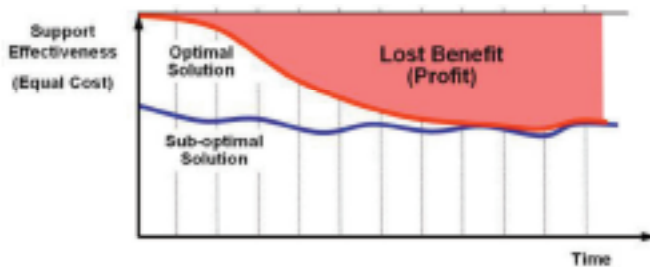


Enlightened material managers have been discovering the benefits of spares optimization techniques – often getting twice the performance out of the same investment – for the past 30 years. Many have also noticed that these improved solutions are less stable than sub-optimal solutions. Initial performance soon drops off, ultimately becoming indistinguishable from sub-optimal methods.



TFD's Support Chain Optimization (SCO™) bolt-on software for conventional inventory management systems solves this problem. SCO delivers continuous optimization, allowing managers to meet near-term, periodic performance goals with precision and at the lowest possible cost. Our scalable approach uses rich short-to-medium term simulation modeling rather than long-term steady-state analytical methods.

### How Continuous Optimization Works

Normally, item or asset managers are given inventory control policies (e.g. re-order point and order quantity) based on some analytical method. This method might have been anything from single item modeling to sophisticated spares optimization. No matter how it is done, this fixed guidance goes out of date just as quickly as the spares solution it's based on, as illustrated in the diagram above.

Agile response in the supply chain can only be achieved through dynamic inventory policy. SCO currently recognizes a total of nine policy responses that can be made to a deteriorating stock and tests all of them for every part under management. Here's how:

SCO monitors all transactions that can change the condition of the supply chain in as near real-time as required by any given situation. The location and

condition of stock is updated as it changes. Demand and delay time forecasts as well as other data are updated by mining the transactions data. The simulation engine is then run against all relevant values of stock control parameters to determine which combination is optimal, given the current situation. Optimality is defined as the solution that earns the greatest margin of benefit over stock cost. Benefit is computed as a complex function of incentive fee elements and the supplier's estimates of any additional value of performance.

Once the optimal policy has been generated for each part under management, SCO computes a "bang-for-buck" ratio for each one and orders recommended policy changes accordingly. Most parts will show no change required and many recommended policy changes will be free (e.g. lower the re-order point). That leaves the supply



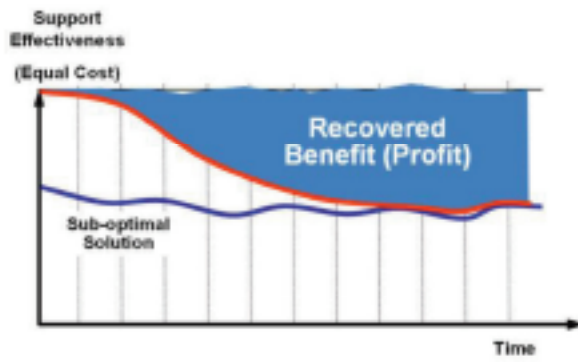
chain manager a graphic view of how to manage his budget most effectively each day.

While asset visibility data are delivered to the item manager on a real-time basis, the frequency with which new policy guidance is developed varies by installation. Current SCO installations vary from monthly to several times a day.

Field tests and simulation analysis have shown that dynamic optimization is the only way to keep actual performance close to the goal under field conditions. Meeting performance goals is not the only concern. You will also want the assurance that you are doing so at the lowest possible cost. SCO supports this goal by accurately modeling both cost and benefit of reducing expected backorders for each part under management. This means recovery of what would otherwise be lost

### TFD Group

26625 Carmel Center Place  
Carmel, CA 93923  
+1.831.649.3800  
+1.831.649.3866 f  
info@tfdg.com  
www.tfdg.com



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Supply Chain vs. Extended Supply Chain  
 In a competitive or PBL (performance-based) environment, supply chain management is no longer just a question of inventory management. Support providers must deploy every weapon possible to win support contracts and perform them profitably. SCO is designed to work along with a variety of decision-aiding tools that help strategic planners, spares managers, design engineers, maintenance planners and budget advocates do their jobs more efficiently and effectively.

Because those tools share the same database with the asset managers, all benefit from a deep level of communication.

The diagram illustrates the architecture of SCO and TFD's extended supply chain management system (XSCM). SCO, on the left side, bolts on to a conventional inventory management system – and can also interface to a maintenance management system. The transactions stream is captured and archived, then transformed into updated values of all the input data required by SCO's simulation engine. The same data repository, however, connects to the strategic planning tools located on the right side of the diagram. As a result, tactical managers make decisions based on the same data as strategic planners use in their decision-aiding tools.

The strategic tools made available in this way include all of TFD's best of breed analytical tools. EDCAS® is the world's most widely used and respected design trade-off and level of repair model, VMetric, the foremost commercially available spares optimization tool and

MAAP®, the total ownership cost management and modeling tool of unprecedented accuracy and flexibility. You can also interface other, 3rd party tools using TFD's simple Excel®-based data import method or ask us to build a tailored interface for you.

Whether you choose to implement the entire system or one or two components essential to your business (all the components can be used stand-alone), TFD's integrated architecture stands ready to serve the full range of logistic analysis and management needs.

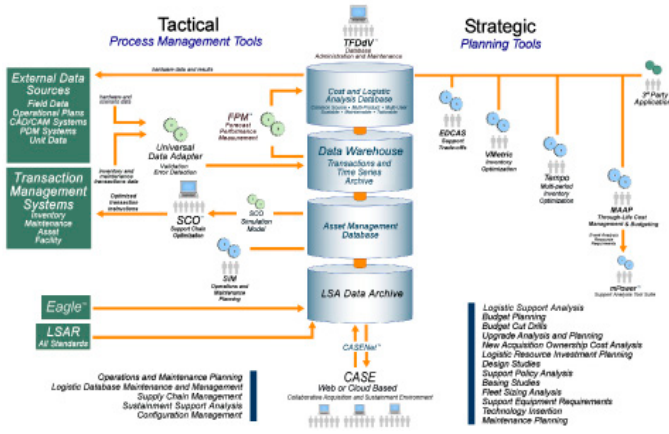
### Multi-Tier Supply Chain Solutions

If you are a system integrator, you know that much of your success hinges on your ability to secure the support you need from your suppliers. Good supplier management begins with a sound, appropriately priced

contract. TFD Group can help you choose the contractual metrics that will actually work and reinforce your system-level goals. We can help you negotiate reasonable contracts with your suppliers and we can even help you remove the inefficiencies that arise from unequal quality of

negotiations between suppliers.

The web-based CASENet™ system, illustrated in the system diagram above, provides a secure means of exchanging data with suppliers as well as giving them inexpensive access to the tactical guidance produced by SCO. This facility can be used to develop consolidated



total ownership cost-based business case analysis, provide total asset visibility from a single source and provide supplier with sophisticated planning tools at minimal cost.

**TFD Group**  
 26625 Carmel Center Place  
 Carmel, CA 93923  
 +1.831.649.3800  
 +1.831.649.3866 f  
 info@tfdg.com  
 www.tfdg.com