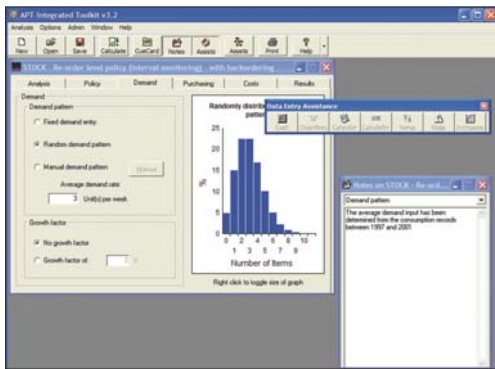


## EVALUATION & OPTIMISATION OF INVENTORY AND PURCHASING DECISIONS

- How do you determine the re-order stock levels?
- How do you determine the optimum re-order quantity?
- What is the optimum stock holding and how do you determine this?
- What is the optimum purchasing policy?
- What is the right blend of Just-In-Time and risk exposure?

**APT-STOCK** finds opportunities to save money, improve service levels, rationalise inventory and choose the best value supply chain options.

All materials and spare parts tie up working capital, and there is constant pressure to reduce inventory and obtain materials Just-In-Time. On the other hand, supply chain unreliability, quantity discounts, unpredictable demand and the operational impact if vital items are not available, all call for some buffer stock. **APT-STOCK** is the world-leading cost/risk evaluation method to determine the best compromise. In contrast to Economic Order Quantity and min/max stock algorithms, which only tackle part of the problem, **APT-STOCK** determines the right amount of risk to take, the optimal inventory and service level, reorder points, strategic inventory, spares 'pooling' options, storage requirements and a whole lot more.



A wide variety of purchasing policies can be easily modelled with intuitive user interface. The illustration shows entry of a random (Poisson distribution) demand rate.

**APT-STOCK** allows a wide range of min/max, reviews cycles and other inventory strategies to be applied. The conflicting pressures of variable demand patterns, replacement leadtimes, purchase quantity discounts, warehousing constraints and cost, stockout consequences and many other factors require sophisticated risk assessment to determine the best compromise decisions.

**APT-STOCK** identifies the right reorder level, purchase quantity, min/max thresholds and space requirements. A number of additional items of valuable information are made available for each purchasing policy.

- Total impact cost per item purchased
- Direct cost (excluding penalty costs)
- Average stock levels
- Annual turnover
- Service level (% of occasions a demand is met from stock)
- Number of containers required in warehouse
- Storage space required in warehouse

**APT-STOCK** uses powerful Monte-Carlo simulation techniques to calculate the optimum (lowest cost) purchasing policy. In order to obtain fast and accurate results a large number of simulations are carried out, capable of addressing different purchasing policies.

### FUNCTIONAL SPECIFICATIONS

**APT-STOCK** performs a range of risk analysis functions, using sophisticated risk distribution analysis and dynamic simulation to determine the best way forward. It is a comprehensive tool for inventory/purchasing decisions taking into consideration:

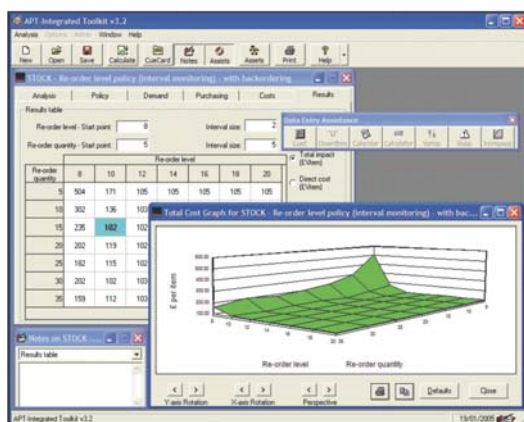
- Multiple inventory management policies (reordercycles, reorder levels, min/max, fixed/variable reorder quantities, backordering options etc).

- Current usage or operating regime, unit failure rates and demand patterns (fixed, variable, random, real data samples and/or statistical distributions), demand growth/shrinkage trends.
- Continuous or finite demand periods.
- Stock criticality and unavailability consequences.
- Capital and purchase costs, quantity discounting opportunities, logistics costs, storage and maintenance.
- Outputs (tabular and graphical) include optimal stock levels, min/max levels, order quantities, service levels, average stock, annual stock turnover, storage space requirements, the cost/risk impact of over-or under-stocking.
- Storage space allocation (volume or container units) shared or dedicated locations, distributed/centralised warehousing.
- Modular spares options, interchangeability advantages, e-procurement options, 'pooling' and shared access contracts.

Extensive reporting features allow prioritisation, approval processes and audit trails.

## HARDWARE & SOFTWARE REQUIREMENTS

This product is a PC based software tool operating under MS Windows 2000 or later operating systems. It can be used on a standalone pc with data held in a MS Access database or in networked mode with central MS Access or MS SQL Server database.



The output from APT-STOCK is displayed in both tabular and graphical forms. A range of 49 possible purchasing options is displayed with the optimum options clearly highlighted.

## THE ASSET PERFORMANCE TOOLKIT

This product is just one of a range of unique evaluation tools developed by the European EUREKA "MACRO" project. This is a multi-industry £2Million joint venture, supported by the UK Department of Trade and Industry, addressing the cost/risk evaluation of engineering and management decisions. Other modules of the Asset Performance Toolkit include: sk evaluation of planned maintenance, optimal intervals, preventive, predictive or reactive strategies

**APT-MAINTENANCE:** cost /risk evaluation of planned maintenance, optimal intervals, preventive, predictive or reactive strategies

**APT-INSPECTION:** optimum condition monitoring strategy including inspection intervals, sensitivity and alarm reaction points

**APT-PROJECT:** cost/risk evaluation of projects, change proposals, and any new initiative that needs investment justification and approval

**APT-LIFESPAN:** true whole life costing decision support covering repair versus replace options, life extension implications and the evaluation of alternative designs

**APT-SPARES:** determines the optimum spares holding levels for slow moving strategic spares taking into consideration 'pooling' options and alternative supplies

**APT-SCHEDULE:** optimum task grouping and timing within a plant shutdown or possession, fast evaluation of alternative groupings taking into account work planning constraints

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