

How do you determine which projects, maintenance and asset replacements should be bundled together?

Can you quantify the costs, risks & benefits of deferring a shutdown or changing task intervals?

If you have an unplanned shutdown, can you justify which other tasks should be done in such an opportunity?



Optimizing work requirements & outage intervals has reduced planned downtime by

50% for a tyre production facility and

28% for an electricity network



Many constraints and conflicting pressures apply to decisions about when to execute maintenance, inspection or project work, particularly when there is a requirement to shutdown important systems to perform the tasks. APT-SCHEDULE software provides a comprehensive, transparent way of identifying the best shutdown timings, task groupings and optimal cost/risk/performance strategy. It is a unique mix of disciplined quantification of all the factors involved, and sophisticated 'what if?' software that calculates the total \$\$ or business impact of different options - so you can instantly see the effects of different constraints, assumptions or opportunities.

Incorporating any existing risk management, maintenance strategy or inspection methodologies (such as RBI, RCM, FMECA etc), APT-SCHEDULE enables you to assemble the total business case for the optimal campaigns and work programmes, including the best alignment and sharing of overheads, shutdown opportunities and other work bundling effects. It shows the economic impact of legal, resource or other constraints, and identifies the benefits to be obtained by optimal coordination of capital investment programmes with operational maintenance and inspection activities.

APT-SCHEDULE software

- Calculates the optimal shutdown interval, work bundles and \$\$-impact of constraints.
- Identifies opportunities for avoiding downtime, reducing risk and minimising costs.
- Evaluates the use of shutdown opportunities for other maintenance, inspection or project activities.
- Quantifies the net economic and risk impact of resourcing, financial or legal constraints.
- Provides instant 'what if?' ability to evaluate the effect of design changes, unexpected shutdown opportunities, resource bottle-necks and other factors.

Proven benefits

The methods have been applied across many industrial sectors and have consistently delivered spectacular improvements, such as:

28% reduction in downtime for HV electricity transmission lines

4x extension of shutdown intervals for speciality chemicals plant.

2x extension in turnaround cycle for a major oil refinery.

50% reduction in annual downtime for a manufacturing production line.

Similar scope is available in the rail industry, manufacturing, process, pharmaceuticals, oil & gas, petrochemical and other critical production or service infrastructure.

The decision support tool for work bundling and shutdown strategies

APT-SCHEDULE process

APT-SCHEDULE is a combination of robust business processes and leading-edge technology. It includes a criticality-ranked review of all planned tasks, and a quantified cost/risk/deterioration modelling of key drivers for any shutdowns or work bundling. Other components of the APT toolkit are then used to evaluate the business case and optimal timings for individual tasks before being imported into APT-SCHEDULE for total programme optimization.

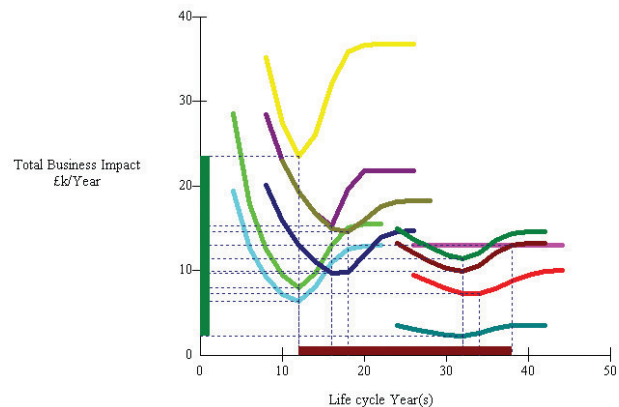
Total programme influences can include:

- Shared access advantages, downtime opportunities, overheads and logistics cost of combining visits or jobs.
- The risks and performance impact of delayed tasks beyond their optimal timing.
- The additional cost of deliberate 'early maintenance' in some cases to provide optimum task bundling.
- Resource bottlenecks and constraints.

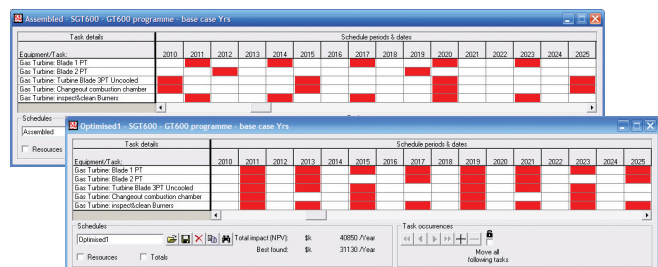
APT-SCHEDULE delivers

Auditable, quantified and optimised schedules of the right tasks in the right combinations at the optimum intervals.

- Optimal campaign maintenance programmes
- Optimal shutdown strategies and intervals
- Business case justification for critical task timings
- Quantified cost/risk impact of task delays
- Instant evaluation of 'opportunity' maintenance
- Quantified impact of resource constraints
- Sensitivity to any assumptions - rapid 'what if?' to explore impact of any changes



Different projects, inspections, planned maintenance and asset replacements have widely different criticalities, urgencies and optimal timings. APT-SCHEDULE provides a comprehensive, quantified method for navigating this 'planner's nightmare' to find the optimal total programme.



Before & after views - revealing a 30% total cost/risk saving by re-mixing work bundles and intervals.

APT-SCHEDULE is part of an integrated ASSET PERFORMANCE TOOLKIT

APT-MAINTENANCE

Cost/risk evaluation of planned maintenance, optimal intervals, preventive, predictive or reactive strategies.

APT-INSPECTION

Optimum inspection, condition monitoring and testing strategies, optimal condition reaction points, alternative monitoring methods.

APT-LIFESPAN

Asset replacement decisions, repair-versus-replace options, life extension refurbishments, asset acquisitions and alternative designs based on life cycle costs.

APT-STOCK

Consumables and materials purchasing strategies, min/max stock, re-order quantities, supply options, storage requirements.

APT-PROJECT

Cost/risk evaluation of projects, change proposals, modifications, new ideas and other 'one-off' investments.

APT-SPARES

Strategic and slow-moving spares strategies, optimum spares levels, 'pooling' options, alternative suppliers.



Decision Support Tools Ltd.,
19 Prince Henry House
Kingsclere Business Park,
Hampshire RG20 4SW, United Kingdom
Tel: + 44 (0) 1635 299200 Fax: + 44 (0) 1635 299555
www.decisionsupporttools.com