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LIFE CYCLE COSTING IN PUBLIC PROCUREMENT

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LIFE CYCLE COSTING IN PUBLIC PROCUREMENT

- How to obtain efficiency and the best value for money?
- Is the lowest price a good solution for selecting the best tender?
- Further costs will be generated by the use of the product
- The sum of all costs incurred throughout the lifetime of owning and using a product is usually known as

Total cost of ownership (TCO)

- The TCO approach could give to the contracting authorities the opportunity to get:
 - Medium and long-term financial savings
 - A new perspective on the options available on the market
 - Better understanding of the impact of choices made during the procurement procedures (including environmental impact)



WHAT DOES LIFE CYCLE COSTING MEAN?

- The **process of identifying and documenting all the costs** involved over the life of a product is known as Life Cycle Costing (LCC)
- LCC can be used as a **strategic managerial tool** supporting decision making process in all the phases of the procurement process



WHAT DOES LIFE CYCLE COSTING MEAN?

- Typical costs borne by the buyer in relation to the use of a particular product may be grouped as follows:
 - **Initial/investment costs** – include the product's purchasing price, other associated costs needed to get it to the point of use - such as costs related to legal fees, transportation, installation, commissioning (if not already included in the purchasing price) - and, where applicable, initial training of users
 - **Operating costs** – include costs related to energy consumption (e.g. electricity, gasoline, diesel, coal), consumables materials and necessary accessories (e.g. toner cartridges, lubricants, cleaning agents), taxes, insurance costs and/or any other resources needed for the use of the product
 - **Maintenance costs** - include the costs associated with keeping a product in good condition or good working order, by regularly checking it and repairing it, including any spare parts that have to be periodically replaced when necessary, cost of upgrades etc.
 - **End-of-life costs** - include decommissioning and disposal costs



2014 PUBLIC PROCUREMENT DIRECTIVES AND LIFECYCLE COSTS

- The „old” 2004 Directives provided that a CA could award a public contract by using either the **lowest-price** criterion or the **most economically advantageous tender** criterion
- The new 2014 Directives provide that a CA shall base the award of public contracts on the **most economically advantageous tender**
- The most economically advantageous tender from the point of view of the CA shall be identified on the basis of the price or cost, using a cost-effectiveness approach, such as life-cycle costing ... and may include the best price-quality ratio, which shall be assessed on the basis of criteria, including qualitative, environmental and/or social aspects, linked to the subject-matter of the public contract in question



2014 PUBLIC PROCUREMENT DIRECTIVES AND LIFECYCLE COSTS

Life-cycle costing shall to the extent relevant cover parts or all of the following costs over the life cycle of a product, service or works:

(a) costs, borne by the contracting authority or other users, such as:

(i) costs relating to acquisition,

(ii) costs of use, such as consumption of energy and other resources,

(iii) maintenance costs,

(iv) end of life costs, such as collection and recycling costs

*(b) **costs imputed to environmental externalities** linked to the product, service or works during its life cycle, provided their monetary value can be determined and verified; such costs may include the cost of emissions of greenhouse gases and of other pollutant emissions and other climate change mitigation costs*



2014 PUBLIC PROCUREMENT DIRECTIVES AND LIFECYCLE COSTS

- The use of a product may have an impact on the environment (emission of greenhouse gases, eutrophication or land use), which will probably require other investments or charges in the future
- Each individual contract will have a different set of potential environmental impacts
- In general, constructed facilities, materials and products may have environmental impacts due to the processes of:
 - manufacture
 - transport,
 - assembly/disassembly,
 - maintenance
 - disposal
- Negative consequences on human health, availability of certain resources, soil erosion etc.
- EU GPP criteria and Technical Background Reports - explain the main impacts and how they can be addressed in purchasing



2014 PUBLIC PROCUREMENT DIRECTIVES AND LIFECYCLE COSTS

- Environmental externalities are often difficult to be “monetised” in order to be used in a mathematical formula as part of the LCC analysis
- It is expected that EC will prepare in the future common methodologies developed at Union level for the calculation of LCC for specific categories of supplies or services
- Article 68 (3) of Directive 2014/24/EU: *„Whenever a common method for the calculation of life-cycle costs has been made mandatory by a legislative act of the Union, that common method should be applied for the assessment of life-cycle costs.”*
 - Annex XIII to the Directive 2014/24/EU - only Directive 2009/33/EC („Clean Vehicles”) makes mandatory a common method for clean vehicles
- The CAs have to take into account when purchasing road transport vehicles, the following:
 - a) Energy consumption
 - b) Emissions of CO₂
 - c) Emissions of NO_x , NMHC and particulate matter
- LCC Tool prepared within an EU Project

ASSUMPTION IN LCC CALCULATION

1. Life span

- Length of the product's useful life - how long the product will remain usable and will continue to satisfy certain performance requirements
- Good practice - for strategic investment in the public sector (**bridges or buildings**) it is typical to select a **70 - 75 years** period for LCC analysis
- Vehicles: 200.000 – 1.000.000 KM



ASSUMPTION IN LCC CALCULATION

2. Costs to be considered

- What costs to be taken into account? - some costs may be important, while others completely irrelevant
- Do we have available information about costs?
- Occurency
 - one-off costs (initial price, disposal costs)
 - recurrent costs (operational and maintenance costs)
- Dependence on the volume of activity
 - fixed costs - remains constant regardless of the level of activity (insurances, taxes, regular/statutory technical checking)
 - variable costs – fluctuate depending on the activity level (operational costs related to energy consumption or consumables materials, repairs costs, spare parts)

ASSUMPTION IN LCC CALCULATION

- The main goal in assessing life cycle costs is to generate a **reasonable approximation** of the costs and not to try to achieve a perfect answer
- In case of simple procurement, the officials involved in LCC analysis can take into account any costs that they feels are appropriate and realistic from the economic perspective
- In case of complex procurement (such as large-scale infrastructure projects), LCC analysis require external specialist advice or access to background data, statistics, reports, studies



ASSUMPTION IN LCC CALCULATION

3. Discount Rate

- I will **pay more now** and I will **save money for the future**
- Discount rate helps to compare the actual value with the future value
- Discount rate takes into account the time value of money and gives the possibility to calculate the present value of the future costs

$$PV = V_1/(1+r) + V_2/(1+r)^2 + V_3/(1+r)^3 + \dots + V_n/(1+r)^n$$

Where: **V_n** is the value of the costs incurred after n years

r is the discount rate ($r = r\%/100$)

- The usual rate for public sector projects is between 3% and 5%
- **Example**

LCC IN PRACTICE

- The life cycle costing analysis can be used in different phases/stages of the procurement process
- The greater effect - in the earliest stages of procurement process
- Technical Specifications
- Award Criteria
- Example - using *Clean Fleets LCC Tool*



QUESTIONS, COMMENTS?



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