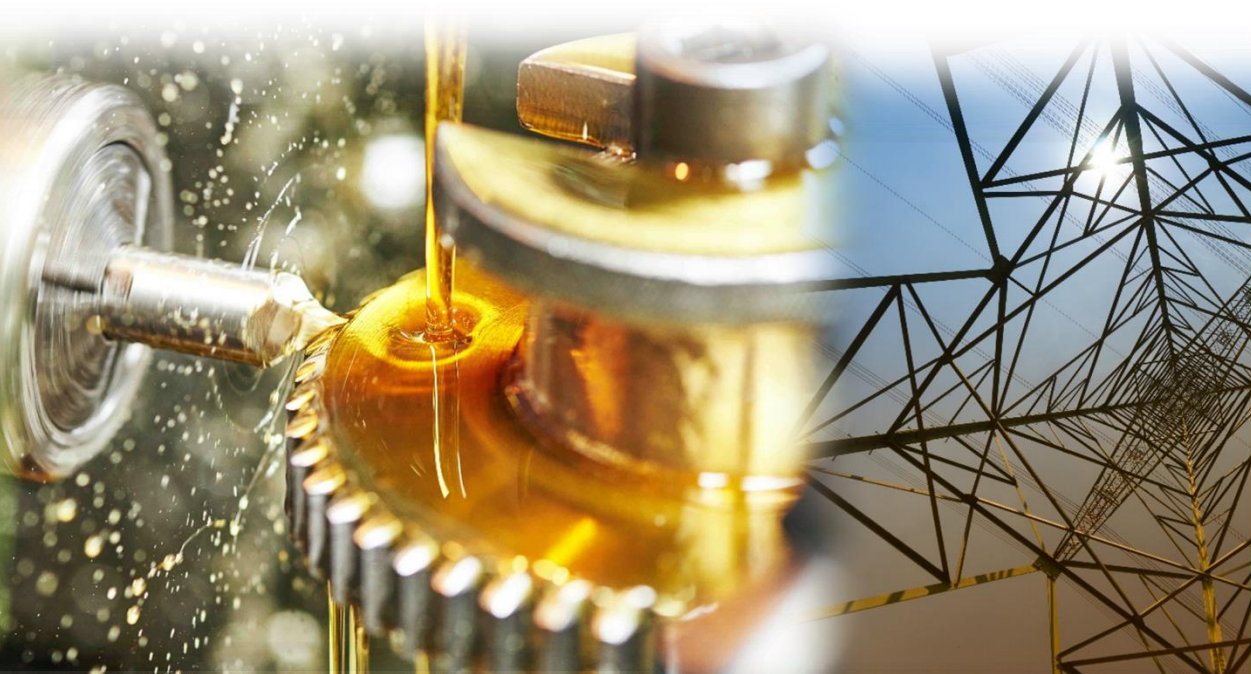


DECISION
SUPPORT
TOOLS

V3.0 Release Notes





Contents

Contents

1. Introduction	3
2. Back up your DST database	3
3. What is new in Release 3.0	3
4. The DST StAMP module	4
5. DST Summary and Detailed Reports	4
6. DST Project / Change Evaluator module.....	5
6.1 Changes to the way Results Best/ Worst are calculated	5
6.2 Statistical	6
6.3 DST Roadmap	6
7. Get in touch	7

1. Introduction

DST v3.0 is here, providing users the full end to end capability of the 6 step SALVO process, and unrivalled capability in asset management decision making. The DST **Strategic Asset Management Planning** module (StAMP) module now gives users the capability to create investment plans and O&M plans using individual DST studies as the source for all planning options enabling cost, risk and performance optimisation across a whole asset portfolio. Combined with the pre-DST StAMP release updates in V2.4 those investment plans can be optimised around any user defined KPI or resource constraint including Asset health Condition indices.

See Section 5 for more details on the DST StAMP module.

V3.0 has not just been about StAMP, all the modules have had extensive updates to the auto generated reports. There has been a lot of user feedback on the quality and usability of the reports, and we have been working hard to make the layout simpler, more intuitive and most of all easier to use. The reports are now of sufficient good quality that DST recommends that they are added to all Project proposal and Management of Change requests as a mandatory requirement.

The DST Project/ Change Evaluator module has also gone through extensive updates. Chief amongst these is the ability to see the decision support statistics which are now available when users enter Min/Likely/ Max estimates. This provides a more sophisticated set of decision support information including confidence bounds and confidence levels for Project/ Change results.

2. Back up your DST database

First and most importantly, the updated version of 3.0 includes several improvements in the way the DST database operates, so the first thing you should do is back up your existing DST databases.

You should of course be backing up your DST database on a regular basis anyway.

Please read - [DST Asset Strategy Evaluator v3.0 - installation and support guidance v13.docx](#)

Install and launch v3.0, including database upgrading. Thereafter, once DST.ASE v3.0 is installed, and at the start-up of the application, go to 'select database' and deploy the schema changes.

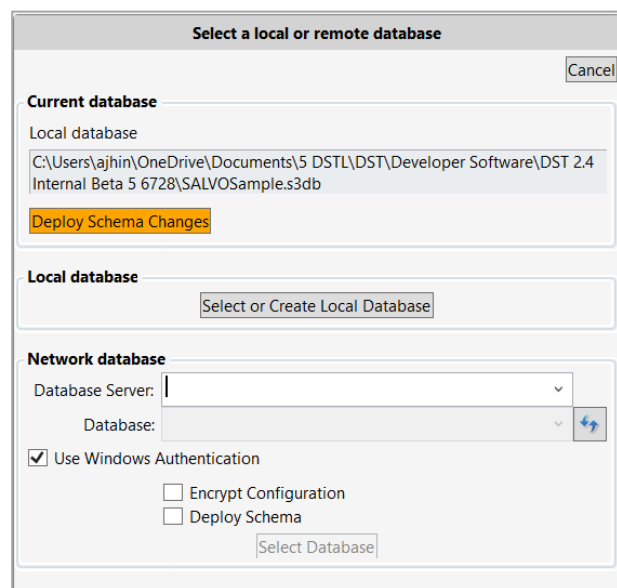


Figure 1 DST Asset Strategy Evaluator - Database selection at login

3. What is new in Release 3.0

DST Asset Strategy Evaluator V3.0 is a major update to many aspects of the DST suite to accommodate the arrival of a new DST Module for Strategic Asset Management Planning the DST StAMP module and large enough to warrant a new version number. V3.0 brings together all the previous updates which arrived at V2.4 such as the ability to model "non-financial" factors in decisions, including asset condition grades within the DST Lifespan, Maintenance, Inspection and Project/ Change Evaluator modules. Facilities to configure the library structure in the database, including importing of such structure and data from MS Excel (.CSV) files, enabling the rapid



assembly of complex library structures and replication of, and alignment with, corporate asset information systems (e.g. asset registers).

These were all necessary precursors to the Launch of the DST StAMP module. The need for importing asset registers and then associating asset to individual DST Decisions is the way that DST StAMP assembles all the planned interventions in a Strategic Asset Management Plan.

The v3.0 release also includes maintenance updates to address minor issues and improvements which have been reported since the release of V2.4.

The key areas of change are described below:

4. The DST StAMP module

DST StAMP completes the SALVO process by addressing the requirements for Step 6, namely “Assembling and optimizing the total portfolio & programme, with multiple objectives and multiple constraints”. DST StAMP is a robust and highly flexible planning tool for asset management which also identifies/demonstrates the best-value timings and business case justification for the whole range of investment projects, asset renewals, refurbishments, maintenance, inspections and improvement/change projects. It assembles all of these with fully transparent OpEx, CapEx, risk and performance implications and enables real-time ‘what if?’ analysis to explore scenarios, sensitivities, changes, alignments and the impact of bottlenecks or constraints.

In contrast to other existing ‘capital investment planning’ tools, DST StAMP provides complete drill-down clarity into the effects of changes in individual task timings for individual assets, right up to the total cost of ownership (or TotEx) for the entire programme. It also enables any combination of constraints and competing business goals, showing both financial and non-financial implications of different plans and options. Furthermore, it does so in ‘real time’, allowing live exploration of ‘what if?’ scenarios and alternatives.

DST StAMP can upload and include individually pre-optimised asset strategies (from other DST modules), and/or import assets, tasks and activities from other sources (e.g. CMMS or APM/RCM toolkits etc). Tasks can also be added manually within DST StAMP.

This DST module takes total programme/portfolio planning to a new level by using artificial intelligence (AI) techniques to identify deliverable work programmes, using multi-objective and multi-constraint rationalisation methods. In this way, the previously (individually) timing-optimised interventions are assembled and shuffled by the AI ‘learning algorithms to identify the best value combined plan, with fully quantified cost, risk and performance implications. The user is also able to manually adjust tasks to explore, instantly, the effects of earlier or later intervention, alignments or non-alignments and the business impact of any changes (or opportunities).

DST StAMP is suitable for developing and optimizing full scale (enterprise level) asset plans for:

- Capital investment programmes (including optimal timings of asset renewal/ refurbishments)
- Capital investment (greenfield projects, upgrades/improvements and change projects)
- Maintenance plans
- Inspection plans
- Any combination of the above (e.g. CapEx & OpEx programmes sharing resources).

5. DST Summary and Detailed Reports

DST Reports are an essential part of the decision-making process. We have updated the look and feel, contents and layout of the reports to make them more accessible.

- To provide workshop participants with a record of the information that they have provided
- To provide the audit trail and supporting data for CapEx or change approval.

Figure 2 DST Executive report – New format and layout

Scenario	Project cost (PV) €k	Total benefits (PV) €k	Project total NPV €k	PI Ratio	PI range Ratio
System 1 - 7.0 dose rate	-360	1434	1074	3.984	-0.209-11.4
System 2 - 5.0 dose rate	-300	997.8	697.8	3.326	-1.971-9.232

Chosen scenario: System 1 - 7.0 dose rate

Decision Explanation: Whilst system 2 offers a lower cost solution that meets the [project approval criteria there is greater uncertainty that the project will deliver the required approval criteria and does not achieve a 60% confidence level at this stage of the project analysis.

Implementation Actions: It is recommended that this project is given funding for Engineering design for System 1 7.0 dose rate.

Team Observations:

6. DST Project / Change Evaluator module

6.1 Changes to the way Results Best/ Worst are calculated

Feedback from users prompted us to review the way the Best/ Worst results were calculated. The issue is that not all user entered Min's/ Max's remain min/ max after the change calculation has been completed, so DST does some conversions where possible. We have simplified the way this happens and made it more intuitive.

There are 13 possible Min/max data entry and Min/ Max after change combinations, the first 4 are shown.

Figure 3 Min/Max combination and the DST calculations

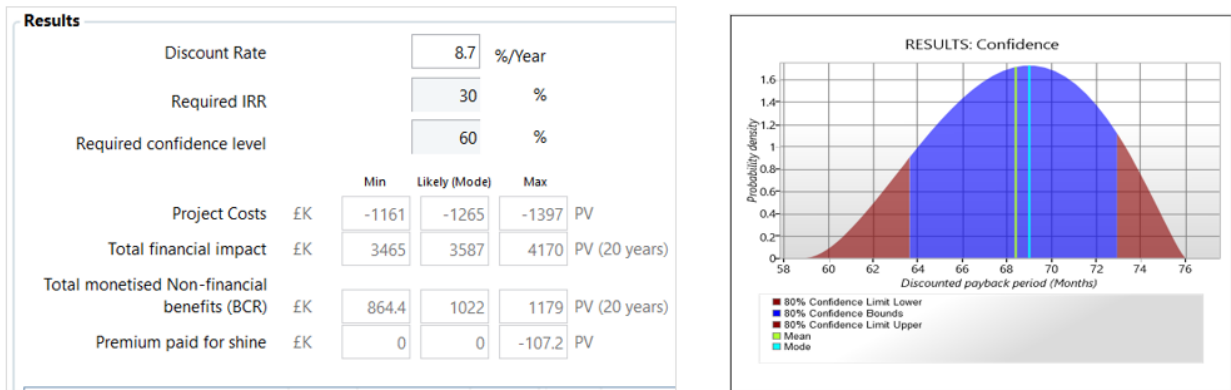
Scenario	Min	Likely	Max	Outputs	Best	Likely	Worst	Status	DST Actions	
a	Current	2	3	4	a	1	1	1	OK	No action
	After	1	2	3						
	Change	1	1	1						
b	Current	2	3	4	b	1	1	2	OK	No action
	After	1	2	2						
	Change	1	1	2						
c	Current	2	3	4	c	1	2	1	Warning	Sequence out – No action possible
	After	1	1	3						
	Change	1	2	1						
d	Current	4	5	6	d	2	1	1	OK	Min/ Max will be inverted by DST
	After	2	4	5						
	Change	2	1	1						

6.2 Statistical

The new DST Statistical functions provide an extra layer of decision-making support for the results based around the Min/Likely and Max data entries providing:

- Confidence interval around the results Likely (Mode) value
- The probability (confidence level) of the project meeting the required decision criteria
- The Mean of the possible results

Figure 4 New statistical calculation results with confidence graph



	Best	Likely (Mode)	Worst	Mean	80% CLL	80% CLU	Unit	Required Conf. %	Mode Conf. %	Mean Conf. %
Discounted payback period	59	69	76	68.4	63.65	72.95	Months	-	54.76%	48.71%
Net Present Value (NPV)	3009	2322	2068	2408	2176	2669	£K	-	63.3%	46.51%
Internal Rate of Return (IRR)	37.96	30.52	27.03	31.31	28.52	34.36	%	68.6%	60.11%	47.3%
Profitability Index (PI)	3.592	2.835	2.48	2.92	2.63	3.23	Ratio	-	60.12%	47.3%
Equivalent Annual Cost (EAC)	322.6	248.9	221.7	258.2	233.3	286.2	£K/year	-	63.3%	46.51%
Benefits Cost Ratio 1 (BCR1)	-	-	-	-	-	-	Ratio	-	-	-
Benefits Cost Ratio 2 (BCR2)	4.608	3.642	3.098	3.73	3.33	4.15	Ratio	-	57.66%	47.93%

The DST confidence interval is the range of values around the mean as calculated from the Min/Likely/Max, bounded by the:

- Confidence Level Lower (CLL)
- Confidence Level Upper (CLU)

The confidence interval provides the % probability, that the project will deliver benefits within this range of possible results.

In future releases we will be adding this functionality into DST Lifespan, Maintenance and Inspection Evaluator Modules. See section 7.3 DST Roadmap

6.3 DST Roadmap

The following summarises the current DST Roadmap for future releases.

V3.1 Release

- DST STAMP modifications to create composite StAMPs from feeder StAMPs
- DST Lifespan value based calculations (Design progressing 50%)
- DST Lifespan - Current asset retirement (Design progressing 50%)
- Guidance notes refresh and extend to DST Schedule and DST StAMP



V3.2 Release

- DST Lifespan/ Maint/ Inspection Statistical enhancements – Timing and costs as per current sensitivity
- DST Lifespan – Periodic/ multiyear costs

V4.0 Release (SALVO 1-3)

- SALVO steps 1-3
- Platform migration
- DST Inventory – Project functions (Design progressing 30%)
- DST Inventory – Batch updates

7. Get in touch

If you have any preferences for the priority of the next phases of DST Asset Strategy Evaluator developments or would like a more customised update to DST Asset Strategy Evaluator, please get in touch via techsupport@DecisionSupportTools.com.