



How to Define the Value of a European Innovation Partnership

An easy-to-apply methodology for public buyers to use when estimating and negotiating the value of innovation partnerships

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1. Innovation partnerships as defined by the European Commission

1.1. Definitions

The Organisation for Economic Co-operation and Development defines innovation as the implementation of a new or significantly improved good, 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, with the purpose of helping to solve societal challenges. This is also how the European Commission defines innovation.

The innovation process encompasses early phases dedicated to the exploration of new possibilities, research and development (R & D) and, later, business-oriented phases dedicated to their exploitation. These include preproduction, production, delivery of product/service, training, market preparation and new organisational or marketing methods.

The European innovation partnership (IP) is one of the three procedures created at EU level to deal with innovation in public procurement (Figure 1).

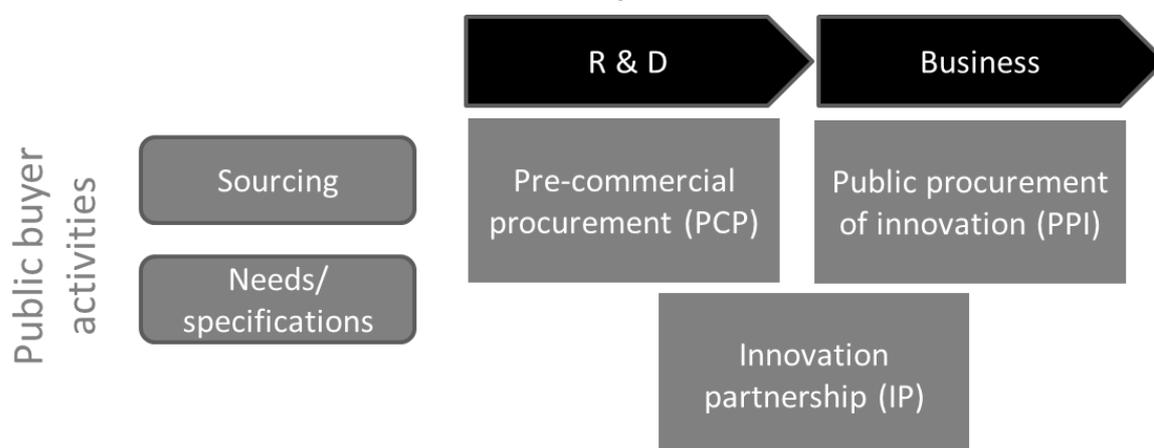


Figure 1: The three innovation procedures for public procurement

It was designed in 2014 ⁽¹⁾ with the objective of researching, developing and procuring new products and services on a commercial scale. The IP allows for the award of a phased contract covering all stages from R & D to the acquisition of commercial volumes of finished products or services, with the involvement of one or more economic operators in each phase.

⁽¹⁾ Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (Text with EEA relevance), and Directive 2014/25/EU.

Disclaimer

Engaging in Innovation Partnership is a challenge for public buyer. IP raises paradoxical injunctions for those who want to leverage this mechanisms to encourage future suppliers to be very strongly committed to their innovation developments when terms are not clearly define and uncertainty is the rule of the game in innovation projects.

In order to limit the risks attached to public procurement in general and to IP in particular, it is first necessary to have an established knowledge of the DIRECTIVE 2014/24/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on public procurement that defines IP.

In the preamble

Where a need for the development of an innovative product or service or innovative works and the subsequent purchase of the resulting supplies, services or works cannot be met by solutions already available on the market, contracting authorities should have access to a specific procurement procedure in respect of contracts falling within the scope of this Directive. This specific procedure should allow contracting authorities to establish a long-term innovation partnership for the development and subsequent purchase of a new, innovative product, service or works provided that such innovative product or service or innovative works can be delivered to agreed performance levels and costs, without the need for a separate procurement procedure for the purchase. The innovation partnership should be based on the procedural rules that apply to the competitive procedure with negotiation and contracts should be awarded on the sole basis of the best price-quality ratio, which is most suitable for comparing tenders for innovative solutions. Whether in respect of very large projects or smaller innovative projects, the innovation partnership should be structured in such a way that it can provide the necessary 'market-pull', incentivising the development of an innovative solution without foreclosing the market.

Contracting authorities should therefore not use innovation partnerships in such a way as to prevent, restrict or distort competition. In certain cases, setting up innovation partnerships with several partners could contribute to avoiding such effects.

Article 31

Innovation partnership

1. In innovation partnerships, 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.

In the procurement documents, the contracting authority shall identify the need for an innovative product, service or works that cannot be met by purchasing products, services or works already available on the market. It shall indicate which elements of this description define the minimum requirements to be met by all tenders. The information provided shall be sufficiently precise to enable economic operators to identify the nature and scope of the required solution and decide whether to request to participate in the procedure.

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 minimum time limit for receipt of requests to participate shall be 30 days from the date on which the contract notice is sent. Only those economic operators invited by the contracting authority following the assessment of the information provided may participate in the procedure. Contracting authorities may limit the number of suitable candidates to be invited to participate in the procedure in accordance with Article 65. The contracts shall be awarded on the sole basis of the award criterion of the best price-quality ratio in accordance with Article 67.

2. 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, provided that they correspond to the performance levels and maximum costs agreed between the contracting authorities and the participants.

Second, it is important to know other public procurement processes that are mobilized for buying acts that are mobilized for complex, innovative and/or uncertain relationships or partnerships, such as procurement of works, sustainable procurement or performance contracts.

The method we propose here to estimate and negotiate the value of IP has been constructed on the basis of the known rules and procedures of European public procurement. It allows maximizing the value for the public good as well as limiting the risks related to IP. For this purpose, the footnotes propose reference documents that will help the public purchaser to provide the best answers to the difficulties he might encounter.

Consider the three following questions.

- Do you have sufficient knowledge of the market to define requirements for end solutions?
- Do you need development services prior to the procurement of end solutions?

- Do you need to acquire innovative products or services on a commercial scale, as part of the same procedure?

If the answer to all three of these questions is 'yes', then IP is the most suitable procedure.

IP is a competitive procedure that involves negotiating; the contract cannot be awarded without prior negotiations due to the risk and complexity of the procedure, and due to the fact that technical specifications cannot be defined with sufficient precision.

The specificities of IP rules make it a particularly suitable solution for the development and procurement of scale-up and tailor-made innovative end solutions. It cannot, however, be leveraged to purchase innovative products/services on the shelf (public procurement of innovation) or to purchase R & D services for emerging products/services (pre-commercial procurement). Moreover, it needs to be based on best practices of public procurement ⁽²⁾.

1.2. Sources of value

The directives that define IPs specify that the value of an IP must be agreed upon during the tendering process. Therefore the value must be estimated well in advance of the end solution purchase, sometimes even when the end solution is not fixed.

Public buyers first need to understand the various sources of value before they can make an offer.

- For public buyers:
 - tailor-made responses to unmet needs;
 - affordable access to an innovative technology/product/service;
 - in the case of success, innovative suppliers overcommitting due to purchasing commitments;
 - in the case of scale-up failure, the possibility to exploit the generated intellectual property with other suppliers.
- For innovative suppliers:
 - the financing of scale-up activities;
 - purchasing commitments in the case of success;
 - the possibility to promote the partnership;
 - commercial goodwill – proof of scalability (IP and/or IP and delivery);
 - new business;
 - the freedom to value intellectual property in other sectors / low requirement for exclusivity;
 - the possibility to value intellectual property in the case of scale-up failure.

⁽²⁾ European Commission, Directorate-General for Regional and Urban Policy (2018), 'Public procurement guidance for practitioners on the avoidance of the most common errors in projects funded by the European structural and investment funds', Publications Office of the European Union, Luxembourg (<https://data.europa.eu/doi/10.2776/461701>).

This first evaluation is carried out by taking the time to think about the benefits that the IP brings to the public buyer’s users and internal stakeholders, but also to potential suppliers. Their opinions can be collected through interviews carried out in the sourcing phase or through dedicated collective brainstorms.

1.3. The structure of innovation partnership value to the public buyer

An IP starts to generate value before the IP contract is even signed. Its value includes the knowledge, know-how and intellectual property (background IP) of the public buyer and of the future supplier, which was generated before the IP (Figure 2).

An IP goes through two phases that generate value. First, the R & D phase, where there is joint creation of new knowledge and intellectual property (foreground IP), and where the supplier is paid for its R & D efforts in order to fulfil the buyer’s needs.

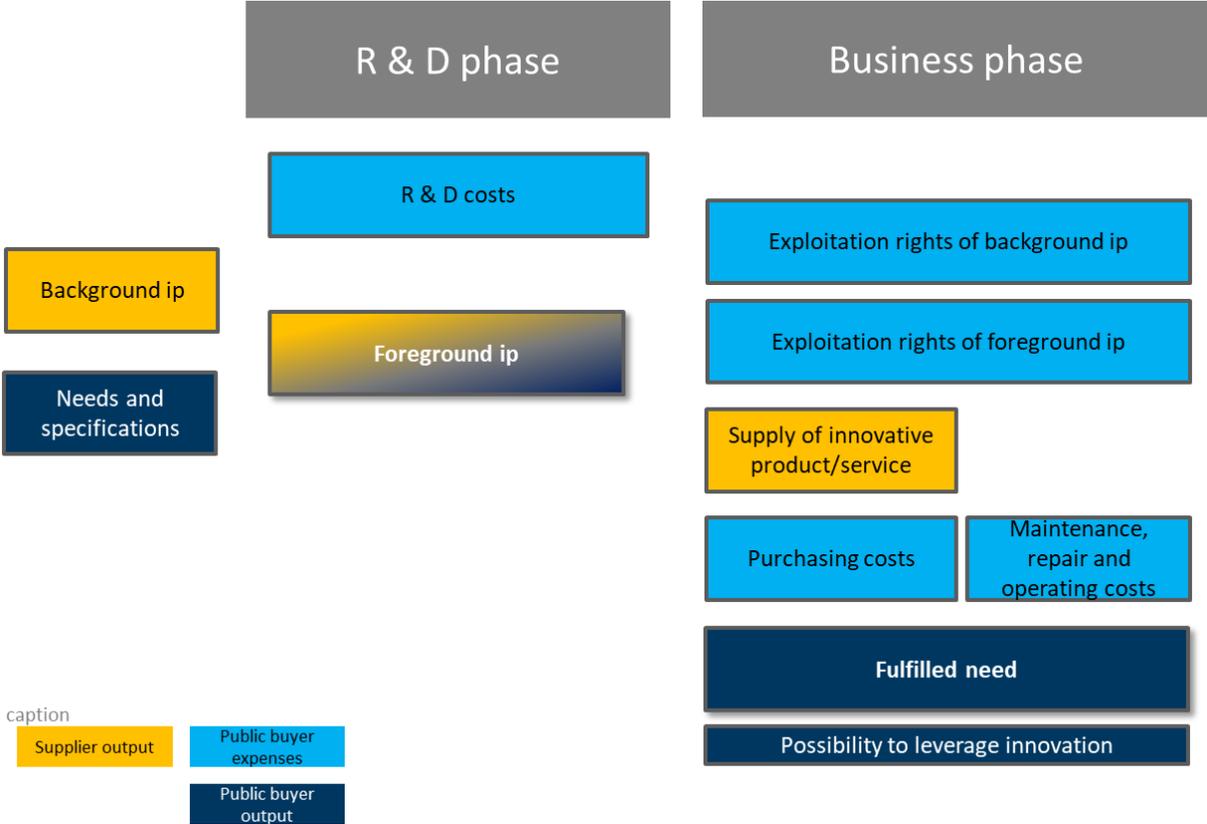


Figure 2: The outputs of IP

Second, the business phase, which begins when the R & D phase is finished and kick-starts the purchasing of end solutions by the public buyer. The first source of value is that the public buyer’s needs are fulfilled and that they have the possibility to fully exploit the innovation that the IP generated ⁽³⁾.

In the ideal scenario, the R & D phase is successful and the supplier is paid for providing its innovative product/service and for granting the right to exploit the intellectual property from the previous phases. They can also exploit it with other buying entities.

⁽³⁾ For more information see: C (2021) 4320 final, Annex 1 to Commission Notice – Guidance on innovation procurement.

In the case of R & D failure, the public buyer can still leverage the intellectual property generated during the IP and receive royalties, but with other suppliers.

Breaking down the value allows us to evaluate and negotiate it. It allows us to better apprehend the different facets of the value, but also and above all to increase the non-revisable part of value and consequently limit the impact of the innovation's contingencies on the economic equilibrium of the contract, and therefore limit the risk of non-compliance.

2. Value evaluation and negotiation approaches

The assessment and subsequent negotiation of the value of an IP is based on the acknowledgement of its different sources of value, as described above. Since a maximum cost has to be set, and since 'the estimated value of supplies, services or works shall not be disproportionate in relation to the investment required for their development' ⁽⁴⁾, the main focus is on the assessment and negotiation of market prices, i.e. the innovative supplier's revenue and the economic value of the IP.

We will now propose several approaches for public buyers to evaluate and negotiate the price of an IP. These should be applied by setting the duration and scope of the commitments on the exploitation of the intellectual property, and on the purchase of the innovative service/product, against the other elements of value (out of cost/revenue) that can be negotiated. Value evaluations and negotiations are a question of balance between costs, risks, commitments, and benefits.

In particular, it is recommended that order commitments following an R & D phase be limited in time and/or volume. In the case of a successful R & D phase, minimum targets must be fixed in order to ensure a sufficiently interesting return on investment to motivate the supplier; maximum limits must also be set in order to ensure the competitiveness of the solutions purchased in the long term for the public buyer. These commitments can be balanced so that the ratio between R & D costs and business costs can be proportionate, in order to comply with the IP directive – the proportion being related to the current ratio in similar sectors and types of IP.

2.1. The two facets of estimating and negotiating the value of an innovation partnership for a public buyer

The value of the IP must be agreed upon during the tendering process. This implies that the value of future products, services or works have to be estimated and agreed upon before the development work is achieved (and sometimes before it has even begun). This requires the integration of the contingencies of innovation when negotiating the value of IP, while remaining attentive to the proper use of public funds, following the rules of public procurement and respecting the margins of the innovative supplier.

Article 72 of Directive 2014/24/EU and Article 89 of Directive 2014/25/EU provide for marginal alterations of the future value of an IP (or more precisely its price) under limited conditions, in order to maximise the possibilities to leverage such exceptions and to minimise the potential evolution of prices. If the contingencies of innovation are taken into account, **the negotiation of IP value should be subdivided following the two main phases of the IP: the R & D phase and the business phase.**

⁽⁴⁾ Article 31(7) of Directive 2014/24/EU.

The evaluation of the various elements that will constitute **the costs of the IP must be balanced against the values generated** from the actions covered by these costs (Figure 3) – for example, greater freedom of operation, greater opportunities for exploitation with other partners, future gains or margins, potential economies of scale, etc. These are all elements that can be valued but are hard to price.

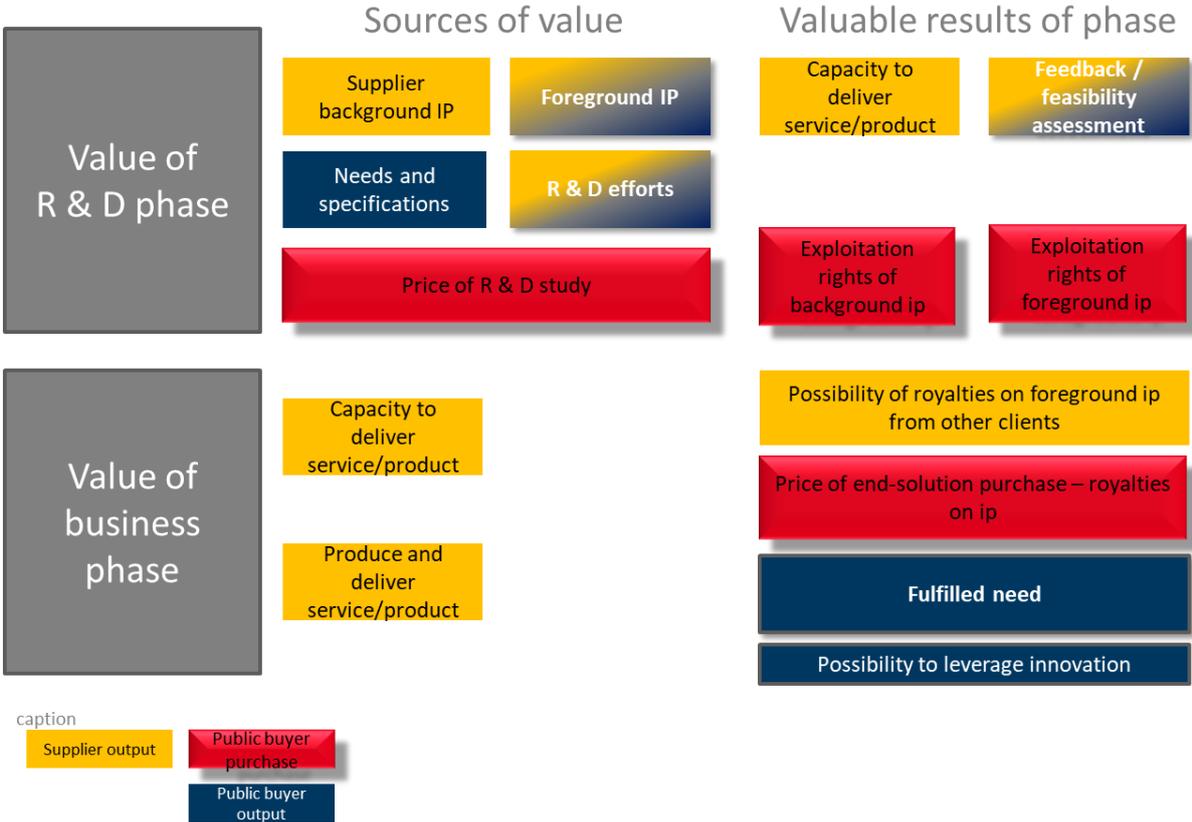


Figure 3: Contributions vs. value-generated in IP phases

The identification of all these elements begins at the sourcing phase, upstream of the IP. The public buyer's job is first to know and understand its markets and the needs of its stakeholders, and then to define as precisely as possible the scope of the specifications and the functional and technical constraints into which the final solution must fit. Without thorough preparation of the innovative purchase, it is not possible to identify the reasonable level of intellectual property rights, which implies a likely high volatility of price.

2.2. Estimating and negotiating R & D phase value

The principles behind negotiating the R & D phase value are the following.

- **Obtaining for the public buyer the exploitation rights** (and the right to sublicense for its uses) to the background intellectual property if they are necessary for the production and delivery of the innovative product/service, regardless of the supplier.
- **Motivating the innovative supplier for maximum cooperation** through the security of the exploitation revenues of its background and foreground intellectual property necessary to the production and delivery of the innovation product/service.
- Capping the price of exploitation rights at equivalent market prices of similar intellectual property.
- Defining the time for exploitation rights at the latest possible moment, from a legal standpoint.
- Giving the innovative supplier the freedom to exploit the rights linked to background and foreground intellectual property with any other clients, allowing for the right of first refusal for specific cases (such as when dealing with competitors) / similar rights granted to other public buyers.
- **Considering ‘co-innovation’ to evaluate the exploitation rights** for the foreground intellectual property.
 - The share of added value from the supplier (a reference of 50 %, revisable) represents the value added by each of the parties during the R & D phase. This principle of sharing the value of foreground intellectual property makes it possible to compensate for any additional resources invested by either party during this phase (based for example on the resources committed beyond the forecast, which requires monitoring).
 - Optionally, royalties for the public buyer can also be negotiated if exploiting the foreground intellectual property with other clients, based on the former principle and/or adopting public buying authority customs (e.g. a 2 % revenue from every product using this intellectual property, sold by the supplier to any other client).

Through these principles, the R & D phase costs are covered by IP agreement, and the innovative supplier is motivated to provide maximum proactive involvement in the success of the project: if the foreground intellectual property is valuable, the supplier will benefit from it whether they succeed in scale-up or not – and so will the public buyer.

The economic value estimated and negotiated regarding the R & D phase can be subdivided into three elements that can be specifically valued.

- The price of the **R & D study** itself should be based on the necessary time and material and the value of the time and material.

Price = time * value of time + material * value of material

- Exploitation rights of **background intellectual property** (past knowledge of the supplier that might be embedded in the end solution) should be based on the market price of equivalent intellectual property for commercial exploitation purposes, avoiding as much as possible revisable indexed prices and/or a percentage of the cost of delivered products/services in order to reduce variability, and getting a free exploitation right for R & D purposes.

Price = market price of similar intellectual property exploitation rights

- Exploitation rights of **foreground intellectual property** (generated during IP) should be based on:
 - the principle that IP implies co-innovation although, by default, it should be considered that the value of generated intellectual property should be shared for the purpose of the project, and consequently the distribution of exploitation rights;

- the market price of similar intellectual property for commercial exploitation purposes, but shared between partners;
- the possibility of revising the sharing ratio between the innovative supplier and the public buyer.

Price = market price of similar intellectual property exploitation rights * share of added value from the supplier

(share ratio = 50 % as a reference, revisable)

2.3. Estimating and negotiating business phase value

The evaluation of business phase value begins by estimating the target price of the end solution (Figure 4), which allows us to fix its maximum cost and design the baseline for the proportionality evaluation of the IP. This estimation and the difficulties in achieving it will guide the public buyer towards the best approach for setting the price for the delivery of the end solution by the innovative supplier.

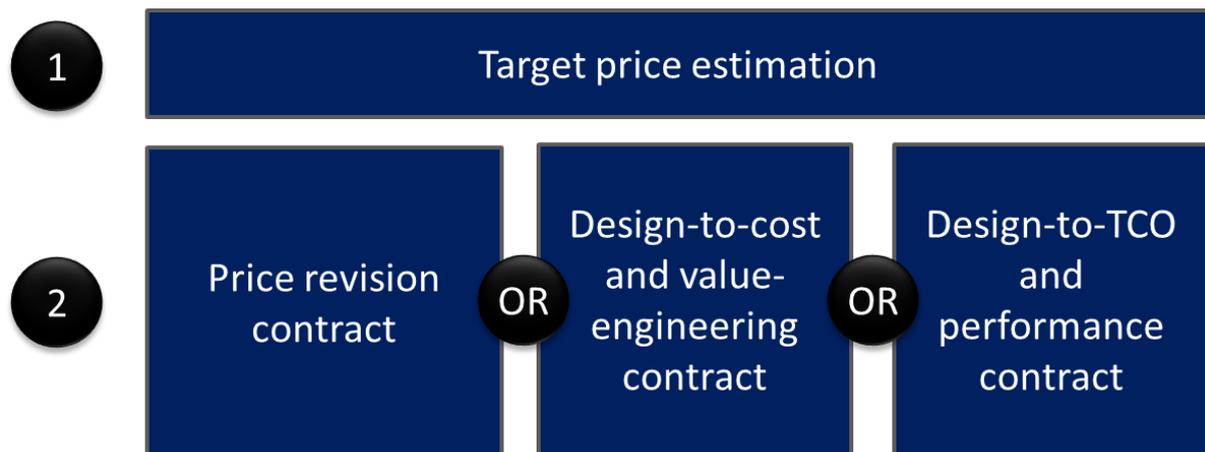


Figure 4: Price estimation method for end solution

2.3.1. Target price estimation

The target price estimation relies on data and elements coming from the specifications/needs description and from market analysis that are collected during the sourcing phase. It is carried out keeping in mind that it is not possible to know all the components of the innovative end solution or how they interact with each other.

To succeed in fixing a price estimate, the price must be broken down into subsets or components of costs and functions ⁽⁵⁾, in a tree-like structure, keeping in mind that these components interact more or less strongly with each other.

⁽⁵⁾ Reference manual for value analysis:
Office of Deputy Assistant Secretary of Defense Systems Engineering (2011), *Value Engineering: A guidebook of best practices and tools*, Department of Defense, United States of America.
Suggested guidance on cost breakdown analysis, total-cost-of-ownership and sustainable procurement:
— Clement, S., Watt, J., Semple, A. (2016), *The Procura+ Manual: A guide to implementing sustainable procurement*, 3rd Edition – ICLEI – Local Governments for Sustainability, European Secretariat;

The joint description and breakdown of cost structure and of main function value allows the identification of the main cost and value drivers of the end solution (Figure 5), i.e. the factors that probably have the highest influence on the cost of the targeted innovative product/service and of its ownership. The cost drivers might be estimated more easily through parameters that determine the costs of similar products/services, while the costs of subfunction values can be estimated through analogies with similar products/services.

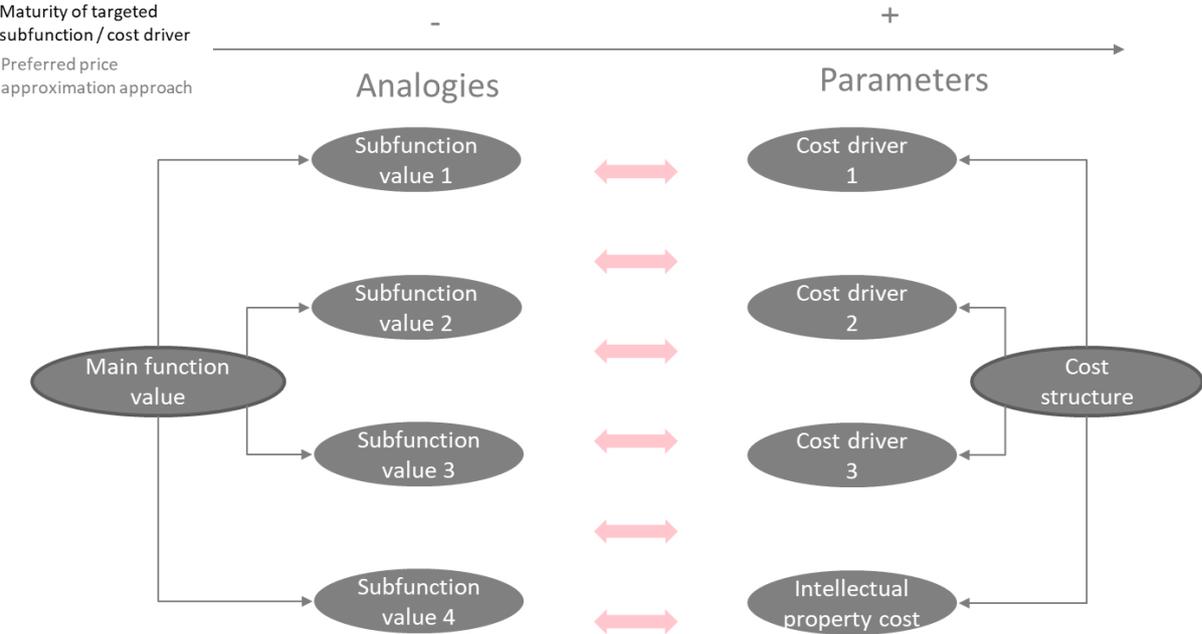


Figure 5: Cost and value breakdown and dialog approach

This approach also makes it possible to set the maximum price of the end solution based on each identified element and aggregating the market prices of existing, identical elements. Alternatively, if an element of the end solution is considered to be superior or inferior to a similar element on the market, a coefficient can be added to the reference price to reflect this.

It should be noted that the difficulties encountered when setting the target price will determine the preferred approach for contracting (Figure 6). The best approach might not be IP but pre-commercial procurement, when the maturity of the project is so low that no estimation is possible, or public procurement of innovation, when maturity is high (close to industrialisation).

— UNEP (2021), *Sustainable Public Procurement: How to wake the sleeping giant! Introducing the United Nations environment programme’s approach*, 2nd edition, United Nations Environment Programme / UNESCO.

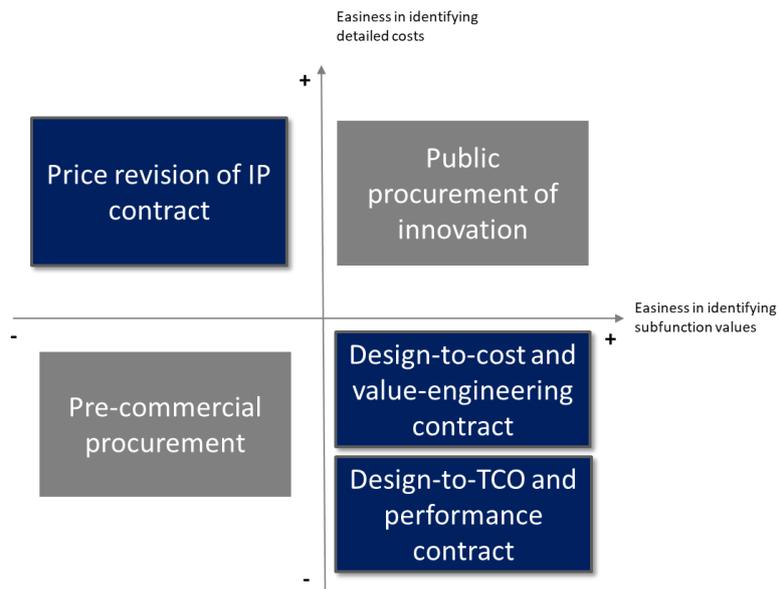


Figure 6: Most suitable procedure according to difficulties to evaluate cost/value elements

2.3.2. Price revision contract for the business phase

A price revision contract might be the most appropriate approach when cost-driver elements are more easily identifiable than the value of the various subfunctions of the targeted product/service. This is specifically the case when most design elements of the targeted end-function are fixed and validated.

The mechanisms of such a contract should leverage similar existing price revision contracts in public procurement.

The price of the purchased product/service should be calculated according to the following formula.

Price = formula based on the cost/value estimation of sourcing phase

$$P_{r(t)} = P_0 \times \left[60\% + 20\% \times \frac{I1_t}{I1_0} + 10\% \times \frac{I2_t}{I2_0} + 10\% \times \frac{R1_t}{R1_0} \right]$$

Figure 7: Type of price revision formula including elements relative to cost (I) and value (R)

The calculation must take into account the following elements.

- A fixed element – an important non-revisable part that limits the risks of variations beyond acceptable levels.
- A minimum of potentially revisable cost/value determinants (ideally maximum four, not weighting less than 10 % of the total). Determinant components costs or function might vary based on an index (I) or dimensional/functional reference (R) (mass, power, number of chip, etc.). Revision of these indexes and references is governed by certain rules.
- Safeguard provisions, including a maximum price level that includes a double proportionality test calculation.
- Limits of time and/or purchased volumes covered by the contract.

2.3.3. Design-to-cost and value-engineering contract for the business phase

A design-to-cost (or target costing) estimation combined with a value-engineering contract is more appropriate when the functional specifications and their value are have been worked out in detail than the technical solutions that can fulfil such needs, and/or when there are various technical potential answers.

The mechanisms of such a contract should leverage similar existing value-engineering contracts in public procurement.

The principle of this approach is to:

1. **determine a reference target cost** (C_{ref}) equivalent to the acquisition cost of a similar function/product/service (excluding cost of intellectual property) and **linked to target functions**;
2. determine an ambitious target cost such as $C_{target} < C_{ref}$, relevancy being evaluated during the sourcing phase (the double proportionality test has to be included in the C_{target} estimation);

3. make sure contractual objectives will reach C_{target} and functional specifications.

The price of the purchased product/service shall be calculated according to:

- for a design-to-cost contract:
 - C_{target} ,
 - functional specifications;
- for a value-engineering contract: total saving under C_{target} shared 50 %–50 %;
- **price = C_{target} – 50 % saved cost;**
- and finally:
 - a provision organising performance monitoring,
 - a safeguard provision including a maximum price level (C_{max}) and other key performance indicator (KPI) limits,
 - limits of time and/or purchased volumes covered by the contract.

2.3.4. Design-to-total-cost-of-ownership and performance contract for the business phase

A design-to-total-cost-of-ownership (TCO) and performance contract is more appropriate when the functional specifications and their value are detailed, and the evaluation system of the public buying authority has significant resources. This approach might bring higher and wider value to public buyers, innovative suppliers and end users ⁽⁶⁾. However, this type of contract uses more resources, specifically during the sourcing phase (i.e. while estimating the target TCO instead of the price of purchase only).

The mechanisms of such a contract should leverage existing performance contracts in public procurement.

This approach requires the following.

1. Defining **targeted functional specifications**.
1. Determining a **maximum target TCO (TCO_{max})** for the end solution (as a minimum equivalent to total acquisition cost of similar function/product/service plus maintenance, repair and operations costs). The double proportionality test is included in the TCO_{max} estimation.
2. Determining an ambitious target cost such as $TCO_{\text{target}} < TCO_{\text{max}}$ and other KPIs:
 - KPI 1: TCO_{target} ,
 - KPI 2: service level A,
 - KPI 3: service level B,
 - KPI 4: ...
3. Designing contractual objectives to reach TCO_{target} and functional specifications (KPIs).

⁽⁶⁾ Guideline to the MEAT-Value Based Procurement Framework, BCG & MedTech Europe, February 2017 (<https://ec.europa.eu/environment/gpp/lcc.htm>).

Price = formula based on weighted performance of KPIs (Figure 8)

$$P_{r(t)} = P_0 \times [50\% + 50\% \times \sum_{n=1}^4 \text{weight}KPI_n * KPI_n]$$

Figure 8: Type of price revision formula including elements relative to performance

The price of the purchased product/service is calculated according to:

- for a design-to-TCO contract:
 - TCO_{target} ,
 - functional specifications;
- for a performance contract:
 - KPI 1: TCO_{target} based on P_0 ,
 - KPI 2: service level A,
 - KPI 3: service level B,
 - KPI 4: ...;
- **performance criteria;**
- a fixed element – an important non-revisable part that limits the risks of variations beyond acceptable levels;
- and finally:
 - a provision organising performance monitoring;
 - a safeguard provision including a maximum price level, maximum cost of ownership level (TCO_{max}) and other KPI limits;
 - time limits and/or limits for purchased volumes covered by the contract;
 - the possibility to include a value-engineering approach for $TCO_t < TCO_{\text{target}}$.

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