DEFENCE AND SPACE

Airbus DS LCA return of experience

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Content

- Base for Return of Experience
- Methodology
- Harmonization
- Tool / Databases
- Other aspects

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Base for Return on Experience

ITT/Bids, Phases 0-A / A-B1, Phases B2-E1, Technologies

- Earth Explorer – SKIM/FORUM ✓
- COPERNICUS – GPLF EO standard platform ✓
- COPERNICUS HPCM ▷
- Galileo 2nd generation ▷

- Own LCA on Space technologies ▷

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Methodology

ESA LCA Guidelines

- Definition of important methodological elements in the Guidelines or latest in the ITT SoW/SRD

  Cut off criteria, Data Quality Ranking or other major methodological elements have to be set earlier, as they strongly influence the amount of work and the contractualisation with suppliers

- Change of LCIA methods

  We should avoid that the Guidelines are constantly outdated and need constant updating. Potentially the methods could be set in the ITT or have to be agreed in the Tailoring

- Prime and Equipment LCA activities

  The level of details and other aspects on the link between Prime and Equipment LCA are not explicit enough (§7.2.2.2.1 and §7.3)

- Priority impacts

  The 6 priority impacts defined by ESA are contributing positively to embedding LCA in projects/programs
  Priority impacts could be included into the guidelines and advertised

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Harmonization

Data collection

- General Approach - Updating existing documentation vs. Dedicated documentation

  Some existing documents (i.e DML, DPL…) are already containing needed data, but not all necessary. Do we change the ECSS standards or create new format

- Harmonisation of documentation (i.e. LCA questionaire)

  All Primes have differents LCA questionnaires, this will create confusion and additional work/costs

Requirements

- Harmonisation of requirements, especially for the same Phases

  LCA requirements are different → Galileo ≠ Copernicus HPCM

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Tool / Databases

ESA Database

- Strong and available database

  Early Phases / Preliminary LCA are completely dependent on an existing strong databaseAt System PDR, LCA relies only on existing data (ESA database, existing company database, commercial database) as most suppliers are not yet contractualised

LCA tools

- Different tools, different databases and versions

  How to ensure compatibility between GaBi, SimaPro or other LCA tools?
  How to manage (major) Tool/database version change in long projects?

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Others Aspects (1/2)

Global

- Clarification of the purpose of LCA

  External Communication, internal awareness, Ecodesign, filling LCA database…
  The purpose is defining more precisely the need in term of effort and quality. Is an uncertainty analysis necessary for all purposes?

- Clarification of the importance of LCA for ESA

  This does influences if the subject is taken seriously or as a nice to have
  LCA for one satellite might be less strategic than on another one

LCA level

- Material and manufacturing processes LCA

  Increased value (accuracy , reuse) for Space specific technology/material/processes
  Deeper cooperation with a specific supplier than with 50, allowing more accurate data and launching dedicated improvements

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Others Aspects (2/2)

LCA results

- Usefulness to share (some) results with suppliers and projects members

  Stakeholders contributing to the LCA should be made aware of the results and recommendations
  In particular suppliers without LCA capacity (strong majority) might be more willing to contribute and launch improvements based on results

LCA deliverables

- Mismatch between document delivery and data availability

  1st LCA iteration at System PDR means that most suppliers are not contractualised and therefore so no (new) data are available
- LCA with changing design / model philosophy

  Before System/Instrument/Equipment CDR, design are not frozen and changes have to be modelised in the LCA software causing constant modifications

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Thank you

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