SPARES AND INVENTORY OPTIMIZATION
...which spares are worth holding, in what numbers?  
...the service levels that are really justifiable?  
...procurement, vendor and supply chain strategies?  
...inventory management options such as locations, pre-installed standby units and spares obsolescence issues?

Making sure that the right questions are asked

Most people realise that spares decisions need to consider such factors as:

- Likelihood or frequency of usage
- Cost of the item
- Leadtime for obtaining one
- Criticality (consequences of unavailability)

But these are just four of the considerations that can affect a spares decision. What about the storage costs, the ability to repair/reuse failed units, the ‘cost of capital tied up’ and vulnerability to deterioration while in storage or technology overtake (obsolescence)?

The SALVO Process, and supportive DST Inventory Optimizer™ software tool, ensure that all the right questions are asked, that the inevitable uncertainties are explored, and the correct mathematics are used to determine the costs and risks of different strategies. And it is not enough simply to find the optimal answer - SALVO includes the vital transparency of why it is right, and how to explain the strategy to different stakeholders.

* DST modelling has been independently validated by Cambridge University.

One-off decisions or systematic, batch reviews

The SALVO Process applies equally well to discrete decisions (e.g. Shall I buy or replace a spare?) with little or no available hard data to work with, and to large scale optimization reviews of spares or materials using direct data inputs from purchasing and inventory management systems.

Furthermore, the process is an excellent way to show what data is worth collecting in the first place, by quantifying the ‘cost of uncertainty’ (cost/risk impact of an incorrect decision due to data sensitivity).

So SALVO forms an integral part of the any organisation’s asset management and business decision-making. It helps everyone to talk the same language and demonstrate value-for-money.

The SALVO Process enables you to:

- Identify and demonstrate the optimal spares, standby equipment or materials to hold
- Evaluate standardization, interchangeability or dedicated/shared materials strategies
- Optimize inventory strategies, locations, service levels, obsolescence and ‘shelf life’ risks
- Evaluate and compare different vendors or supply chain options
- Make clear decisions even if data is uncertain
- Gain rapid agreement between conflicting interests: find the best compromise

SALVO is used and proven in a wide range of asset types and industries, in both public and private sectors. It can be can be provided as an expert facilitation service as and when required, or introduced through training and support within your organisation to become part of your core strategy and decision-making processes.

Using this method, we reduced inventory by 40% while also increasing our service levels

RESULTS: Strategy comparison
The Challenge:

*How to ensure that the right spares are always available when needed?*

But Also:

*How to minimise the capital tied up in ‘just in case’ parts and equipment?*

It is always difficult to determine which critical, strategic or contingency spares are worth holding, in what numbers. The frequency of usage may be low and uncertain. And the consequences of not having a vital part available when needed can be high (and also uncertain).

Furthermore, the supply chain might be unreliable or volatile, and tracking interchangeability of parts can be a nightmare. Some spares can deteriorate in storage and others may be vulnerable to technology obsolescence.

How can you navigate all these factors and make the optimal cost/risk decisions?

Fortunately there are practical solutions to address these problems, developed by an international, multi-industry collaboration project (www.SALVOproject.org).

This consortium has created a highly successful combination of structured **process guidance**, hands-on **training** courses, an international network of expert **facilitators** and unique ‘what if?’ decision support **tools**. This combination is known as the **SALVO Process**: it provides transparent justification for which spares are worth holding, in what numbers, and a wide range of other inventory-related decisions.

The process reveals the **optimal compromise** between the interests of operations, maintenance, procurement, stores and finance departments. And it creates a clear **audit trail** to show why a particular inventory decision is correct, and the quantified cost/risk consequences of alternative strategies.

**World-leading evaluation tools**

**DST Inventory Optimizer™** is a highly flexible decision support tool used to identify the best value mix of costs, risks and benefits for a wide variety of spares and inventory decisions such as:

- Should we hold a spare, and if so, how many?
- Which vendor or spares design option offers best value-for-money?
- Should we refurbish failed items as future spares?
- Shall we hold spares centrally, or in distributed local stores?
- Should we hold whole equipment units or just component parts and ‘kits’?
- Should we standardize on equipment designs for interchangeability, or have dedicated designs and associated spares?
- Is it worth pre-installing a standby unit and/or hold spares in the warehouse?
- What are the optimal service levels for different items of different criticalities?
The SALVO Process was developed by a multi-sector consortium of leading asset management organisations to seek better value through disciplined, transparent and optimized decision-making. The resulting disciplines and tools have been field-proven and independently validated for over 40 decision types, as typically encountered in different stages of an asset’s life cycle.

The SALVO Process also fulfills ISO 55001 requirements for decision-making methods which demonstrably optimize costs, risks and performance over the whole asset life cycle.

SALVO Development Partners

Decision Support Tools
DST software - modular evaluators with different asset management options

Expert Facilitation
Consultancy and analysis services - provided by an international network of qualified experts.

Process Learning
Modular training courses - available in concepts and applications of the SALVO Process

Strategic Partnerships
Options are available to offer SALVO tools and services under license

SALVO PROCESSES ARE AVAILABLE WORLDWIDE UNDER LICENSE AS A COMBINATION OF:

- **Decision Support Tools**
  - **DST Maintenance Evaluator**
    - Cost/benefit/risk evaluation and optimal timing/intervals for preventive maintenance, planned corrective maintenance, performance improvement and asset life extension activities.
  - **DST Project/Change Evaluator**
    - Cost/benefit/risk evaluation and ranking of one-off projects, asset modifications and changes in procedures, competencies, standards, resourcing or risk management options.
  - **DST AMP**
    - Assembly of activity programmes into a Strategic Asset Management Plan, with quantified cost/risk/performance impacts, Capex/Opex or resource constraints and 'what if?' shuffling.
  - **DST Inventory Optimizer**
    - Evaluation and optimization of spares and materials inventory decisions, supply chain and purchasing strategies, operational standby and redundancy options.

- **Optimization of work bundling, shutdown strategies and opportunity alignments for projects, maintenance, inspections and other tasks, evaluation of resource and other constraints.**

- **DST Inspection Evaluator**
  - Cost/benefit/risk evaluation and optimal timing/intervals for inspections, condition assessments, monitoring and predictive maintenance tasks and functional testing activities.

- **DST LifeSpan Evaluator**
  - Life cycle cost/risk/performance evaluation of asset purchase options, optimal timing for asset replacement, evaluation of life extension options, obsolescence and decommissioning decisions.

- **DST Schedule Optimizer**
  - Optimization of work bundling, shutdown strategies and opportunity alignments for projects, maintenance, inspections and other tasks, evaluation of resource and other constraints.

Buy the Book
“Asset management decision-making: The Salvo process” is summarized in a guidebook available from www.SALVOproject.org or as an e-book from Amazon or Apple iTunes.

- **Why replace equipment when an alternative strategy may be justified?**
- **Is the premium for compliance or the value of intangible benefits quantified?**
- **How do you turn an asset performance problem into a business justification for action?**
- **Can you prove to budget holders which spares are worth holding and in what numbers?**

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