

LCA in projects

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LCA applied to space

Goal of study

To assess the environmental impacts of the space mission

Functional Unit

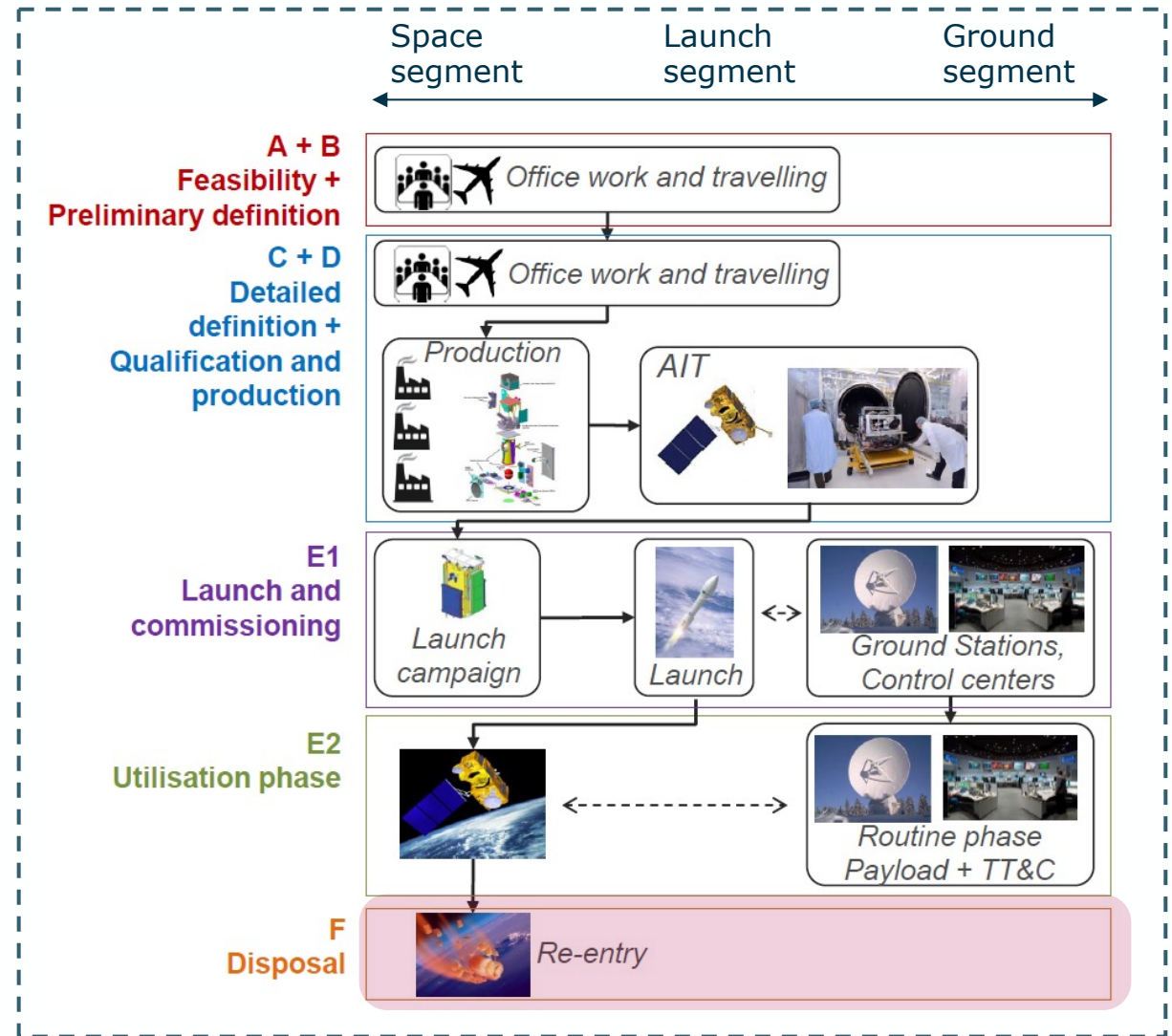
One space mission in fulfilment of its requirements

System boundaries



Exclusions

Note: Space debris are out of the scope



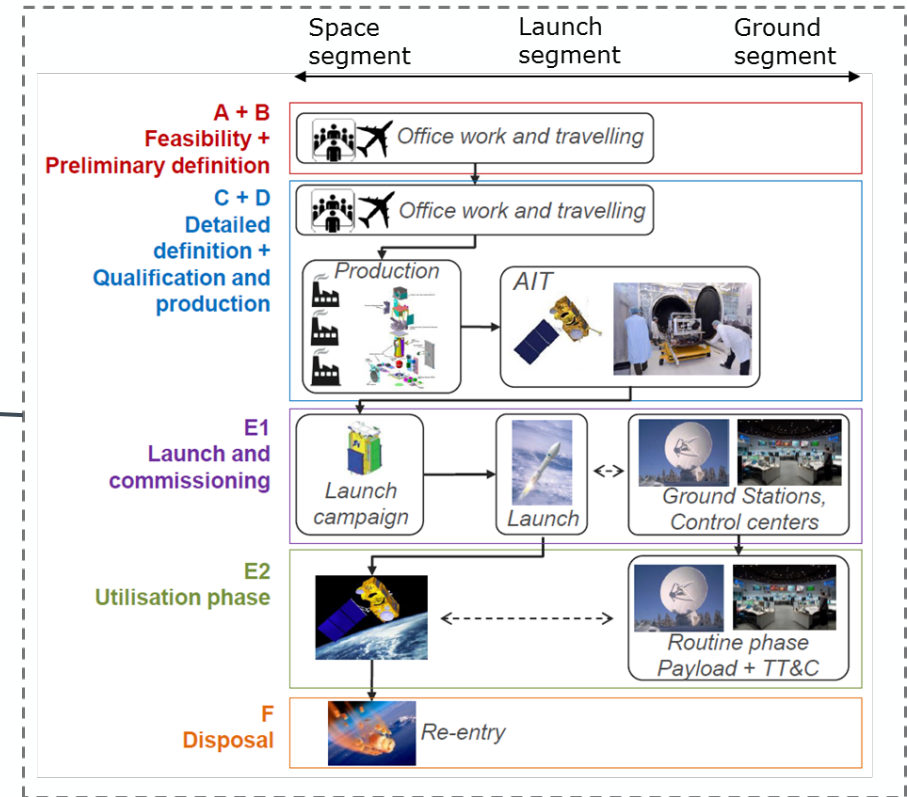
Requirement in projects

- Performance of a Life Cycle Assessment (LCA) of the baseline design following the provided guidelines RD[02];



RD[02] ESSB-HB-U-005 Is. 1, Space system Life Cycle Assessment (LCA) guidelines

LCA-010 The Data Quality Ranking shall be lower or equal to three in each of the data quality indicators according to Table 1
 Note: If it cannot be achieved a justification will be provided by the Contractor



Examples: LCA deliverables in Cop-Exp missions

What and when to expect it:

Phases:

Activities:

SRR

Handbook Tailoring

PDR

LCA 1st Iteration

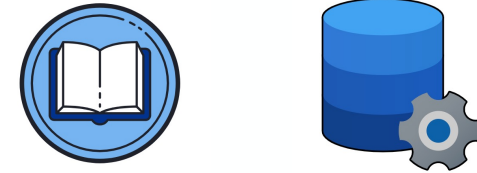
CDR

LCA 2nd Iteration

QAR

Delta Iteration

Inputs provided:



Outputs:



Handbook Tailoring Report



1. Model in SimaPro
2. LCA report



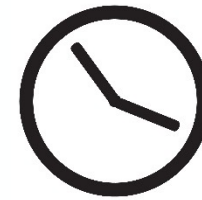
1. Model in SimaPro
2. LCA report

Data Quality Rating (DQR) requirement - example

Always required:

Completeness

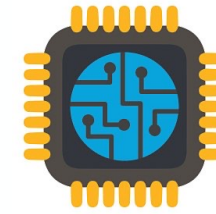
Methodological appropriateness and consistency



Time-related



Geographical



Technological



PDR

DQR=>3 → good
(goal)

Not older than 8 years

Geographical region (e.g. Europe)

Similar (generic supplier data) used as proxy

Fair uncertainty and good precision

CDR & QAR

DQR<=3 → very good or excellent
(requirement)

Between 4 and 8 years

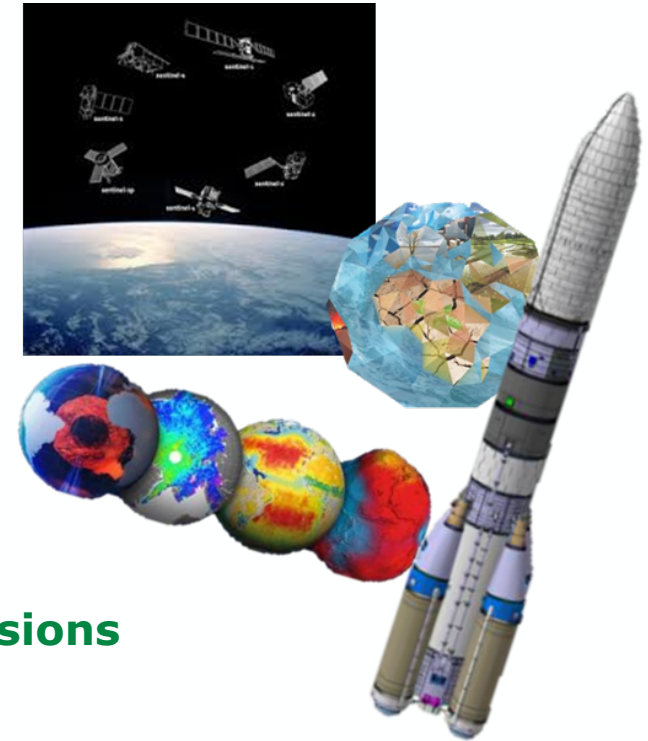
Same or representative country

Supplier data required

Low uncertainty and high precision

ESA Projects

- Ariane 6
- Earth Explorer 9 & 10
- Copernicus Expansion missions
- Galileo 2nd Generation
- ...



Questions

