



**Royal
HaskoningDHV**
Enhancing Society Together

Advantages of using CHESAR

In the chemical safety assessment

& effective communication

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Program

- Importance of realistic risk assessment and readable eSDS
- Why do we use Chesar
- Benefits of using Chesar for the registrants and downstream users
- Key features in Chesar

Royal HaskoningDHV experience

- Chemicals management support for over 3 decades
- Fathered systems on efficient SDS communication
- Guidance of substance identity
- Full REACH and CLP portfolio
- (Eco)toxicologists and Industrial hygienist
- Specialty in “difficult substances”
 - PBT, CMR
 - Multi-constituent substances, UVCB's

REACH Purpose

- Ensure that hazardous substances are used safely
- Minimize use of SVHC's
- Stimulate R&D



Safe use of substances

- Information on hazard
- Realistic assessment of risk
- Effective communication of hazard and risk
 - Clear
 - Concise
 - Reflecting good practices
 - Harmonized



Functionality of CHESAR

- Evaluation of the risk of uses
- Ensure integrity of data
- In- and export of life cycle trees, sets of operational conditions and RMMs, determinants, standard phrases
- Import of results from higher tier exposure estimation tools
- Generation of section 9&10 of CSR in readable format
- Generation of eSDS appendix using ESCOM phrases

Why do we use CHESAR

- Quality
- Increases efficiency and uniformity
- Realistic appraisal
- Allows for rapid evaluation adapted hazard data
- Readable CSR & eSDS
- Works fast
- Stable



Why do we use CHESAR

Improvements in version 3

- Increases efficiency by implementation of assessment entity
- Increases flexibility

Benefits of use of CHESAR to registrants

- Compliant to REACH
Data in dossier, CSR, eSDS stem from the same origin
- Use same lifecycle tree and OC and RMM for different substances → less data to communicate
- High quality, readable documentation
 - Use of ESCOM standard phrases
 - Automated translation of eSDS appendix → compliance
 - Automated transfer allows formulators to select and forward information
 - Use of branch specific naming
 - Trimming of unnecessary information




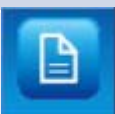



How does CHESAR work

- ❖ Stand alone tool, all data on your computer
- ❖ Highly structures
- ❖ 7 Boxes
 - ❖ Box 1 – Substance management (import from IUCLID)
 - ❖ Box 2 – Use management
 - ❖ Box 3 – Assessment management
 - ❖ Box 4 – CSR management
 - ❖ Box 5 – SDS ES management
 - ❖ Box 6 – Library management
 - ❖ Box 7 – User management

Key features of Chesar

- Import/export of life cycle tree and CSA
- Within CSA (Box 3),
 - copy paste of OC and RMM
→ Increased uniformity
 - Import of spERCs and SCEDs
 - Import from Stoffenmanager
- CSR (Box 4)
 - Inclusion of phys/chem risk assessment, strategies
- eSDS (Box 5)
 - Tailoring of information, Standard phrases
- Box 6
 - Determinants

7 Boxes of Chesar

Symbol	Chesar Box	Description
	Box 1	Substance management
	Box 2	Use management
	Box 3	Assessment management
	Box 4	CSR management
	Box 5	SDS ES management
	Box 6	Library management
	Box 7	User management

Box 1 Substance management

- Substance Management
- CSA Management
- Substance Identity
- Phys-Chem Prop / Fate
- Phys-Chem Hazard
- Environmental Hazard
- Human Health Hazard
- Scope of assessment

- ▶ **General** Collapsed
- ▼ **Biodegradation** Expanded

Property name	IUCLID data	Input parameter for
Biodegradation in Water: screening tests:	inherently biodegradable	EUSES 2.1.2
Half-life In Water:	36 d at 11 °C	EUSES 2.1.2
Half-life In Sediment:	81 d at 11 °C	EUSES 2.1.2
Half-life In Soil:		EUSES 2.1.2

- ▶ **Bioaccumulation**
- ▶ **Abiotic degradation**
- ▶ **Adsorption coefficients**

Click on the title of the section to expand or collapse

Box 1 Substance management

- Substance management
 - Import, export, select substance
 - When making export from IUCLID
 - information in chapter summaries
 - select correct format

Selected substance

- CSA management
 - import/export
 - multiple CSA's
- Scope of assessment → in/exclude man through environment

Version 3

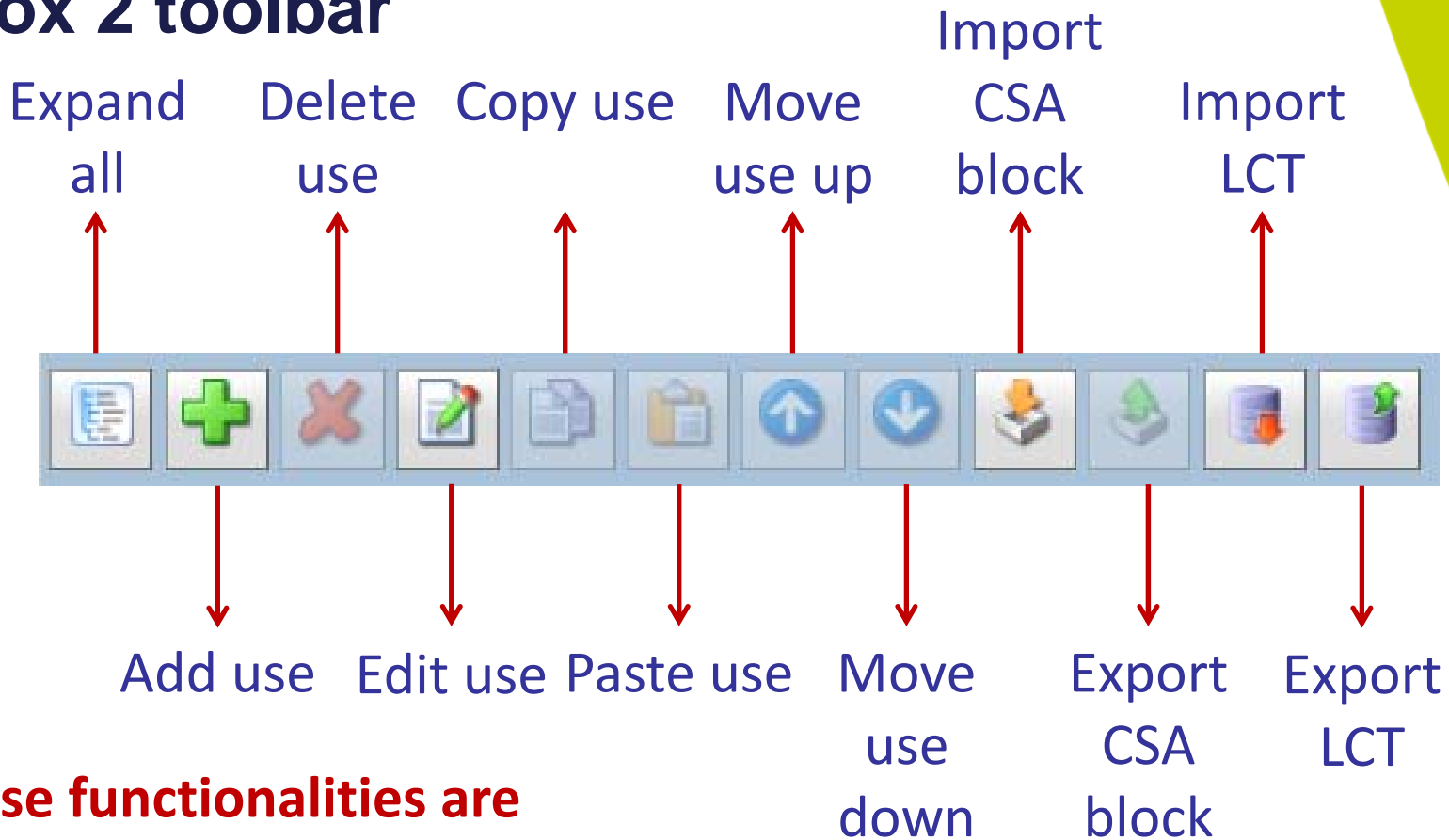
- Assessment entity → multiple limit values for same route

Box 2 – Use management

- ❖ Identified uses (life cycle tree)
 - Life cycle stages
 - Market sectors
 - Contributing scenarios
- ❖ Label and standard phrases
- ❖ Use descriptor system (PROCs, ERCs)
- ❖ Life cycle management (import / export)



Box 2 toolbar



These functionalities are also available via right click in the LCT

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Building LCT

- Starting with manufacture / import

The screenshot shows the chesar software interface. The top bar includes the chesar logo and a toolbar with icons for home, search, list, document, link, settings, and users. The user is logged in as 'rclleijsen'. The main window displays 'Selected Substance: Roos' and 'Selected CSA: CSA Roos'. Below this is a toolbar with icons for adding, deleting, and editing scenarios. The main content area shows a table for 'Manufacture / Import' with columns for 'Tonnage imported (tonnes/year)', 'Tonnage directly imported (tonnes/year)', and 'Tonnage manufactured (tonnes/year)'. A dialog box titled 'Select use or contributing scenario type' is open, listing various options. The 'Manufacture' option is selected. A secondary dialog box titled 'Create use of type Manufacture' is open, showing fields for 'Label' (Manufacture), 'Environment Release Category (ERC)' (ERC 1: Manufacture of substances), 'Tonnage manufactured (tonnes/year)' (0), and 'Internal remarks'. The 'OK' button is highlighted.

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Building LCT

- Create worker contributing scenario

The screenshot displays the chesar software interface. At the top, the 'chesar' logo and a toolbar with various icons are visible. Below the toolbar, the status bar indicates 'Selected Substance: Roos' and 'Selected CSA: CSA Roos'. A tree view on the left shows a hierarchy of manufacturing processes, with 'ERC 1: Manufacture' highlighted and circled in red. The main window shows the 'Manufacture' process details, including the 'Environment Release Category (ERC)' set to 'ERC 1: Manufacture of substances'. A dialog box titled 'Create use of type Worker contributing scenario' is open in the foreground. This dialog has several fields: 'Label' (set to 'Worker contributing scenario [edit]'), 'Process Category (PROC)' (set to 'PROC 5: Mixing or blending in batch processes for formulation of preparations and articles'), 'Explanation for CSR contributing scenario', and 'Internal remarks'. The 'OK' button at the bottom of the dialog is also circled in red. A smaller dialog box titled 'Select use or contributing scenario type' is also visible, with 'Worker contributing scenario' selected and circled in red.

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Building LCT

The screenshot displays the chesar software interface. At the top, the 'chesar' logo is on the left, and a toolbar contains icons for home, search, data, documents, settings, and users. Below the toolbar, the selected substance is 'Roos' and the selected CSA is 'CSA Roos'. A secondary toolbar contains icons for file operations. The main area shows a tree view of manufacturing processes:

- Manuf.Imp. (100.0 t) Manufacture / Import
 - Manuf (100.0 t) ERC 1: Manufacture
 - ERC 1: Manufacture
 - PROC 5: Worker contributing scenario [edit]**

The 'PROC 5: Worker contributing scenario [edit]' item is circled in red. The right-hand panel is titled 'Worker contributing scenario [edit]' and contains three text input fields:

- Process Category (PROC)
- Explanation for CSR contributing scenario
- Internal remarks

Simple Life Cycle Tree
Manufacture, formulation,
industrial, professional and
consumer use stage

Environmental
contributing
scenario
Worker
contributing
scenario
Consumer
contributing
scenario

chesar

Selected Substance: **Roos** Selected CSA: **CSA Roos**

- Manuf.Imp. (100.0 t) Manufacture / Import
 - Manuf (100.0 t) ERC 1: Manufacture** (Life cycle stage)
 - ERC 1: Manufacture
 - PROC 5: Worker contributing scenario [edit]
 - Formul. (50.0 t) ERC 2: Formulation** (Environmental contributing scenario)
 - ERC 2: Formulation
 - PROC 8a: Worker contributing scenario [edit]
 - Site (30.0 t) ERC 4: Use at industrial site**
 - ERC 4: Use at industrial site
 - PROC 10: Worker contributing scenario [edit]** (Environmental contributing scenario)
 - Prof. (20.0 t) ERC 8a: Use by professional worker**
 - ERC 8a: Use by professional worker
 - PROC 11: Worker contributing scenario [edit]
 - Consum. (50.0 t) ERC 8a: Consumer Use** (Consumer contributing scenario)
 - ERC 8a: Consumer Use
 - PC 35: Consumer contributing scenario [edit]** (Consumer contributing scenario)

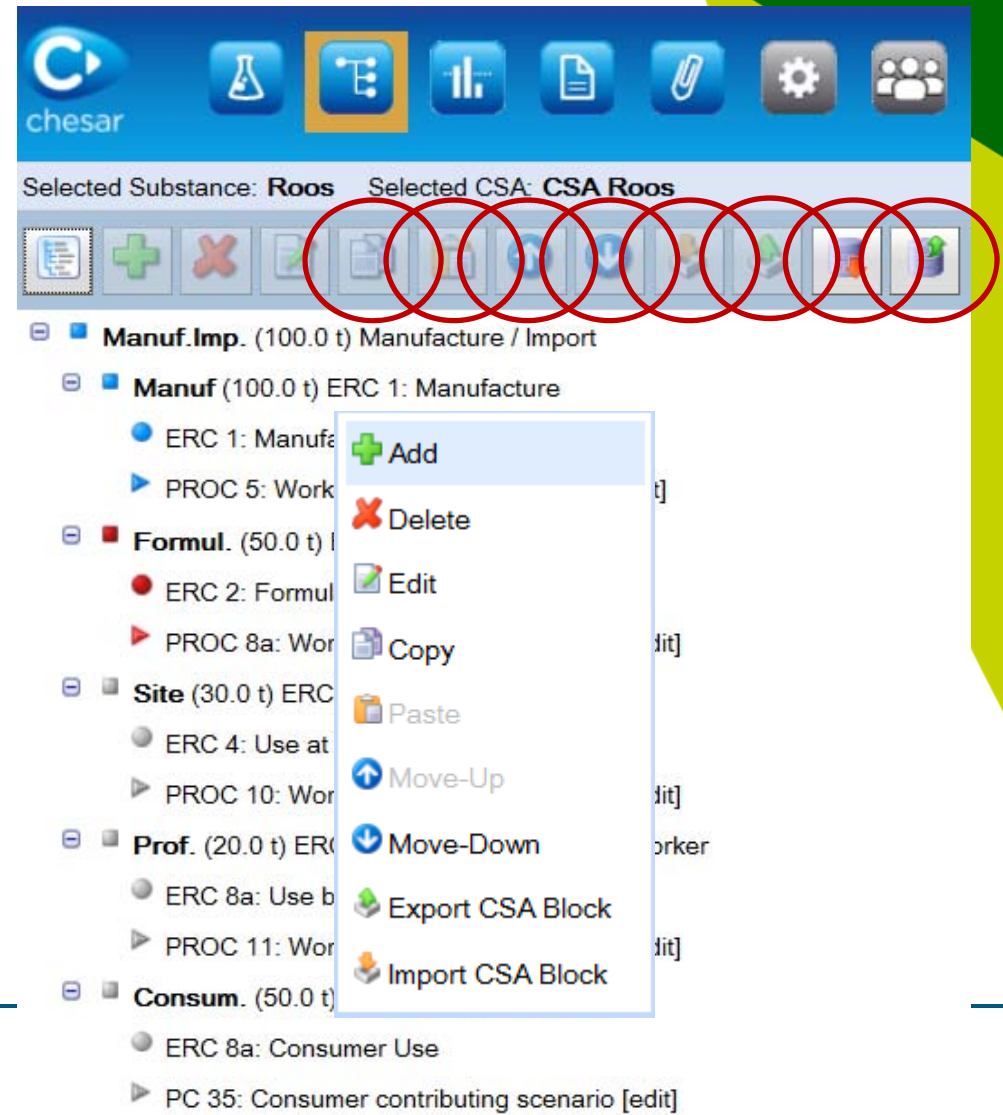
Other functionalities

- ❖ Copy
- ❖ Paste

- ❖ Move up
- ❖ Move down

- ❖ Import CSA block
- ❖ Export CSA block

- ❖ Import LCT
- ❖ Export LCT



Grouping of uses in exposure scenarios

- ❖ Type of main activity
Formulation, Industrial, Professional & Consumer uses
- ❖ Branch organization / Sector group
Stick to naming of uses & operational conditions selected
- ❖ Keep it short & simple
Only differentiate if it changes outcome of estimates
OR if it helps your DSU-er to comply

Box 2: Use management

- ❖ Input of all the uses communicated to you
- ❖ Allows for targeted information in eSDS
 - ❖ Branch / sector information [Cefic overview activities](#)
 - ❖ Types of client: Marketing & Sales

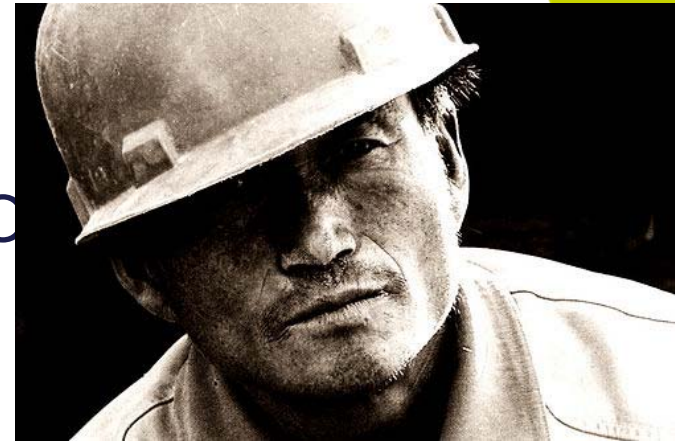
Box 3 – Assessment management

- ❖ Quantitative exposure assessment
- ❖ Default assessments: environment, human health (worker, consumer) and service life
- ❖ Integrated models
 - EUSES
 - ECETOC TRA worker
 - ECETOC TRA consumer
- ❖ External tools (e.g. Advanced REACH Tool, StoffenmanagerConsExpo)

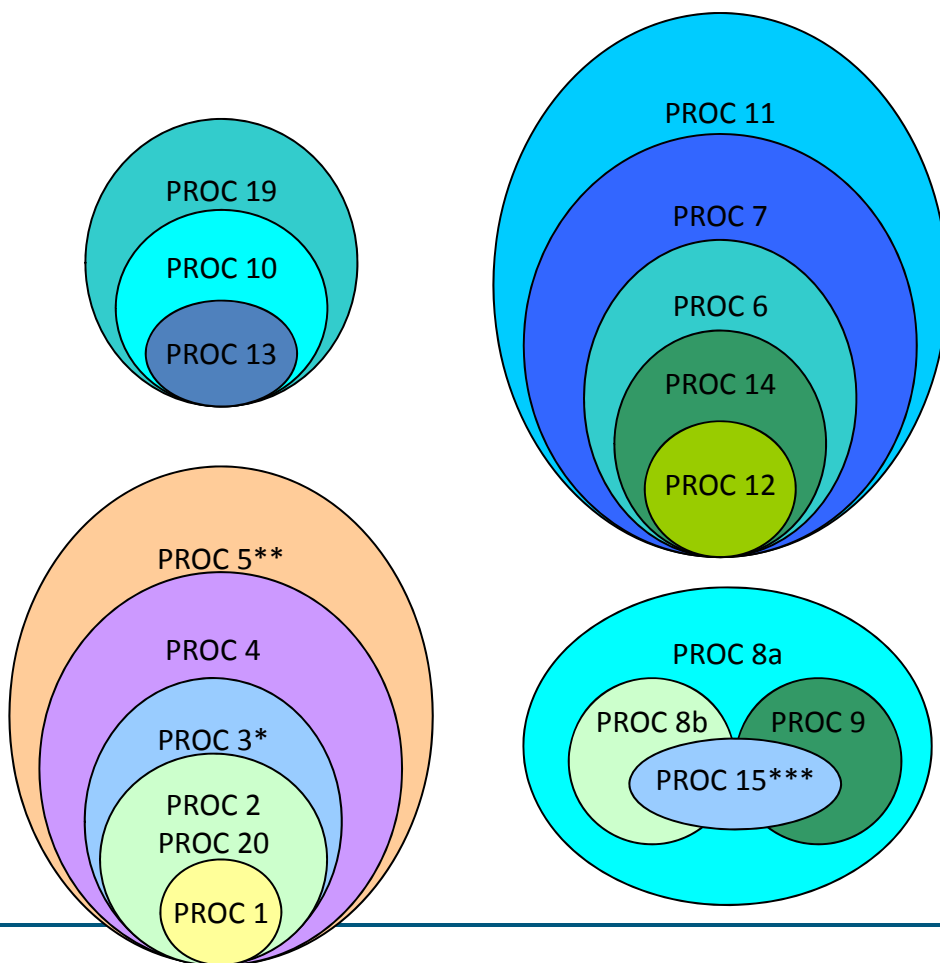


Worker assessment

- ❖ ECETOC TRA worker v3.0
- ❖ Based on process category (PRO)
- ❖ Modifyable conditions of use
 - Concentration
 - Duration of activity, process temperature and place of use
 - Level of Occupational Health and Safety Management System
 - General ventilation and/or local exhaust ventilation
 - Dermal and/or respiratory protection
- ❖ Advanced assessment: other models or measured data



Hierarchy of exposure potential per PROC in ECETOC-TRA and CHESAR



- ❖ Chesar exposure estimation is higher in the larger bullets (so PROC 4 also covers PROCs 1, 2, 3 and 20)
- ❖ Only applies if operational conditions and risk management measures are identical
- * Not true for dermal exposure with LEV
- ** Not true for dermal exposure
- *** Not true for industrial use of solids with LEV

Consumer assessment

- ❖ ECETOC TRA consumer v3.0
- ❖ Based on product category (PC)
 - ❖ or article category (AC)
- ❖ Modifiable conditions of use
 - Spray use or not?
 - Weight fraction and amount used / application
 - Body parts potentially exposed and dermal transfer factor
- ❖ Advanced assessment: other models or measured data



Box 4 CSR management

→ what you report to ECHA

- ❖ Generation of (default) exposure scenarios
- ❖ Characterization of the risk
- ❖ Manual aggregation of combined uses risk
- ❖ Input of RMM from physical chemical hazards
- ❖ Automated generation of CSR
- ❖ Exposure assessment strategy, general information added manually
- ❖ Export of CSR

Box 5 – eSDS management, information down the supply chain

- Generation of annex for eSDS
- Selection of exposure scenarios & contributing scenario
- Editing of naming in line with downstream user info
- Trim information
- Standard phrases higher tier tools added through determinants
- Guidance for downstream user

ESCom System

- ❖ Standardized phrases to communicate operational conditions and RMM
- ❖ XML standard for communication between IT systems
- ❖ *Phrases can be imported into CHESAR as a library*
- ❖ *Added manually in Chesar to eSDS*

Scaling

- ❖ Method for downstream user to assess if his slightly different use is covered by an exposure scenario
 - variations of an exposure scenario
 - DSU documents results
- ❖ Scaled RCR < ES RCR (or maximum RCR allowed given total CSR)

Information needs for scaling

- ❖ Models used for exposure estimation
- ❖ Basic assumptions & effectiveness of RMM
- ❖ Description on how to scale
- ❖ Input data for higher tier assessment, validity band for measurement
- ❖

Box 6 – Library management

- ❖ Determinant types (environment, worker & consumer)
 - Quantitative
 - Qualitative
 - RMM with effectiveness
- ❖ SpERCs
 - Predefined by industry associations
- ❖ Standard phrases
 - ESCOM phrase list (.xml file)

Conclusion CHESAR benefits

- Best tool available
- Limits the amount of work
 - For similar assessments on multiple substances
 - Target DSU-er in eSDS using the same assessment
 - Grouping of uses based on potential for exposure
 - In CHESAR 3: assessment entity for “difficult substances”
- Helps in communication
 - Standard phrases
 - Adaptation of names, explanations in eSDS
 - Free format text for section 4 of eSDS
 - help for DSU-er to assess if operation is within scope



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Thank you !