

Towards Optimal Public Procurement of Innovation: Case based Success & Failure Learnings

Authors: Eva Buchinger², Albert Schieg³, Jürgen Unger³, Sari Ylipalo⁵

Contributions and acknowledgements: Max Habringer¹, Markus Holly³, Jakob Köhler⁴, Dana Mitea³,
Manuel Schuler³, Thomas Sund⁵, Stefan Wurm³

¹Airport Linz

²AIT Austrian Institute of Technology

³BBG Austrian Federal Procurement Agency

⁴BMF Austrian Federal Ministry of Finance

⁵HANSEL Finnish Federal Procurement Agency

Project INNOBOOSTER

The INNOBOOSTER inLIFE project was initiated by the European Commission and is co-financed by the European Commission's Competitiveness and Innovation Framework Programme ENT/CIP/11/C/N02C011 | AGREEMENT NUMBER - SI2. 6 16986

“INNOBOOSTER inLIFE” stands for “INNOBOOSTER in Light and Furniture”. Its task was the support of public procurers in purchasing new and improved solutions in the field of resource efficient interior and exterior lighting as well as innovative office solutions. Within the project (2012-2016) four coordinated innovation procurements were successfully executed:

- Outdoor lighting for the municipality of St. Johann in Tirol
- Indoor lighting for the passenger terminal of the Blue Danube Airport Linz
- Meeting-room furniture for the procurement agency Hansel
- Workplace-furniture for the Academy of Finance

This manual has been written for procurement professionals working in European public authorities. It builds on insights and advice already provided by guides mentioned in the text and does not repeat them. Instead, this manual condenses the main learnings of the INNOBOOSTER procurement cases enriched by learnings of the INNOBOOSTER partners resulting from prior innovation procurements in which they were involved.

INNOBOOSTER partners

- Airport Linz
- AIT Austrian Institute of Technology
- BBG Austrian Federal Procurement Agency
- BMF Austrian Federal Ministry of Finance
- HANSEL Finnish Federal Procurement Agency

IMPRINT:

Release date: February 2017

Publisher: INNOBOOSTER Consortium

Why public procurement of innovation?

Public entities exist to fulfil a task within the welfare-state context. Their mission is the delivery of qualitative services for health, economic & social inclusion, safety & security, sustainability etc. To provide continuously qualitative output (services, external performance) and throughput (processes, internal performance) they need continuously qualitative input (procurement of works, products, services). Thereby public entities can be re-active and procure best available solutions already offered by the market or be pro-active in demanding innovation. Both procurement strategies do have their advantages and disadvantages and must be carefully chosen. If the demanding of innovation turns out to be appropriate, two advantages can be realized. First, the acquisition of innovative goods, works and services contributes to the effectiveness and quality of public services while addressing societal challenges. Second, in sectors such as energy, transport, waste management, social protection and educational and health services, public entities are often principal buyers and therefore (potentially) powerful in stimulating innovation. Public procurement accounts for over 14% of European Union gross domestic product (GDP)¹.

This innovation stimulating power is reflected in European procurement law. The directive 2014/24/EU – which has been translated into national law – states that it should contribute to facilitate public procurement of innovation and support thus Member States in achieving the 'Innovation Union' targets. This includes (i) pre-commercial public procurement of research & development (which is not falling within the scope of the Directive); (ii) various mechanism such as competitive dialogue, competitive procedure with negotiation, performance criteria considering environmental/social life-cycle costing, technical specifications in terms of functional and performance requirements; and (iii) innovation partnerships (establish a long-term co-operation for the development and subsequent purchase of a new, innovative product, service or works).

Nevertheless, it is a common observation that the innovation stimulating purchasing power of public entities is somewhat 'untapped'. Consequently, innovation procurement strategies, action plans and support mechanism haven been implemented on European as well as national levels. This includes financial support as well as guidance, platforms and assistance². Eventually, it depends on the strategies and actions of the public entities themselves, whether they use their innovation stimulating purchasing power or not.

¹ EC (2016) Single market scoreboard: Public procurement. Brussels: European Commission.

² See for overviews e.g. <https://ec.europa.eu/growth/industry/innovation/policy/public-procurement_en>; <<https://ec.europa.eu/digital-single-market/en/innovation-procurement>>; <<https://www.innovation-procurement.org>>; <<http://eafip.eu>>; PPI-Platform (2015) Guidance for public authorities on public procurement of innovation. Public Procurement of Innovation Platform consortium, c/o ICLEI – Local Governments for Sustainability; ERAC (2015) Opinion on innovation procurement, Brussels: European Research Area and Innovation Committee; OECD (2016) Public procurement for innovation: Good practices and strategies. Paris, Organisation for Economic Co-operation and Development.

Main terms in public procurement of innovation³

CONTRACTING AUTHORITY (PUBLIC ENTITY, BUYER): the State, regional or local authorities, bodies governed by public law or associations formed by one or more such authorities/bodies

TENDERER (SUPPLIER): an ECONOMIC OPERATOR that has submitted a tender, i.e. any persons and/or entities which offer the execution of works, the supply of products or the provision of services on the market, irrespective of the legal form under which they have chosen to operate

CONTRACT: contracts between one or more economic operators and one or more contracting authorities having as their object the execution of works, the supply of products or the provision of services

WORKS | SUPPLY | SERVICE

Works: outcome of building or civil engineering works taken as a whole which is sufficient in itself to fulfil an economic or technical function.

Supply: purchase, lease, rental or hire-purchase, with or without an option to buy, of products

Service: provision of services other than those referred to in works

INNOVATION: the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations

TECHNICAL SPECIFICATIONS: shall be formulated in terms of PERFORMANCE or FUNCTIONAL requirements or by REFERENCE TO STANDARDS (or by a mix of them); may also specify whether the transfer of intellectual property rights will be required

CHOICE OF PROCEDURE

Competitive procedure with negotiation: any economic operator may submit a request to participate in response to a call for competition by providing the information for qualitative selection that is requested by the contracting authority; only those economic operators invited by the contracting authority following its assessment of the information provided may submit an initial tender which shall be the basis for the subsequent negotiations

Competitive dialogue: any economic operator may submit a request to participate in response to a contract notice by providing the information for qualitative selection that is requested by the contracting authority; only those economic operators invited by the contracting authority following the assessment of the information provided may participate in the dialogue the aim of which shall be to identify and define the means best suited to satisfying their needs

Innovation partnership: any economic operator may submit a request to participate in response to a contract notice by providing the information for qualitative selection that is requested by the contracting authority; the contracting authority may decide to set up the innovation partnership with one partner or with several partners conducting separate research and development activities; the innovation partnership shall aim at the development of an innovative product, service or works and the subsequent purchase of the resulting supplies, services or works

³ See Directive 2014/24/EU Public procurement. Brussels, Official Journal of the European Union.

Case based success & failure learnings

The learnings outlined here are derived from the INNOBOOSTER procurement cases (each of them described in the next chapter). Since the INNOBOOSTER partners dispose beyond that of further experience – resulting from prior innovation procurements (such as the modernization of the Austrian Mint's wastewater facility which received the European Procurement of Innovation Award 2015) as well as from innovation procurement workshops within the INNOBOOSTER-INNOVATIA conference (Vienna 2016) – these learning were included too. On this basis we identified and condensed the following main learnings.

Coping with the complexity of innovation procurement

Innovation procurement is a comprehensive process which's complexity is difficult to perceive. It is therefore one of the most important learnings that the pre- and the post-procurement phases matter as much as the core-procurement phase (i.e. tendering, contracting). Thus, an optimal innovation procurement routine can be depicted as a 4-phase process (fig. 1).

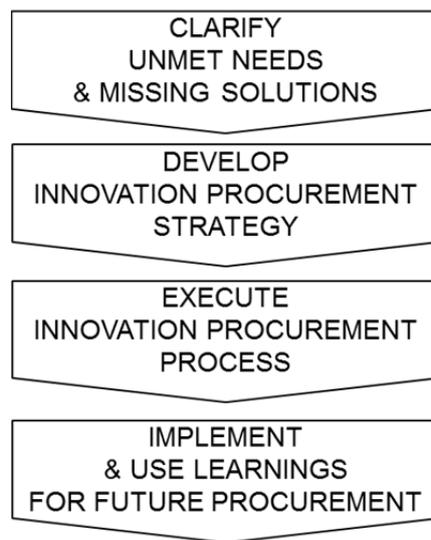


Figure 1: Idealized innovation procurement routine in a public entity

The first phase of successful innovation procurement consists of the clarification of unmet needs and/or missing solutions. This phase is often somewhat neglected since there is a habit of 'we know it already' when user needs and/or market assessments are concerned. Neglecting may bear the risk of early failure. To succeed in the starting phase, sufficient time and intelligence must be provided for the need-clarification, and the participation of all kind of users and all those responsible for the implementation for the procured works/supply/service must be facilitated. Simultaneously, an early market engagement (e.g. early information of procurement plans to the market, market sounding, open

market consultation, supply chain feedback) has to be executed properly. Beyond that we learned that the early start of testing in innovation procurement may be perceived as a 'burden' by the buyers as well as by the suppliers – irrespective of the fact that early testing is an important mean to reduce risks. We conclude therefore that reserving budgets for early testing (internal costs, refund of buyer-expenses) is important and that even a test-buy and its evaluation (by users and independent experts) may prove beneficial and worth its efforts.

Also the second phase – development of an innovation procurement strategy – is frequently underestimated concerning its success/failure relevance. The crucial issue is here 'to get the support of the hierarchy'. That means the internal commitment of the management as well as the provision of the required personnel and financial resources; and if required, also the external commitment of the politician/s responsible (major, minister). Thereby it is important to optimize between the public entity's overall mission-related needs, specific user needs, investment needs and grand societal challenges. It is one of the learnings that the development of an innovation procurement strategy/plan is instrumental in coordinating the distributed innovation procurement responsibilities within a public entity (e.g. procurement department, use-department, R&D department, budgeted department, top-management) and in providing a convincing pro-innovation-procurement argumentation based on calculations. As part of the innovation strategy/plan TCO⁴ calculations can contribute very much to the success of innovation procurement (by pre-calculating reduction of energy, reduction of maintenance costs etc.).

After completion of the core phase (tendering, contracting) it is important to monitor the implementation and use all the learnings for the setup of future procurements. We found in our cases that a great amount of tacit knowledge (experience knowledge) has been accumulated during all phases. It is crucial to reflect and articulate this tacit knowledge as far as possible and share it within the organization as well as with other public entities (via platforms etc.).

Mastering the challenges of formulating requirements, tendering in lots, and defining award criteria

Procurement professionals' vast experiences in tendering and contracting lay the ground for innovation procurement. In our cases competitive procedures with negotiations were executed – i.e. a type of procedure which has been well known to our procurement professionals. Nevertheless, some specific learning resulted from our cases. First, the use of functional requirements is as import in innovation procurement as difficult. The difficulty arises from the fact that the valuation and comparison of the proposed functional solutions in the tenders require far more knowledge than the check of the fulfilment of performance requirements. Therefore a mix of functional and performance

⁴ Total cost of ownership; may be done as part of an overall life cycle cost analysis including thereby the costs, borne by the contracting authority as well as those of others users (including producers, recyclers etc.).

requirements together with the inclusion of independent external experts is helpful. Second, it turned out that the division into lots is quite helpful to get a broader range of solutions in the case of functional requirements (i.e. get better results for specific problems). Additionally, lots make it much easier for small and medium sized enterprises to submit a tender. Third, the definition of the award criteria and the relative weighting given to each of those criteria is especially challenging when functional requirements are part of the call for tenders and when the contracts are awarded on the basis of the best price-quality ratio. The inclusion of independent external experts proved to be helpful also here.

Making use of professional expertise

To achieve optimal innovation procurement results it is often helpful to complement in-house expertise with external expertise as described above. Although each innovation procurement case may require its specifically tailored external support, some generalizations are possible. First, we learned that the inclusion of independent external experts can be useful in all phases (either the same experts or different experts in different phases). Second, it is important that the external expert has his/her internal counterpart and that for both parties the resources (time, money) are committed in advance.

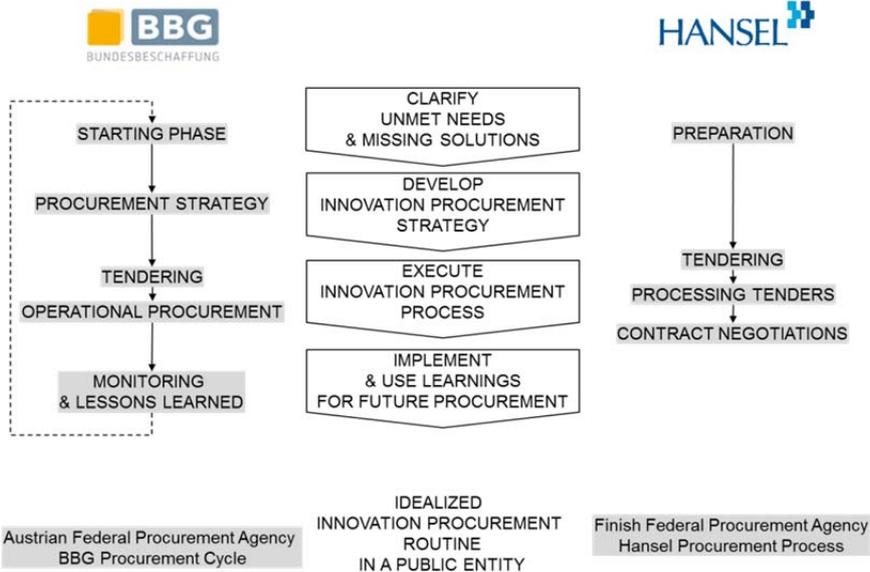


Figure 2: Synchronizing innovation procurement rationales with classical procurement routines

Third, optimal innovation procurement is itself an innovation. Because of the importance of the acquired tacit knowledge (experience knowledge) it is of cumulative nature. From our case learnings in innovation procurement we generalize that central purchasing bodies – such as the federal procurement agencies in Austria and Finland – can serve very well as knowledge accumulators on the one hand and as knowledge distributors on the other.

Procurement Cases

Outdoor-lighting for the village center of St. Johann in Tirol

The municipality of St. Johann in Tirol has developed a master plan for the restructuring of its center in 2014 and was subsequently looking for a suitable solution for the implementation of the intended lighting. Since the luminaires should be installed not on masts but under the roofs of the buildings, it was necessary to involve the various stakeholders (business owners, owners of the houses etc.) in the discussion process.

Standard Solid-State Lamps (SSL) for exterior luminaires typically work with optical lenses to direct the light on the right places. Since in the field of exterior lighting high light streams are also required when using modern SSL-technology in order to ensure adequate lighting, it was important for the municipality that the glare of the luminaires, which is often troublesome, is kept as low as possible. For this reason, a light planner was hired who had the task of making a conceptual design for luminaires with the desired functionality. On this basis, the municipality in cooperation with the light planner and the Austrian federal procurement agency BBG, carried out a multi-stage competitive tender procedure with negotiation in order to find a supplier for the required luminaires. The technical specifications of the call for tenders consisted of performance as well as functional requirements and the award criteria followed the best price-quality ratio.

In addition to the already described search for luminaires which are not to be mounted on a mast, the following innovation factors have been taken into account:

- combination LED lighting technology with reflector technology
- newest available lighting diodes with the highest energy efficiency and a very good color contrast
- a light control system, which allows the reduction in the intensity of the light and at the same time ensures that sufficient illumination is provided if the center of the town is animated even at unusual times

The procurement process (10/2015-12/2016) resulted in an optimal tailored solution for St. Johann providing satisfying usability (light control, aesthetics etc.) together with a reduction of energy consumption.



Indoor-lighting for the passenger terminal of the Blue Danube Airport Linz

The Airport Linz has already gained some experience in the past 5 years using modern solid state lighting technology. The airfield lighting was completely retrofitted to this technology in 2014, and also at the new freight terminal only modern SSL luminaires were built in. However, when retrofitting the lighting for the passenger terminal, they faced the additional challenge that the necessary solutions were not available on the market. Therefore a multi-stage competitive procedure with negotiation in 4 lots was established and implemented in cooperation with the Austrian federal procurement agency BBG. The technical specifications of the call for tenders included a combination of performance and functional requirements and the award criteria followed the best price-quality ratio.

The lighting for the passenger terminal consists of the following parts:

- (i) luminaires for general lighting
- (ii) luminaires for effect lighting, accentuation and targeted lighting
- (iii) luminaires for the advertising lighting

The main challenge for the (i) general lighting was that the metal ceiling and the built in luminaire system was a custom made design. Consequently, available standard luminaires for general lighting do not fit into this system and this is why a further customer-specific but also cost-effective solution had to be looked for.

The (ii) effect and accentual lighting should give the terminal a new look and appearance. This system also had to be integrated in the metal ceiling with dimensions not available on the market. In addition, the system should of course harmonize with the general lighting and together form a coherent whole. Therefore an architectural competition was part of this procurement process.

In the case of (iii) advertising lighting, there exist eighteen different sizes and designs of the advertising boxes at the airport. Therefore the goal was to find a technical solution that can be implemented in all sizes/designs, from the smallest box in the interior area up to the largest boxes in the outdoor area.

The procurement resulted in a satisfying solution for the Airport Linz. The final TCO calculation showed that in the case of general lightening and effect lightening a reduction of 65% in energy costs and a reduction of 93% in maintenance costs could be achieved; in the case of advertising lighting it was a reduction of 60% in energy costs and a reduction of 83% in maintenance costs.



Meeting-room furniture for the Finnish Federal Procurement Agency Hansel

Within Hansel, the meeting room Haage is situated in the back of the office, separated from other meeting rooms. The room is only 25,5 square meter in size with challenging special features: low space, bad acoustics, odd floor plan with low big windows and inadequate lightning. It has been in use only as spare room when other rooms were not available.

The target was to activate the level of room's use in order to upgrade capacity utilization rate in general. The room should allow for multiuse, i.e.

- as traditional meeting room,
- as a meeting place for small group conversation and
- as individual work space for a few persons.

Especially for the 'small group' use a more informal atmosphere was required.

The planning with the architect started early 2016 with a workshop where Hansel's requirements and expectations were participative identified and described as follows: Innovative solutions were needed to allow for a multifunctional use of the room. After several careful planning sessions, a single-stage tendering procedure worked out smoothly because of the clear formulation of performance and functional requirements. The process was completed after nine month.

The room is now modern and functional, but has also the requested informal atmosphere und is suitable for various occasions. The colour palette is youthful yet harmonic. Improved acoustic environment was carried out with acoustic panels, textile carpet and curtains. Added floor lamps can be used to create softer atmosphere, in addition the room is also modifiable for diverse project work purposes.

As a result, innovative space facilities are now provided for traditional meetings, small group brainstorming and also individual quiet working. Individual work spaces are mobile and adjustable.. In the course of the ex post evaluation we received positive feedback from colleagues.



Workplace furniture for the Austrian Federal Academy of Finance

The Federal Academy of Finance (BFA), as a part of the Ministry of Finance, is cooperatively with the ministry's Human Resource Development Department responsible for educational activities in the organization. As a leading organization concerning modern and innovative office concepts in the public sector in Austria BFA developed a workplace strategy.

In 2013, when the Academy of Finance moved into a new and modern office building respectively training center in Vienna, the workplace strategy required the procurement of a modern and functional office furniture for the new part of this location. A test-buy on the basis of a single-stage competition with technical specifications formulated in terms of performance and functional requirements was executed in cooperation with the Austrian federal procurement agency BBG. Since March 2013 the employees are working in these newly furnished offices and are using the new environment.

A new feature of this project was that the facilities were scientifically evaluated. The study consolidates the main outcomes and analyses the solution at the Federal Academy of Finance. As this was previously indicated as a need, it also shows various options to optimize this location from the acoustic point of view.

The results for the Austrian Ministry of Finance were, that they have already a very good acoustic solution and that optimizations concerning the so called "flutter echo" are possible. These learnings will be included in future workplace related procurements.





INNOBOOSTER PROJECT PARTNERS



blue danube airport linz

Airport Linz



AIT Austrian Institute of Technology



BBG Austrian Federal Procurement Agency



BMF Austrian Federal Ministry of Finance



HANSEL Finnish Federal Procurement Agency

<http://www.innobooster.eu>