

R2D2P Workshop on Cost Estimates

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Simplified cost calculation

R2D2P

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- 1) Principles of the simplified costing approach**
- 2) Preparation of the calculation structure**
- 3) Calculation procedure**

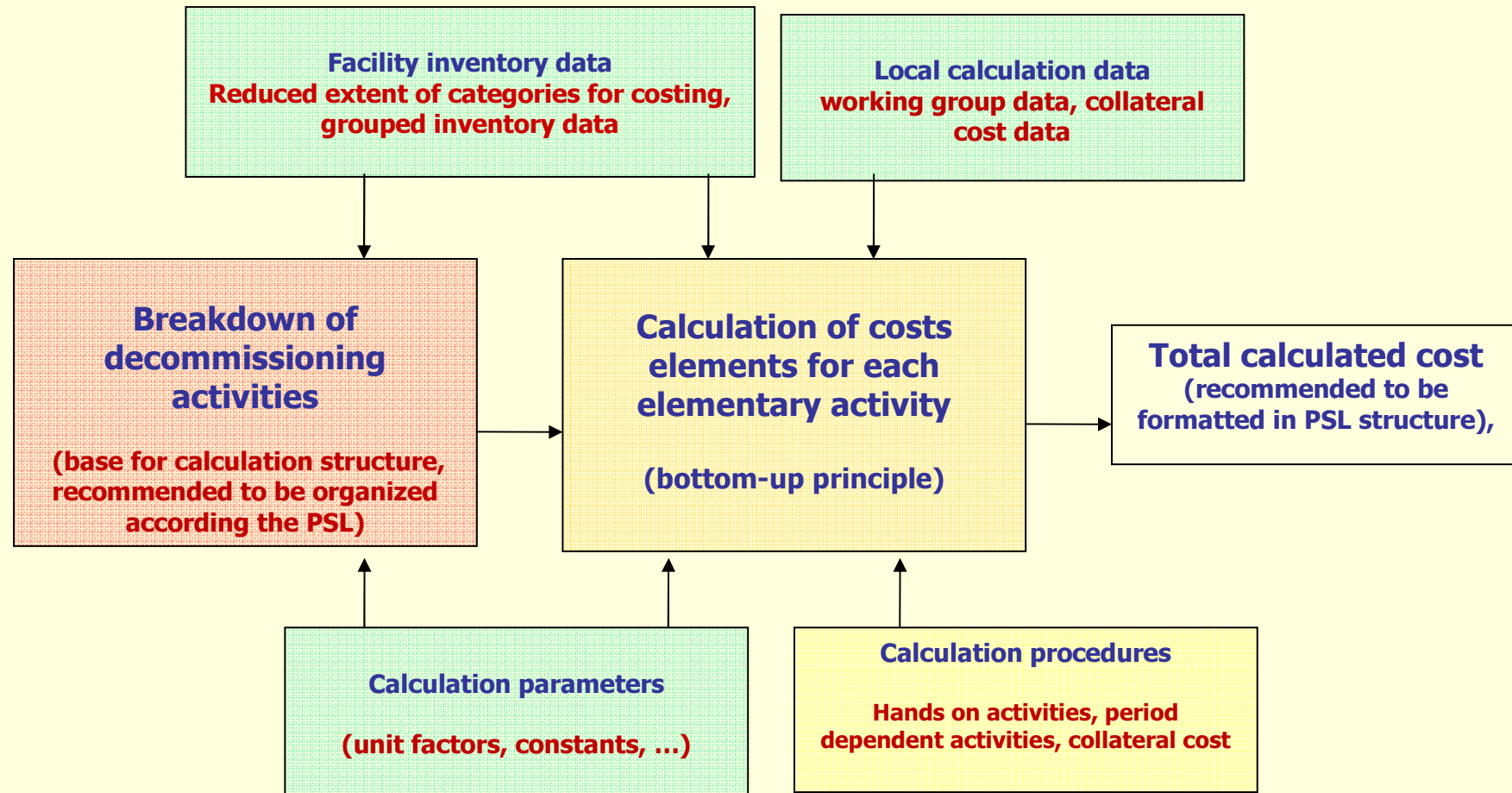
1. Principles of the simplified costing approach

Main features of the simplified costing approach

- Used at preliminary costing stages
- Limited extent of input data. The facility inventory data are grouped. The extent of decommissioning categories is reduced (10 – 30).
- Extent of unit factors is limited to the extent of decommissioning categories and the extent of professions considered for personnel
- PSL structure can be used as the check list. The decommissioning activities are recommended to be organised according the PSL standardized list. The cost elements are calculated at the level lowest identified activity
- Cost elements are calculated according the **chapter 12 of the PSL**
- Manpower and labour cost unit factors calculation approach is used for labour cost
- Process cost are calculated using the cost factor approach

1. Principles of the simplified costing approach

- Principal scheme of simplified decommissioning costing approach

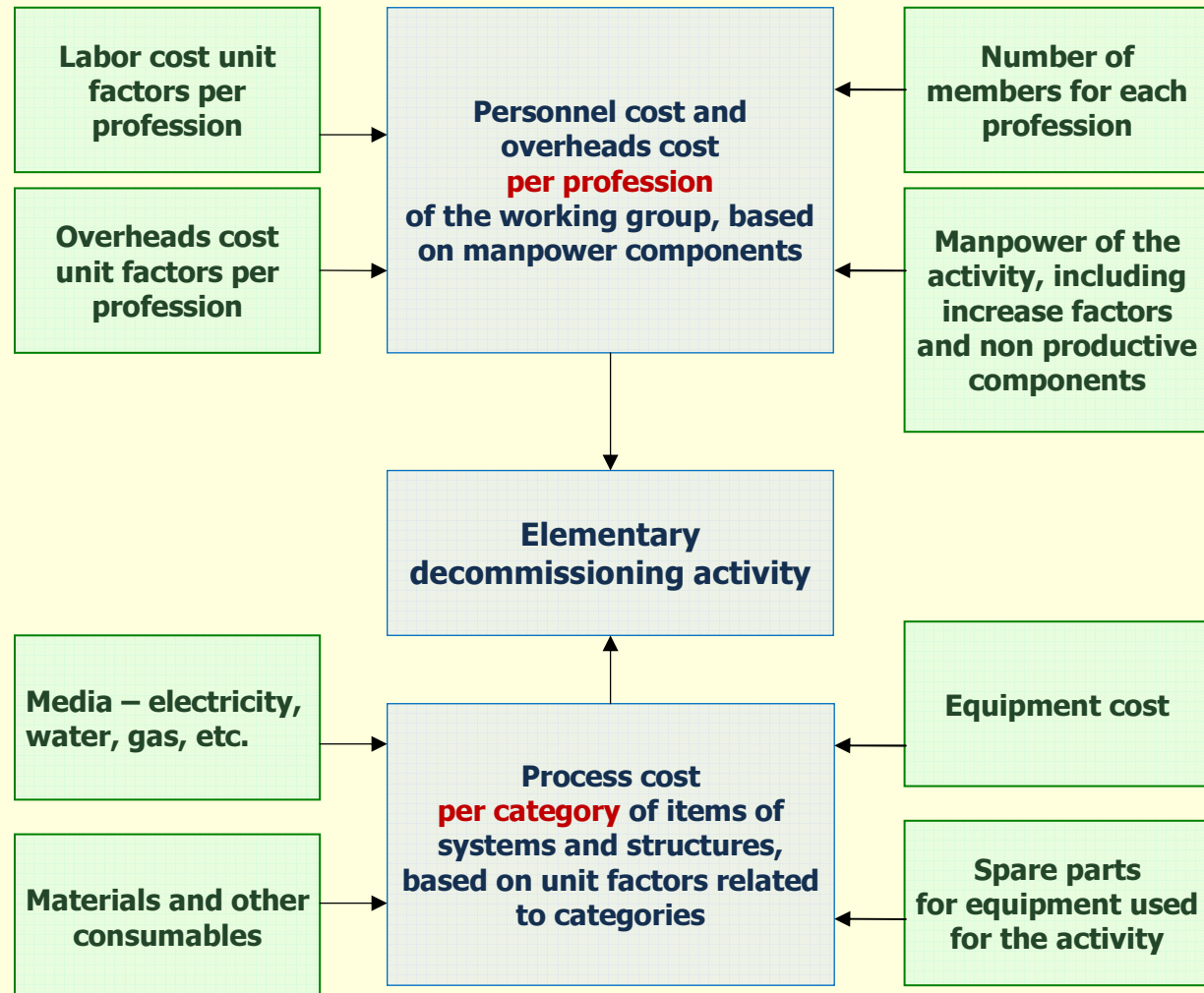


1. Principles of the simplified costing approach

- Inventory dependent activities**

Cost drivers:

- manpower unit factor for the category of input variable
- quantity of input variable
- personnel involved and their cost unit factors
- expenses cost unit factor
- investment cost unit factor



1. Principles of the simplified costing approach

■ **Period dependent activities**

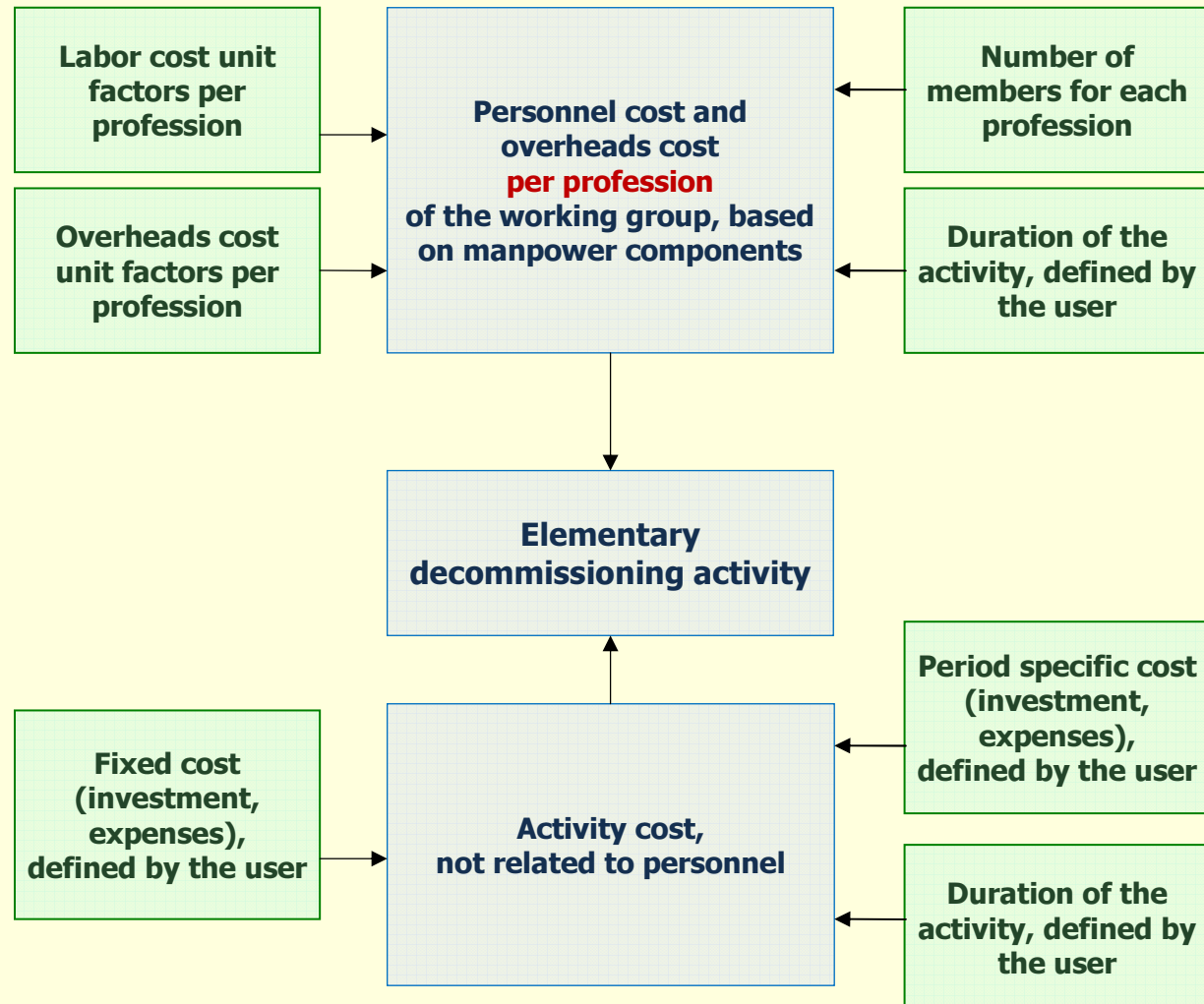
Cost drivers:

- duration
- personnel involved,
- their cost unit factors
- period specific cost if identified

■ **Collateral cost**

Cost drivers:

- Fixed items introduced to cost calculation structure (investment, expenses)



Procedure for preparation calculation structure for simplified decommissioning costing:

1) Identification of inventory items for the project

- Developing the list of inventory items for the project based on documentation available, on-site inspection, interview of personnel
- Identification of material properties, dimensions
- Identification of radiological properties
- Developing the list decommissioning categories based on the identified inventories

2) Identification of decommissioning activities for the project

- Developing the list of decommissioning activities for the project
- Identification of type of the decommissioning activities (inventory dependent, period dependent, auxiliary activities with fixed manpower, collateral costs)

3) Techniques for the inventory dependent activities

- The techniques are defined for each decommissioning category
- Definition of working groups for techniques
- Developing the manpower unit factors for individual techniques
- Developing the cost unit factors for techniques as expenses and investment cost unit factors

Procedure for preparation calculation structure for simplified decommissioning costing, cont.:

4) Definition of working groups for decommissioning activities

- For inventory dependent activities the working groups are taken from the list of techniques
- For period dependent activities are the working groups defined individually for each activity

5) Definition of duration of period dependent activities

- The duration of activities related to development of documentation is defined based on experience
- The duration of activities related to phases of decommissioning project is defined based on duration of phases (mostly defined as critical path)

6) Allocation of inventory input data and calculation data for inventory dependent activities

- Allocation of inventory data to individual calculation items
- Allocation of unit factors to individual calculation items

Procedure for preparation calculation structure for simplified decommissioning costing, cont.:

7) Constraints for inventory dependent activities, non productive working time components

- Identification of working constraints for individual activities
- Allocation of relevant increase factors for individual activities
- Allocation of coefficients for non productive working time components

8) Allocation of contingency specific for individual calculation items

- Definition of contingency range for each calculation item

Procedure for calculation of cost in simplified decommissioning costing:

1) Calculation of manpower for individual activities

- Manpower for inventory dependent activities is calculated based on input variables and manpower unit factors
- Calculated basic manpower is increased for increase factors and for non-productive working time components
- Total manpower is distributed to professions of the working group
- Manpower for period dependent activities is calculated as product of duration and total number of members of the working group and is distributed to individual members of the working group

2) Calculation of labour cost

- Labour cost are calculated according the single labour cost unit factor and manpower component for each profession

3) Calculation of overheads related to personnel

- Overheads are calculated according the single overheads cost unit factor and manpower component for each profession

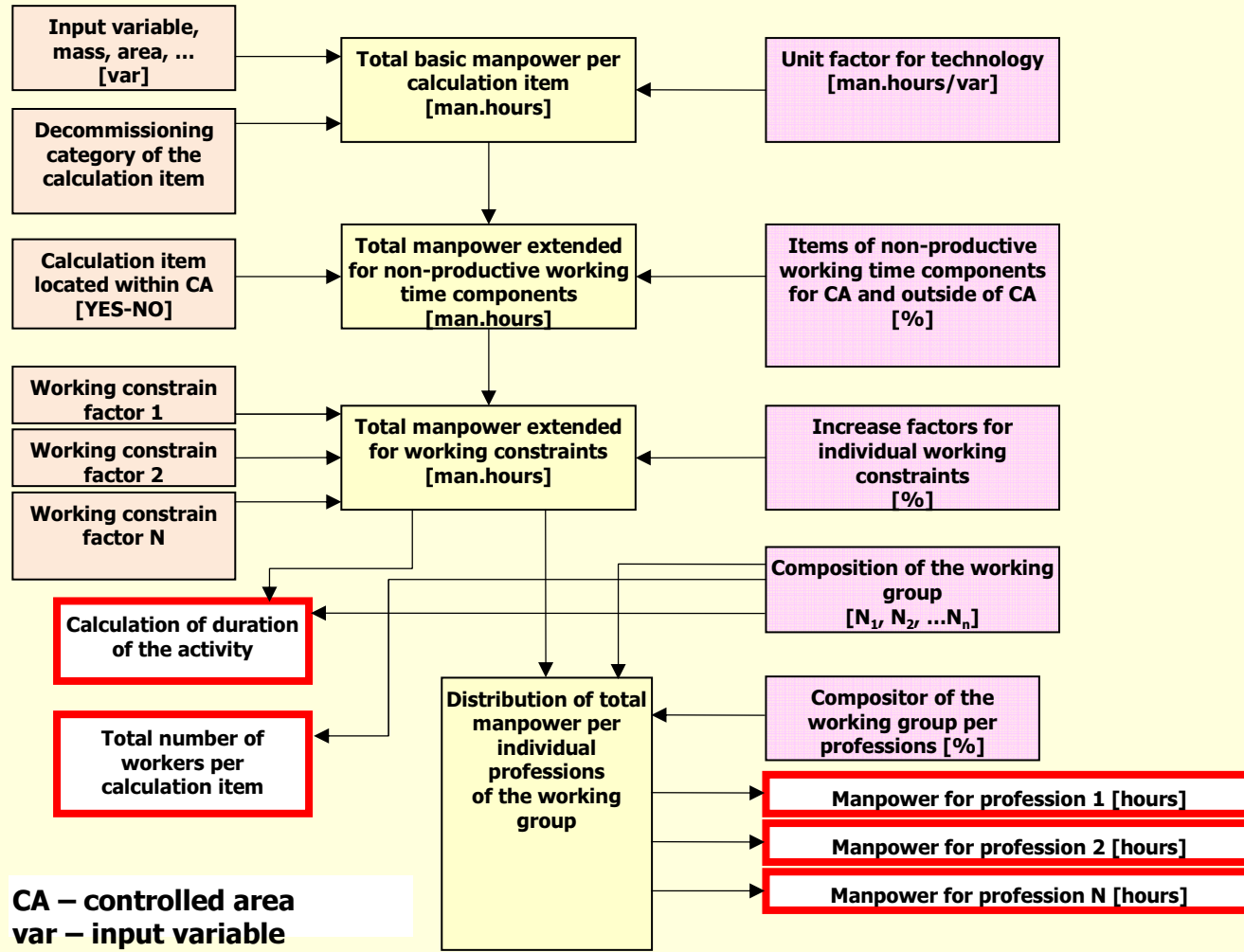
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Source of data



Calculation sequence

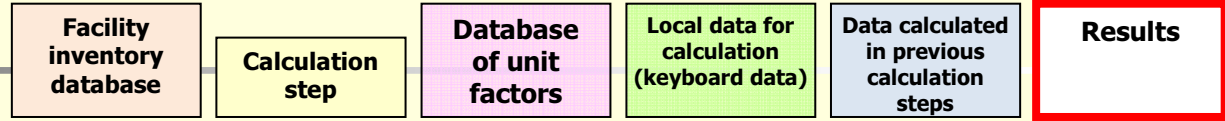
- Procedure for calculation of cost for inventory dependent activities



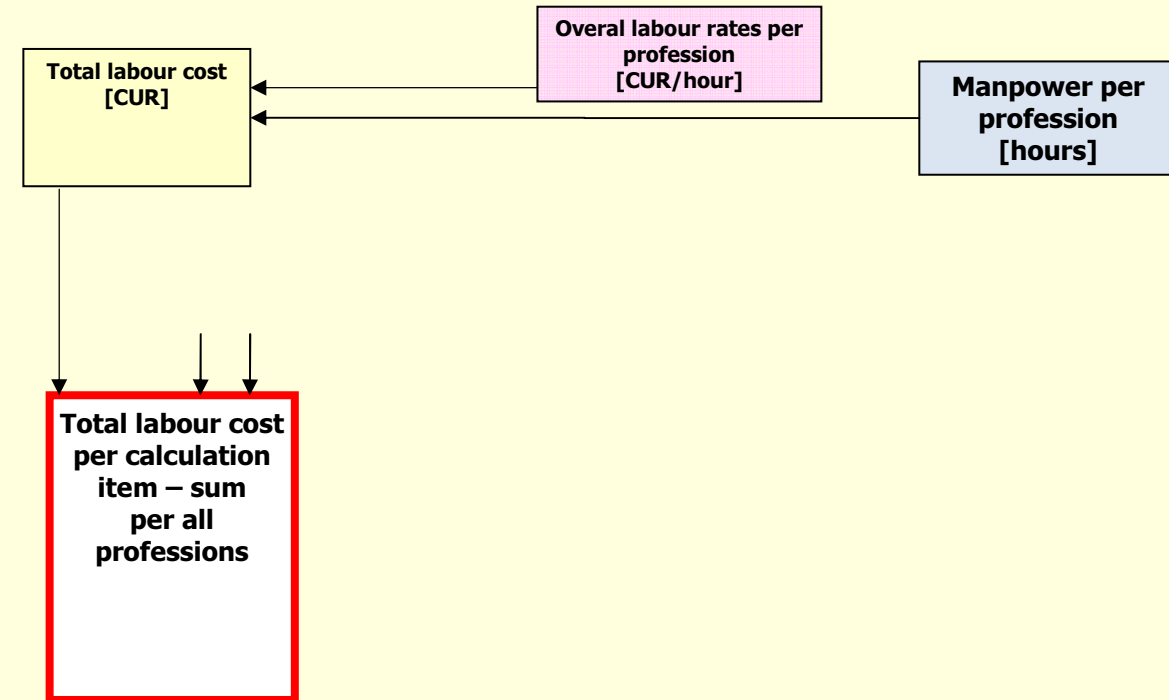
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3. Procedure

Source of data



Sequence of calculation



CUR - currency

- Procedure for calculation of labour cost
- The same procedure is used for calculation of overheads expenses based on manpower components and overheads cost ratios for professions

Procedure for calculation of cost in simplified decommissioning costing:

4) Calculation of investment cost and expenses for inventory dependent activities

- Calculation of investment cost based on investment cost unit factors and input variables
- Calculation of expenses based on expenses cost unit factors and input variables

5) Calculation of investment cost and expenses for period dependent activities and for collateral cost items

- Fixed cost items are introduced into the calculation structure as fixed values
- Period specific items are calculated based on duration and period specific cost factor

6) Calculation of contingency

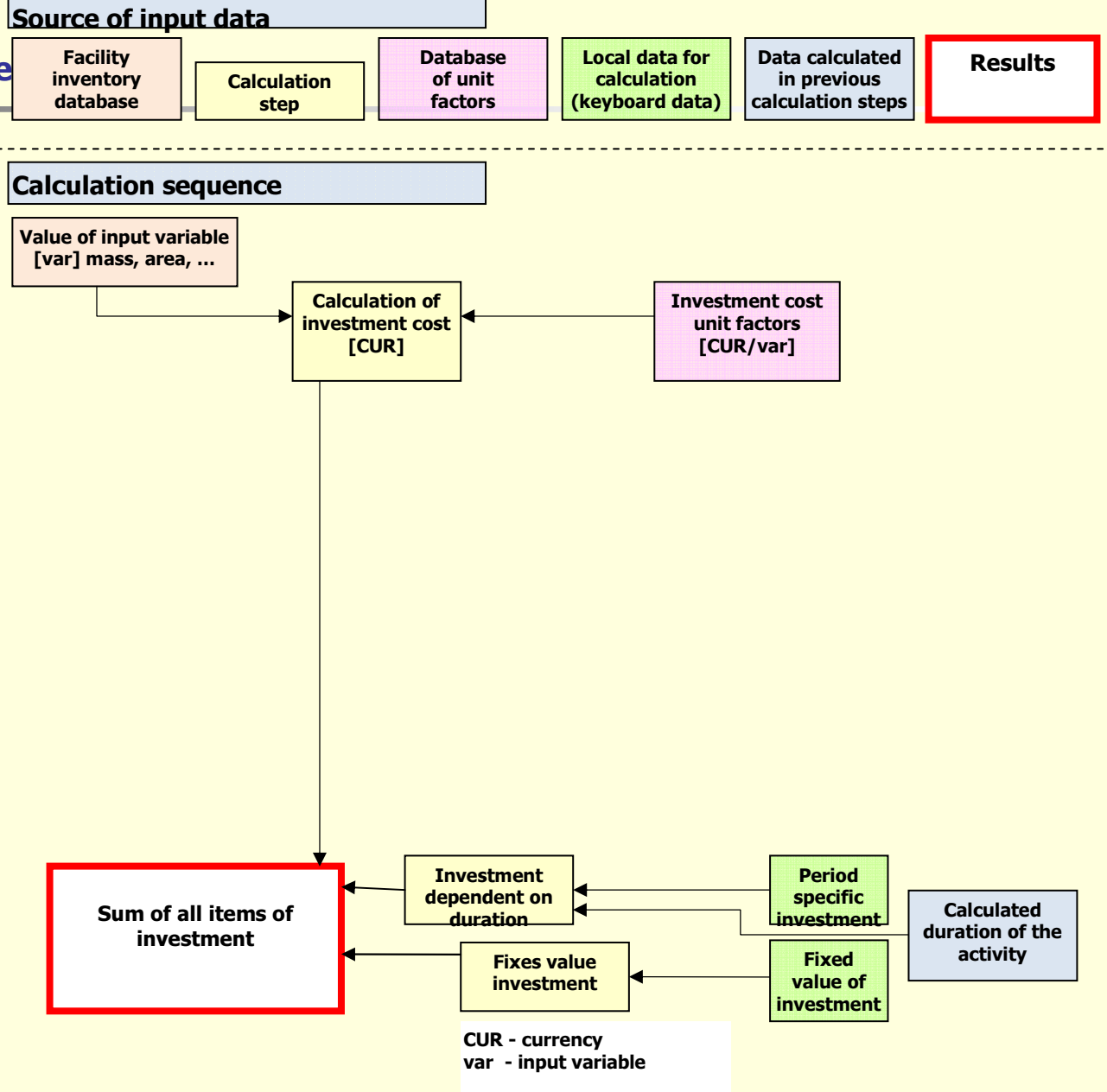
- Contingency is calculated as single item per calculation item based on sum of labour cost, investment cost and expenses and the percentage of contingency defined for the calculation item

7) Formatting of data

- The calculated cost are presented according the structure of the chapter 12 of the PSL structure

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3. Procedure



- Procedure for calculation of investment cost
- The same procedure is applied for calculation of expenses

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3. Procedure

Source of data

Facility inventory database

Calculation step

Database of unit factors

Local data for calculation (keyboard data)

Data calculated in previous calculation steps

Results

- Procedure for calculation of contingency

Sequence of calculation

Total contingency per calculation item

Contingency ratio specific for calculation item [%]

Sum of labour cost, investment and expenses

CUR - currency