(Advanced Planning Systems)

Assessing the Return On Investment of an Advanced Planning Systems (APS) Project

DynaSys
A DIVISION OF QAD

CONTENTS

The Functional Scope of an APS **1**

Return On Investment (ROI) in less than one year **1**

Return On Investment of an APS **1**

Supply Chain Levers **2**

What ROI can we expect for an APS Project **4**

Evolution of Logistics Costs **5**

Calculating Inventory Reduction **6**

APS offers Incomparable Competitive Advantage **7**

ASSESSING THE RETURN ON INVESTMENT OF AN ADVANCED PLANNING SYSTEMS (APS) PROJECT

THE FUNCTIONAL SCOPE OF AN APS

There is some confusion about the definition of an APS (Advanced Planning System - Decision Support Solution for Supply Chain Planning), mainly related to its functional scope. Many vendors describe their software as an APS despite it only covering part of the core functionality required. The APS must be able, as an integrated system to:

- Calculate sales forecasts
- Enable collaborative management processes
- Optimize inventory at distribution points and manage deployment in case of shortages
- Optimize production plans to address multiple capacity constraints
- Integrate availability constraints to synchronize planning of finished and semi-finished goods
- Optimize supply plans
- Optimize sourcing links between different points of the distribution network

This functional coverage is important because, like any Supply Chain project, the implementation of an APS should be viewed as part of a comprehensive and strategic vision. In fact, companies are too often focused on the first step, sales forecasting, without taking into account the capabilities and integration with the other functions of the supply chain. An integrated solution must also optimize areas such as production, distribution and supply planning for maximum effect.

RETURN ON INVESTMENT IN LESS THAN ONE YEAR ... IT IS POSSIBLE TODAY

The capabilities of simulation and anticipation within an APS solution make the Return On Investment (ROI) of APS projects much more rapid than those of other solutions such as ERP and logistics execution software (MES, WMS, TMS).

To demonstrate this, we will first detail the areas of optimization offered by a comprehensive and integrated APS, and then present a set of calculation rules and benchmark elements for evaluating the ROI.

RETURN ON INVESTMENT OF AN APS IS MAINLY MEASURED BY THE REDUCTION OF THE WORKING CAPITAL OF YOUR COMPANY

But, what does Working Capital mean? Working Capital is calculated:

Working Capital =
Current Assets – Current Liabilities

Where:

- **Current Assets** = Cash + Accounts Receivable + Inventory
- **Current Liabilities** = Accounts Payable + Notes payable + Accrued Expenses + Current Portion of long term Debt

Working Capital is a common measure of a company's overall health and one of the best straightforward indicators to measure the effectiveness of the supply chain. This is because the supply chain levers are directly linked to the main components of Working Capital.

ASSESSING THE RETURN ON INVESTMENT OF AN ADVANCED PLANNING SYSTEMS (APS) PROJECT

SUPPLY CHAIN LEVERS LINKED TO WORKING CAPITAL

Accounts Receivable - A company's receivables are directly related to their service level, measured by On Time In Full (OTIF). Customers will only pay for what they actually receive and may even impose financial penalties for poor service levels. In some cases, especially for exports, the client will pay only upon complete delivery. Receivables will decrease as a result of poor customer service levels.

Inventory - Accurate and reliable sales forecasts mean that demand can be anticipated and inventory better managed. This applies not only to finished goods inventory, keeping the right product with a properly sized safety stock, but also the work in progress and raw materials' inventory because of the reduction in disruption from 'urgent' orders impacting production efficiency.

We can see that the synchronisation of plans for finished goods and components is a major factor in the reduction of working capital related to inventory. However, without the APS calculation of dependent requirements in real-time, it is difficult to anticipate shortages or overstocks of semi-finished products and raw materials in case of modifications to the finished products production plan.

Furthermore, the APS offers algorithms that optimize finished products plans according to raw materials and / or semi-finished products availability in order to limit the impact of shortages on the supply side.

The S&OP process optimizes the usage of human, logistical and production resources, significantly reducing unnecessary inventory whilst improving customer service levels and productivity. This is achieved through the alignment of the entire company based on a single shared vision.

Accounts Payable - Poor reliability of suppliers' plans contributes to higher safety stock coverage and also leads to large order quantities. These in turn lead to higher purchasing costs and overstocks which are typical signs of low supply chain performance. Suppliers can be aided to improve conformance to plan via stable and accurate forecasts for both the short and long term horizon.

ACCOUNTS RECEIVABLE	INVENTORY	ACCOUNTS PAYABLE
Service level	Forecast Accuracy	Supplier plan reliability
	Synchronization of plans => S&OP process for finished goods and components	Order optimization

Fig 1: Supply Chain levers to optimize working capital

ASSESSING THE RETURN ON INVESTMENT OF AN ADVANCED PLANNING SYSTEMS (APS) PROJECT

WHAT ROI CAN WE EXPECT FOR AN APS PROJECT?

The estimation of the return on investment of an APS project in your business involves 3 steps.

The first step is to evaluate the current situation of the company based on the following key supply chain indicators:

- Forecast accuracy
- Customer service level
- Reliability of the production plan and / or supply plan based on the company's sector (industrial, distribution or retail)

These indicators should be used in conjunction with the working capital. As mentioned earlier this consists of; the amount of receivables, inventory and supplier credit. If historical data is available for these KPIs, the comparison of their evolution often provides a good indicator of the health of a company's supply chain.

The second step is to set goals. For this, we can use the example benchmark below provided by the Association of Supply Chain and Logistics (ASLOG), a leading European supply chain management association.

The graph below explains the values of key performance indicators throughout the supply chain. It shows the gap between average companies and the most successful. For example, the difference in service level is about 7 percent which is considerable, from the point of view of costs linked to shortages, as well as issues already mentioned. Comparing these values with those for your company allows both assessment of the current state as well as settling targets for improvement.

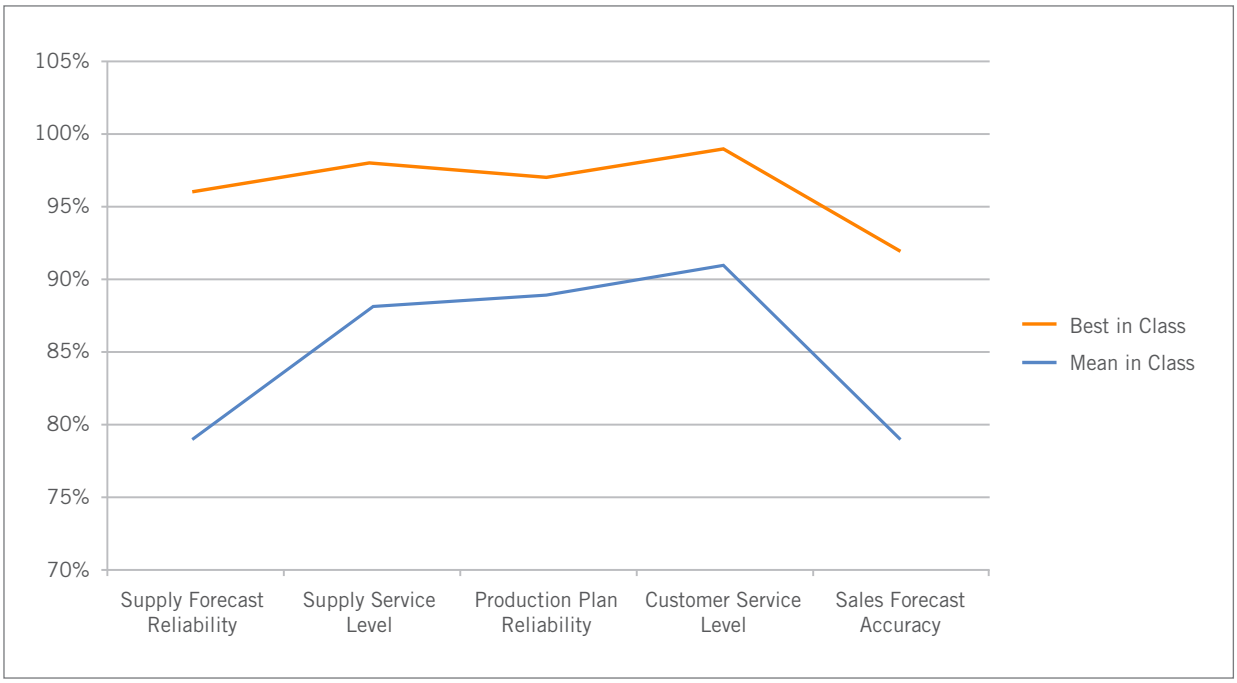


Fig 2: Comparative values of principal supply chain key indicators based on the maturity of the company

EVOLUTION OF LOGISTICS COSTS

Reaching the level: “Best in Class”, means achieving control of your logistics costs. This is demonstrated by the graph below, also from the ASLOG benchmark, which compares the evolution of companies’ logistics costs for both categories.

The costs soaring in 2012 for “Mean in Class” companies under a period of record high oil prices, are clearly in contrast to the controlled evolution of “Best in Class” companies.

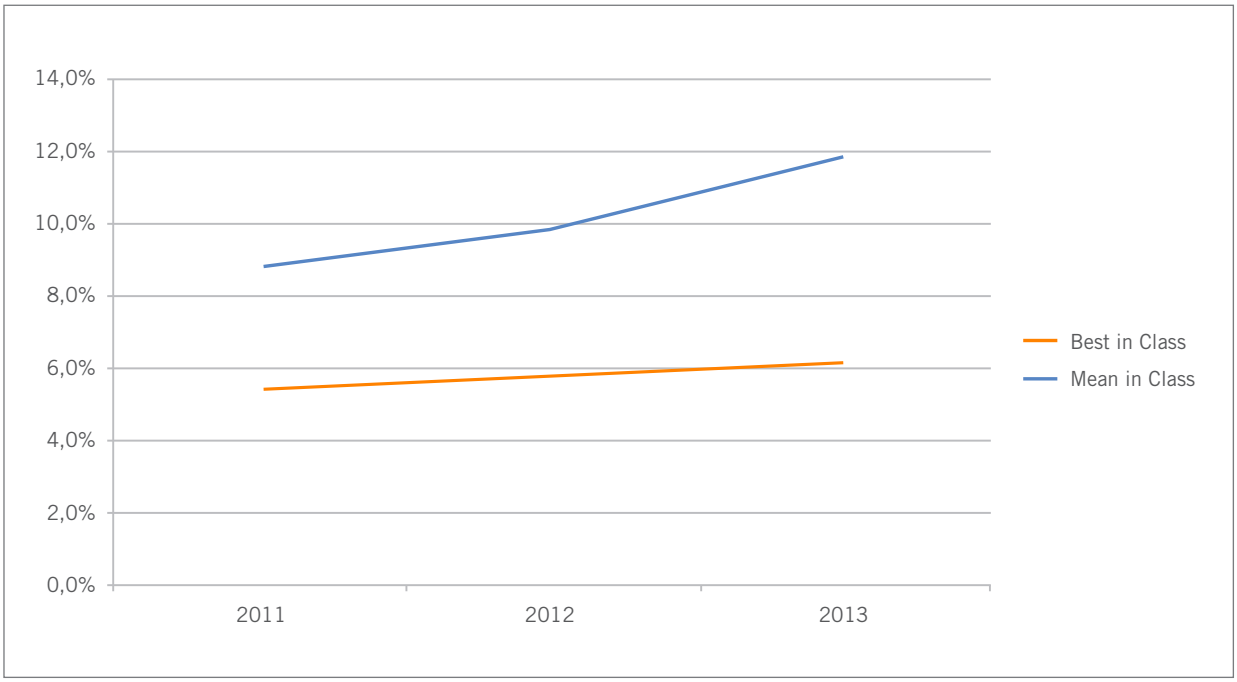


Fig 3: Compared evolution of logistics costs

MEASURING IMPROVEMENT

The improvements measured on forecast accuracy and service level are described by a min – max range since this reflects the difference between the initial situation of companies and their industries. For example, companies which gained 6 points of service level rate were already running forecasting management software. These companies had a relatively good service level, but the last points of service level to achieve 'Best in Class' performance are always the hardest to achieve. At the opposite end of the scale, companies which gained 30 points of service level generally had a lower level of maturity using only Excel spreadsheets to manage their supply chain.

Similarly, the range of improvement in forecast accuracy also depends on the fine tuning of forecasting software, its relevance to the evolution of the organization, the implementation of collaborative processes and other factors.

The third and final stage to evaluate ROI is a direct result of putting into perspective the objectives selected for improvement, the level of progress from the initial situation and the financial condition of the company.

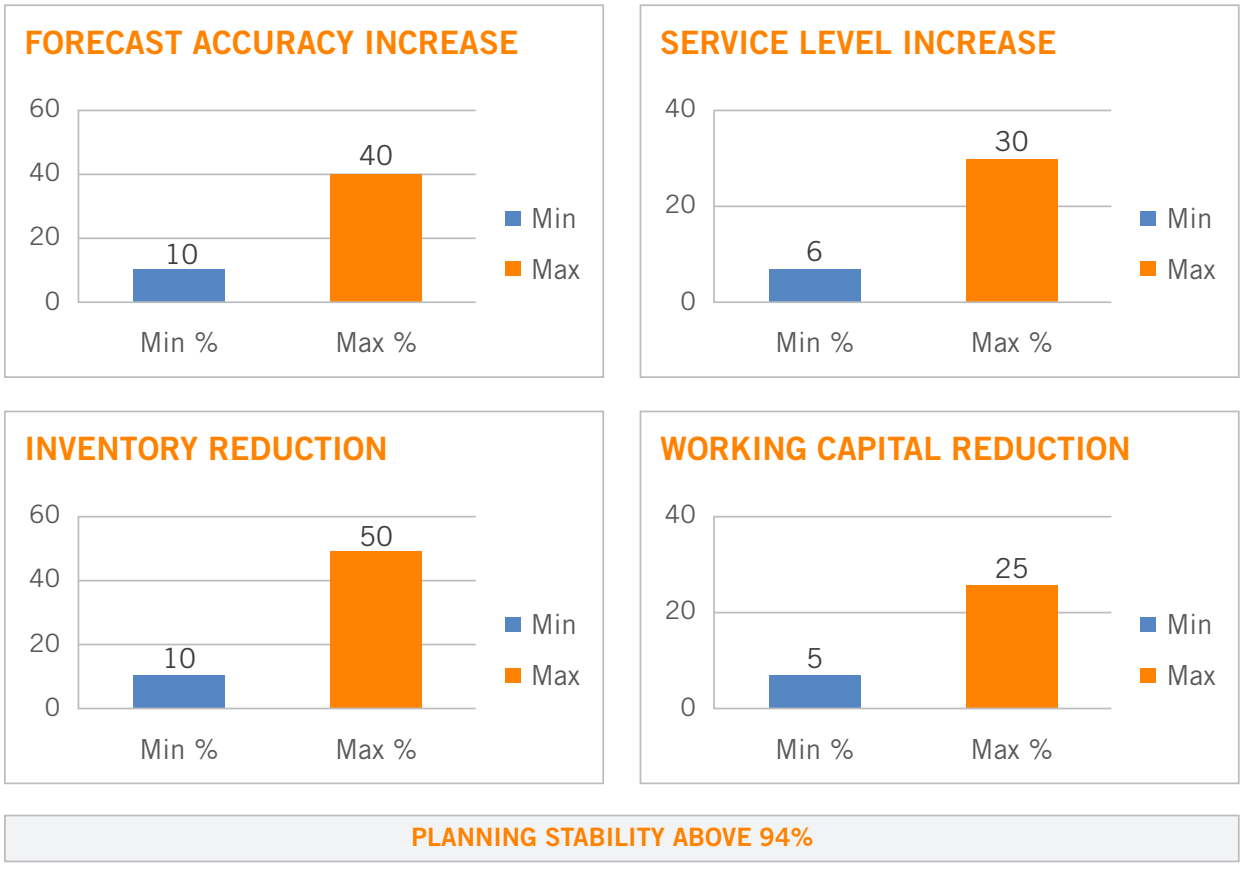


Fig. 4: Improvements measured by the companies after the implementation of DynaSys

ASSESSING THE RETURN ON INVESTMENT OF AN ADVANCED PLANNING SYSTEMS (APS) PROJECT

CALCULATING INVENTORY REDUCTION

To calculate the potential inventory reduction, it is necessary to first calculate the safety stock for each item based on target service level and manufacturing or supply lead time. We generally use the following formula:

SS = MAD * F * √LEAD TIME

Where:

SS = Safety Stock

MAD = Mean Absolute Deviation

F = Factor that corresponds to the number of Standard Deviations required to meet the desired Service Level (e.g. a factor of 2.05 corresponds to a service level of 98%)

Lead Time = Average time of supply or manufacturing

This safety stock corresponds to the inventory target. The difference in value between the target and actual quantities in stock is calculated, and this is the area for potential gain.

In addition to this, we compute the gains on operational costs by multiplying the gain on inventory by the cost factor of inventory ownership, usually set in a range between 15 and 25%.

Depending on the amount of calculated gains, other sources of benefit can be evaluated such as the reduction of subcontracting storage, shortage penalties and emergency transport etc.

The sum of these gains could be considered a conservative hypothesis as it does not take into account the additional qualitative gains such as:

- Improved business agility
- Improved customer satisfaction
- Increased process robustness
- Improved internal and external collaboration
- Better visibility and therefore better decisions

These gains will further justify the investment in an APS implementation.

For more detailed assessment of the ROI for implementing an APS, DynaSys has developed an exclusive ROI assessment tool, based on 'real world' results from our customers. It allows a fast ROI calculation by taking into consideration the economic factors explained above, as well as the type of industry, the market of the company and its initial situation.

CUSTOMER SUCCESSES

The use of this ROI assessment tool has provided results that have been validated in the field.

Within a distributor, DynaSys Demand Planning has generated an increase of 7% in sales and 10% in net margin the following year after implementation. The ROI of this first project was achieved in less than 3 months. This initial result allowed the customer to finance the deployment of DynaSys Procurement Planning to optimize their supply plans. This second project reduced inventory by 17%, improved customer service levels and the ROI was obtained in 4 months.

Implementation of the DynaSys Demand & Supply Chain Planning suite allowed a large group in the food industry to achieve a 98.9% service level whilst stabilizing its production plans. All of this was achieved in parallel with the acquisition of a competitor with several manufacturing sites and a large product portfolio.

Finally, a major worldwide group producing both pharmaceuticals and consumer products has supported its new industrial strategy with the implementation of the DynaSys Production Planning solution. This allowed a significant reduction in the manufacturing cycle, decreased finished goods inventory ranging from 20 to 30% depending on product family whilst increasing service levels by 10 points.

APS OFFERS INCOMPARABLE COMPETITIVE ADVANTAGE

In conclusion, less than 10% of companies are equipped with an APS solution and, among these, not all of them have deployed the tool through their entire supply chain. This current market situation represents a great opportunity; as APS solutions provide the opportunity to create sustainable competitive advantage for companies by providing considerable financial gains and operational improvements in the supply chain.

This document contains proprietary information that is protected by copyright and other intellectual property laws. No part of this document may be reproduced, translated, or modified without the prior written consent of QAD Inc. The information contained in this document is subject to change without notice.

QAD Inc. provides this material as is and makes no warranty of any kind, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. QAD Inc. shall not be liable for errors contained herein or for incidental or consequential damages (including lost profits) in connection with the furnishing, performance, or use of this material whether based on warranty, contract, or other legal theory.

Copyright © 2014 QAD Inc.
All rights reserved.

1011 Warrenville Rd
Suite 210
Lisle, IL 60532
USA

Tel: +1.312.239.1630
Fax: +1.312.239.1631
E-mail: contact@dys.com
Web: www.dys.com

DynaSys
A DIVISION OF QAD