SPICE: Best Practices

New approaches to public procurement of innovative transport and mobility solutions within the city environment

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SPICE is a project, funded by the European Commission, that supports public authorities in Europe in their procurement of innovative mobility solutions within the city environment.

SPICE focuses on procurement in three main topic areas:

- Alternatively Fuelled Vehicles and Infrastructure,
- Intelligent Transport Systems and Services (ITS),
- Mobility Services (including Mobility as a Service – MaaS).

Why is there a need for a new approach to procurement?

Nowadays, a change is needed both with respect to investment priorities, as well as the way that procurement is approached.

The rise of innovative solutions comes from all the complex user requirements for sustainability, scalability and replicability of transport solutions, as well as from the ever-increasing demand for mobility.

Since there is rarely an off-the-shelf solution that could address all these requirements, procurement methods need to be redefined. New approaches are needed in order to facilitate the procurement of services, to foster cooperation between authorities, public and private parties and among transport modes, as well as to trigger innovation in general.

How can SPICE help?

By describing a wide range of approaches to procurement of innovation, including cases and recommendations, and by focusing on trends in procurement processes, SPICE intends to help and inspire public procurers, project and contract managers, and other procurement practitioners to move towards novel procurement methods.

SPICE asks: How can cities obtain innovative mobility solutions by applying new procurement approaches?
Procurement of Innovation VS Procurement of R&D

Procurement of Research and Development (R&D) is often exempted from the scope of the European procurement directives while procurement of innovation (PPI) has to comply with the complex procedures outlined in the directives, provided that the value of the contracts exceeds the thresholds set out in the directives (procurement directive, utilities directive etc.) for tendering the contracts.

The difference between the two categories is visualised below:

In this brochure, SPICE provides insights into the main findings of the project, based on the data collected and analysed throughout its course.
Even though procurement of innovation may be supported by any procurement procedure available in the procurement directives (open or restricted procedure, competitive dialogue, competitive procedure with negotiation, innovation partnership or design contest), the dialogue-based procedures (the last 4 out of 6) are indisputably the most suitable procedures for procuring innovative solutions of certain complexity. The results of market consultations or knowledge of the maturity level of existing solutions will typically constitute guidelines on whether a dialogue-based procedure is recommended.

The SPICE project uses the term procurement approaches to signify the range of approaches or tools one may use in any tender procedure in order to optimise the procurement of innovative solutions. Examples of such approaches are: market consultation, functionally based (open) specifications, joint procurement actions and the use of innovative characteristics as award criteria.

The SPICE project uses the term contractual approaches as a term for the contract models or contract terms one may use to either optimise innovation during the contract term or to ensure that new solutions can actually fulfil the needs of the procuring authority.
When planning the introduction of new services in cities, the possibilities of tendering concessions vs. tendering conventional procurement contracts should be considered. Concession contracts may contain strong elements of innovation whereas the conditions for classifying contracts as concessions are strict.

More information will be available soon in the SPICE report “Analysis and Recommendations”, including:

- In-depth analysis of the choice between competitive dialogue and innovation partnership;
- In-depth analysis on the use of the three key procurement approaches – market consultation, open specifications, and innovative characteristics;
- Recommendations on the use of different contract models and terms;
- A description of different test sets to be applied to different contract set-ups.

Please visit the SPICE library for more information:

Catalogue of Best Practices

Best Practices in Common Procurements

SPICE Library
Why Not Consider Cooperating with Other Public Authorities?

Within the context of the SPICE project, the term common procurement includes joint procurement, as defined by the European Commission, as well as other forms of cooperation between procurers.

Four types of cooperation between procurers have been identified, with some approaches being more widespread than others. The cooperating parties can either be all from one Member State or from multiple Member States (cross-border cooperation).

Joint procurement, as one of four types, is defined as a set-up where multiple authorities procure the same solution jointly, based on the same tender and with the same contract with the supplier. Such cases of 100% joint procurement, especially in cross-border procurement, rarely exist due to various reasons, including different procurement rules and practices, different technical solutions needed depending on the existing infrastructure of a city, or the high level of legal complexity.

The main benefits for initiating a common procurement process are:

- **Shared workload** between partners in a procurement process
- **More knowledge and experience** (from multiple authorities)
- **Economy of scale** – larger quantities might:
  1) create market commitment for new innovative solutions,
  2) lead to lower prices and
  3) result in lower transaction costs for suppliers
- **Harmonisation of solutions**
- **Innovation** – learning from each other and looking for new approaches can trigger innovation, especially when using negotiation or other methods (user integration) within the process.
The four types of common procurement identified by the SPICE project are:

- **Joint Procurement**
  - Procurement via a Central Body
- **Procurement in Parallel**
  - Procurement Based on a Common Specification
  - Joint Procurement via a Central Body

The SPICE project explored the strengths and weaknesses of each type of common procurement. Joint procurement via a central body seems to be quite well recognised and utilised within EU countries, whereas cross-border joint procurement has not yet been undertaken as widely.

More info is available in the **SPICE report “Best Practices in Common Procurement”**.
How to Procure Electric Vehicles?

Background

The European Commission has singled out decarbonisation as a key objective for the European Union. For public authorities the question remains: how can public procurement be used to encourage the uptake of alternatively fuelled vehicles in Europe?

In November last year, the European Commission published a proposal on the Clean Vehicle Directive (Directive 2009/33/EC), aiming to boost the electrification of European mobility.

According to the Commission’s proposal for the revised Directive, contracting authorities and certain operators must now take into account energy and environmental impacts when purchasing road vehicles. This will ultimately help build a stronger European market for alternative fuels, vehicles and infrastructures.

Due to a lack of practical examples, as well as an overview of the market, the procurement of electric vehicles is a new and challenging area for buyers who have little experience and knowledge in this area so far.

Regarding the procurement of electric vehicles the most important topics to consider are:

- the tendering procedure,
- contract options,
- general developments and trends in the market,
- charging infrastructure,
- added value for establishing Common Buyers Groups.

These topics will be addressed in the SPICE report “Analysis and Recommendations”, which will be published by August 2018.
Best Practice from Tampere:
Procurement of E-Buses and Charging Systems

Procedure: Open procedure, market dialogue and consultation in advance
Directive: 2004/18/EC
Procuring Authority: City of Tampere, Department of Traffic Planning

Forced with a lack of private investment, the City of Tampere purchased e-buses and charging systems. The aim was to establish a system for one e-bus line that would also provide a platform for sustainable mobility in the future. The case shows how to achieve feasible sustainable business models and how the private sector may be pushed into supporting future investments.

Lessons Learned
1. The market dialogue helped define the final concept of the tender (e.g. realistic delivery time for the buses, charging stations, and the number of seats), as well as the number of potential suppliers, which eventually led to the choice for open procedure.
2. Public procurement of charging infrastructure takes time.
3. Ask for innovation: use different kinds of comparison, criteria, pricing, give extra points for innovation and consider cooperation models.
4. Continuity of actions: markets are not changed by one single project; the market needs a sign of continuity in order to keep developing.
5. During the open procedure, multiple questions on the technical and legal specifications came up. It was not possible to re-frame and negotiate.
Lessons Learned

1. A small purchase allowed showing the economic efficiency of different vehicles, with different characteristics and requirements and under different situations. By doing so, the public authorities learned which and how many vehicles of their fleet can be replaced by electric vehicles in the future.

2. E-cars are only economically efficient if they are used for a large number of km per year (more than 15,000 km per year, estimated with a life-cycle cost method).

3. The maximum range of the cars is about 50% lower than the manufacturer specifications state.

Best Practice from Upper Austria & Carinthia:
Purchase E-Vehicles to Test Economic Efficiency

**Procedure:** Direct Award Contract (DAC)

**Procuring Authority:** Upper Austrian Government

The objective of Upper Austria and Carinthia (two federal states of Austria) was not just to procure electric vehicles for its fleet, but to learn about the economic efficiency of such vehicles for its fleet management system. The aim was to solve questions like:

- Will a minimum annual usage of the tested electric vehicles be ensured;
- How can e-vehicles be prioritised in the fleet management system especially for longer routes;
- How can the conduct and energy consumption in real daily usage (wintertime/summertime) be compared to the manufacturers’ specifications.

The main goal was to determine if and how the vehicles in the existing fleet could be upgraded to electric vehicles, while maintaining the same number of vehicles and the same budget, but becoming more environmentally concerned.
**Procedure:** Joint procurement

**Procuring Authorities:** Stockholm city and other Swedish municipalities

The City of Stockholm has decided that, by 2019, all vehicles bought for the city fleet in Stockholm, and at least 50% of new cars sold in the Stockholm Region, will be clean vehicles. These objectives have become an integral requirement for new transport service procurement processes, be it public transport, waste collection, taxis or goods distribution. This requirement is also applied to private companies working for the city. So far, 1,000 vehicles have already been delivered through this procurement type and experience has shown that it is easier to act together in a joint procurement.

**Lessons Learned**

1. For public organisations, procuring together saves time and money.
2. For smaller municipalities, it is easier to pull knowledge together in a joint procurement process.
3. A first qualification step in a two-step approach was a good choice for the vehicle suppliers.
4. Incentives, as well as subsidies and tax breaks, have also proven to be helpful in initially encouraging procurement of clean vehicles.
5. Other important tips are: raise awareness, increase knowledge, keep a long term perspective and be flexible in the tendering criteria.
How to Procure
Intelligent Transport Systems and Services?

Background

Intelligent Transport Systems and Services (ITS) are defined as solutions that incorporate advanced communications, electronic and information technologies with the purpose of improving traffic conditions, achieving environmental goals and preparing for higher degrees of vehicle automation.

The most important aspect of ITS is the interconnectedness of equipment and solutions. Formerly, information systems, signalling, street lighting, on-board equipment were separate systems with no interaction. ITS ties these systems together and adds new functionalities. For this reason, an ITS purchase is dependent on existing systems and needs, which often require individual tailor-made solutions.

Therefore more dialogue between procurers, developers and producers is necessary. This way procurers can get an understanding of the solutions available on the market, the producers and developers can get an understanding of the existing systems, needs and challenges of the procurer. Through this dialogue new solutions can be created.

Consequently, in the procurement of ITS, SPICE recommends:

- Pre-procurement work such as PPI, work visits, research into similar challenges, citizen involvement etc;
- Thorough understanding of existing systems implemented on site;
- Introduction of a competitive dialogue or clarification phase into the procurement process;
- Cooperation between existing and new suppliers with the purpose of innovation and new learnings;
- Focusing on the life-cycle costs of different options (including power consumption, service and maintenance costs of equipment, software and back-end);
- Identification of open standards and protocols to avoid vendor lock-in.

These topics will be addressed in the SPICE report "Analysis and Recommendations", which will be published by August 2018.
Procedure: Competitive Dialogue
Directive: 2004/18/EC
Procuring Authorities: Danish Road Directorate (DRD)

The Danish Road Directorate used the Competitive Dialogue procedure to procure real-time traffic (RTT) data. This project was new in Denmark, so it was especially designed as a first pilot in order to learn about the procedure of procuring RTT data from a private company.

Lessons Learned

1. Competitive dialogue is very resource demanding. Resources and time must be allocated well in advance and in a realistic way.
2. Standard ICT contracts are not well suited for data procurement; a dialogue is needed. In this case, a new data procurement contract had to be made prior to the tender.
3. Provisions on rights of use of the data are a crucial cost-driver for the suppliers.
4. Unlike in traditional ICT procurement, it was not possible to have a demonstration of the solutions during the dialogue phase. However, test data provided by each supplier proved to be sufficient.
5. Without knowledge of similarly tendered contracts in Europe, it was difficult to foresee how the market would react to certain contract provisions and minimum requirements.
6. Knowledge of different business models was offered by the European suppliers, which helped specify the tender.
Best Practice from Copenhagen:
Procurement of Intelligent Transport Solutions

**Procedure:** Restricted Procedure

**Directive:** 2004/18/EC

**Procuring Authorities:** City of Copenhagen

In recent years the City of Copenhagen has set up numerous initiatives to achieve its goal of creating a sustainable, smart, and innovative City for their citizens. One plan fostering these goals is the Copenhagen Climate Plan. This plan has the very ambitious overall aim of making Copenhagen the first carbon neutral capital of the world by 2025.

For this reason, the City of Copenhagen grouped the procurement of five intelligent transport solutions in one single contract. By cooperating on research and development with private stakeholders already prior to the tender, it was easier to define the objectives of the tender and the overall methodology of the tender documentation.

**Lessons Learned**

1. A clarification phase was considered in order to make room for some modifications after the contract was signed.
2. It was necessary to establish a consortium of suppliers in order to be able to deliver the whole package of solutions.
3. Additional complexity and risk was created due to the fact that it was a very complex IT project with a number of innovative products to be purchased.
Best Practice from Amsterdam: Practical Trial (APT) of In-Car Traffic Management Services

Procedure: Design Contest
Directive: 2004/18/EC
Procuring Authorities: Rijkswaterstaat

Rijkswaterstaat used the Design Contest approach in order to create a Practical Trial in Amsterdam that would demonstrate whether or not it is possible to distribute traffic over a network by providing different routes to different users. A sub-goal of the project was to learn about the set-up of the tests and public-private cooperation.

Lessons Learned
1. The contest phase led to many new ideas and possibilities (even more than tested in the trials).
2. The offers were hard to evaluate due to too much freedom in the contents and no set ceiling price.
3. Two contracts were awarded in parallel – this was a risk measure in case one consortium failed. It also helped gain more knowledge and experience with the different solutions.
4. Despite the requirement for each consortium to evaluate their own solutions and doubts about independent evaluations, the reports were of good quality.
5. Most responsibilities were with the consortia themselves, leaving to Rijkswaterstaat only monitoring and risk management, which gave the consortia the freedom to develop their own innovative ideas.
6. A more sophisticated exit procedure is recommended in case a contractor is not able to fulfil the contractual obligations.
How to Procure Mobility as a Service (MaaS)?

**Background**

The challenge faced by public authorities, when exploring MaaS schemes, is that often it is not possible or at least it is not recommended to "just buy one". Mobility as a Service should not be considered as an add-on layer on the existing transport system but a complete change in mindset, a **new culture of having the customer at the centre**. Introducing MaaS in a city environment requires a whole new value chain involving not only public transport authorities, but also actors such as new mobility service providers, fleet managers, insurance companies and payment management companies.

The challenging question is **what role in this value chain should public authorities play and where should investments be made.**
Lessons Learned

Since Mobility as a Service should always respect and serve local preconditions and needs, there is not one single way but many models “to go MaaS”. In this phase of maturity, the recommendation is to encourage various pilots and engage the user.

Procurement can play a role in encouraging (or discouraging) the development of MaaS. Innovative procurement should be used to ensure that the chosen solutions favour the user and do not create monopolies.

Open data is a fundamental element in the development of MaaS. Public procurement can be used to encourage open data by setting data sharing obligations in public tendering. Open interfaces (APIs) and open platforms encourage the involvement of smaller companies and their access to the provision of mobility services.

The success of MaaS requires a focus on end users. This means that the voice of the transport system user needs to be taken into account when planning, designing and procuring transport services. In the context of public procurement, this means that all stakeholders and end-users should be invited to examine the current situation, to determine the improvements that are necessary, and to enrol in the adoption of the new technology. This ensures that new solutions meet the needs of stakeholders and that they have ownership of the process and the new solutions.
How to Procure
A New and Fast Developing Technology? Copenhagen’s Intelligent Street Lighting Project

Background
The City of Copenhagen has the ambition to become the first CO2-Neutral Capital City in the world by 2025. In this frame, the goal of the Intelligent Street Lighting project was to reduce CO2 emissions by 20% and energy consumption by 50% by 2015 as part of the city's Climate plan. Road lighting plays a central role in Copenhagen, as it influences road safety, the safety and security of citizens, as well as crime levels.

In procuring LED street lighting, the main challenges faced by the City of Copenhagen were as follows:

- The rapidly developing LED technology market and the objective of the City of Copenhagen to procure a long-lasting solution that would not quickly become outdated.
- The specific needs of the procurer: the lighting solutions had to be adapted to the modern Nordic lighting and design tradition for public urban spaces, which fit the historical city and are attractive for citizens.
- A Competitive Dialogue procurement procedure was needed in order to ensure a full understanding of the city's needs and what the market could deliver, conformity with legal and/or economic conditions and requirements, and the procurement of appropriate products and systems in order to guarantee the long term success of the project.
Procedure: Competitive Dialogue
Directive: 2004/18/EC
Procuring Authority: City of Copenhagen

Thanks to the Competitive Dialogue procedure, a 250 million Danish Kroner (about 33 million euro) contract was awarded for installing the new street lighting system in the city including a 12-year maintenance contract.

Lessons Learned

1. When procuring a new technology, which does not have a fitting off-the-shelf solution, a dialogue with suppliers is needed.
2. Using Competitive Dialogue for procurement is very resource demanding. It is more suitable for long-term contracts or contracts that have a high value. If the procedure is relatively new to the public procurer, as it was for the City of Copenhagen, it is recommended to hire external lawyers and add them to the tender preparation cost.
3. Trying out a procedure that was new for the City of Copenhagen led to a significant positive outcome and increased the city’s knowledge about how to deal with this type of procurement.
4. By having a good dialogue from an early stage, the city and the suppliers managed to end up with solutions that fit the city’s needs.
5. Thanks to the Competitive Dialogue procedure, the city and the suppliers had the opportunity to understand each other’s needs, requirements and limitations better.
6. The Competitive Dialogue provided a good understanding that enabled the city to modify some of the classical frameworks which were hindering interest and innovation in the market.
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