potential for innovation.

The pilots identified a number of adjustments to the procurement process that City Councils can make in-order to support and encourage innovation in pursuit of better, greener outcomes in transport and mobility related projects:

- Provide long-term consistent messages to the market backed up by policy and leadership commitment that are consistent with the procurement decisions that are made
- Involve stakeholders in examining the current situation and determining the outcomes that are needed and enrolling them in the adoption of new technology. This ensures that the new solutions meets the needs of stakeholders and that they have ownership of the process and new solutions
- Dare to be ambitious in what is asked of the supply chain, focusing on what needs to be delivered, not what is considered possible or affordable
- Don’t limit specifications to technology or solutions that are currently available, challenge to supply chain to deliver new solutions
- Communicate what is needed in terms of outcomes rather than detailed specifications allowing room for supply chain innovation
- Demonstrate a credible commitment to a direction of travel for the adoption of low carbon, zero emission, clean transport for clean Cities
- Undertake early and ongoing engagement with the market making clear the outcomes you need to be delivered and by when

[13] Valovirta, V (2015) Building Capability for Public Procurement of Innovation

- Set out the progressive improvements that are needed in emissions over time to allow suppliers time to respond and make adjustments to their development route maps
- Collaborate with other Cities to send strong signals of demand for common requirements to the market
- Create baseline conditions for innovation procurement in the organisation. For example by incorporating innovation procurement as a strategy within transport and fleet policies; raising awareness of innovation procurement methods; and providing training in innovation procurement
- Understand the suppliers' perspective. To be successful in using procurement to support and drive innovation in the transport supply chain requires an understanding of the suppliers' perspective and communicating with suppliers in a way that demonstrates a serious and credible demand
- Start early. It takes time to engage stakeholders, determine the unmet needs and required outcomes and to embed the project in the organisation. It takes time for suppliers to develop innovative solutions and make adjustments to their business and investment plans and adapt to delivering new requirements
- The orientation of procurement practices towards innovation needs organisations to change their internal processes, thinking and behaviours. Organisational change takes time and requires commitment throughout the organisation

Findings from the pilots and wider project activities in TRANSFORM, suggest that innovation procurement, although an important and useful tool is largely under-used. Therefore, to realise its full potential in this sector it needs to be supported by a wider suite of demand side measures in support of low carbon, zero emissions transport in cities. For example, progressive European and national regulations, the introduction of low emission zones, the use of tender regulations requiring low emissions and adoption of local regulations all have important roles to play, and grant support will remain important in reducing the risk of new technology adoption.

"The development cycle for innovative transport solutions takes many years and considerable investment. Customers need to present a convincing and credible market demand to influence this marketplace and work in partnership to co-create solutions through pilots and commitment to early adoption."

Teresa Ossio Bustillos, Resource Management, Administrative Management of TRANSFORM, Barcelona City Council

"One of the clear messages from the OEMs[14] is that they need a strong and convincing argument to change or speed up their development cycles. Similarly, SMEs bringing forward new solutions need a ready market for their solutions to enable them to become a commercial reality before investment runs out."

Sylvia Broadley, Green Fleet Change Manager, Birmingham City Council

"When it comes to public procurement, it would not be surprising for suppliers to believe that procurers are only interested in driving costs down rather than on seeking green outcomes and that they are risk adverse when it come to the introduction of new technology. It is really important to try to avoid reverting to standard public procurement documentation and language when seeking to generate supplier interest."

Léon Dijk, Advisor Responsible for Procurement, Rotterdam City Council

[14] Original equipment manufacturer

Glossary

Term	Definition
Compressed natural gas (CNG)	CNG is natural gas under pressure which remains clear, odourless, and non-corrosive
Electric vehicle	(EV) An EV uses one or more electric motors or traction motors for propulsion
Forward Commitment Procurement (FCP)	This is an innovation procurement methodology which consists of three stages: dentification, market engagement and procurement
Innovation	Innovation is the process of translating technology and knowledge into new usable products and services
Innovation Procurement	Undertaking procurement in a way that stimulates the supply chain to invest in developing new goods, works and services that meet the unmet needs of the organisation and have progressively lower transport emissions
Low carbon/low emission	Refers to minimal output of greenhouse gas emission from e.g. vehicles
Low emission zone (LEZ)	LEZ is a traffic pollution charge scheme with the aim of reducing the tailpipe emissions of diesel-powered commercial vehicles
Original equipment manufacturer (OEM).	OEM is a term used when one company makes a part or subsystem that is used in another company's end product. In the context of transport, OEM relates to car manufacturers.
Pre Commercial Procurement (PCP)	PCP is an approach within the public procurement of innovation, developed specifically for the procurement of R&D services rather than actual goods and services[15]
Public Procurement	Refers to the procurement of goods and services on behalf of a public authority
Public Procurement of Innovation (PPI)	PPI occurs when public authorities act as a launch customer for innovative goods or services
Total cost of ownership (TCO)	TCO is a financial estimate intended to help buyers and owners determine the direct and indirect costs of a product or system

[15] http://www.innovation-procurement.org/about-ppi/

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Further information

TRANSFORM has produced a number of reports and launched a number of initiatives.

All of these are available to view on the project website:
http://www.transform-europe.eu/