

This paper will take a look at the issues facing those who are contemplating what the Internet and Supply Chain Management (SCM) can do for their companies.

The technology is available. However, there are many things to consider in the dialogue that should take place: how management, the organization and the employees can best take advantage of the new opportunities, and what it means for an enterprise in terms of time, money, human resources, risks and advantages – both now and in the future.

This paper will describe the concept of Supply Chain Management from a business perspective. What lies behind the concept, what advantages and challenges are offered by the new technology, and what is the best way such an initiative can be taken on strategically and organizationally?

In conclusion, the capabilities of the integrated enterprise solution, Navision Axapta™, will be revealed as a comprehensive support tool for Supply Chain Management with the new e-business initiatives.

Internet Supply Chain Management

What is Supply Chain Management?

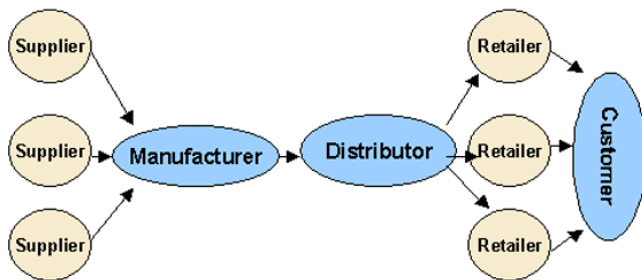
Supply Chain Management (SCM) encompasses the optimization of the value chain, which constitutes a strategically critical concept in the global business environment where tough competition makes it more important than ever to focus on individually customized products and one-to-one service. SCM focuses on dealing with subsuppliers as alternative production locations and knowledge centers to broaden competencies for a company. SCM also deals with optimizing logistics by integrating processes and competencies across the entire supply chain – especially via the Internet.

Brief history of SCM over the past 30 years

Supply Chain Management has been known since the 1970's. At that time, SCM primarily was focused on logistics and purchasing along with minimizing stock. In the 1980's, this focus changed to include minimizing costs in connection with stock flow throughout the value chain. In the beginning of the 1990's, SCM once again took a new direction towards improvement of customer service.

In the new millennium, the trend is evolving to Supply Chain Management's use as a strategic business tool that can restructure an organization to optimize the value chain. The new angle is that companies to a

Supply Chain Network



The classic supply chain

much greater degree than ever before will open up their boundaries to include suppliers in a virtual business network as integral parts of their own organizations.

Concrete advantages of SCM

In the production area, SCM ensures close cooperation with suppliers. This makes it much easier for a company to place production of product parts with the supplier who can carry out the job with the best quality, price and timing.

In the customer service area, SCM allows a company to offer customers a direct overview of the logistics process and to obtain optimal prices.

In sales and marketing, companies can offer customers total service by providing the best product and handling of all purchasing tasks.

In logistics, for example, companies can replace five warehouses with one central location and five

transport companies, thereby making the process more efficient and effective. Even if the logistics were previously running well, experience has shown that there is still a lot to be gained from such a change.

With the Supply Chain Management approach, companies also get the opportunity to buy in larger quantities, therefore at cheaper prices, which always improves the bottom line picture.

The right supplier for the right job

The ability to cooperate optimally with suppliers is one of today's most important competitive parameters. The larger and more global customers become, the more complex become the offerings to them in the marketplace. If a company is to ensure that they get the order in the area of offerings where they have the competency, it is essential to systematize and control the value chain in such a way as to achieve maximum support.

Supply Chain Management addresses this objective. SCM makes it possible to choose precisely each of the suppliers who can put a company in the position to optimally fulfill its strategy towards its customers. By focusing on the customers' requirements, it makes the supply chain into an effective performance system of output that can fulfill those needs. Establishing such a system gives a company the freedom to choose those suppliers who can best handle each job.

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Close cooperation between suppliers means that each supplier can contribute something towards the end-product that makes it more valuable for the next link in the chain. This can be lower costs, less packaging, less need for control – and ultimately greater profit. So the choice of the correct suppliers is an advantage for every partner in the supply chain.

Global needs

Supply Chain Management ensures that critical goods are available on time; simultaneously, that the quality and purchase price are in accordance with both the company's and the customer's requirements. This is nothing new.

What is new, however, is that this task has become more complex. One thing is certain: it is easier to get goods delivered to a company from across town or state than from another country. However, that situation is in the past now. Today, most companies are working with global suppliers, therefore needing to control complicated and long supply chains.

What do international companies say?

How do other international companies see this concept? A research study among 300 business leaders from different branches has been undertaken by the magazine *Advanced Manufacturing Research and Logistics Management*. It showed that 85% of those questioned think that Supply Chain Management can provide definitive competitive

advantages for companies. Over 50% of these managers also believe that SCM is the reason that the leading companies have achieved their market positions.

Suppliers in a new role

Seen from the SCM perspective, suppliers are business partners, not opponents. This changes the purchasing parameters. For example, the previous focus on the politics of pressuring for lower prices – without discussion of delivery times – is no longer the only way for a customer-oriented company to do business. Why is this? With a focus only on price, it increases the risk of receiving products that are so cheap they cannot live up to the customer's expectations of good quality.

The alternative is that a close, long-term cooperation with a supplier or distributor can ensure that companies achieve the expected quality, and that the product can be delivered on time. "SCM extends the concept of ERP (Enterprise Resource Planning) beyond the enterprise to the entire chain of companies that supply inputs toward the building of a final product¹."

¹ Scott Bury, *Advanced Manufacturing*, August 1999

The Internet's huge influence

In recent years, there has been tremendous growth in ERP initiatives, driven initially by the need for companies to upgrade their systems to deal with year 2000 problems and the new European monetary conversions. However, this growth "also can be attributed to the pressure to revamp internal business processes to survive in an Internet-driven marketplace. This new market demands constant interaction with a global marketplace, over-the-top customer service, and a sense of being an integral part of the supply chain²." So the ERP back-office system becomes the backbone for the Internet frontoffice functions.

The National Association of Manufacturers (NAM) in Washington, U.S.A., has completed a poll in February 2000 of American industrial firms. It surveyed 250 companies, with 53% who employ less than 500 people; 28% who have sales of less than \$10 million and 28% who have more than \$500 million in annual sales. Among the results were the facts that 43% of respondents already have online catalogs used for customer service and that 17% of U.S. manufacturers are using the web to shop for the best prices.

Deloitte Consulting in New York made a recent survey that disclosed a strong belief among the responding

² David Caruso, AMR Research, as printed in *Delivering value across the Internet Supply Chain* published on www.manufacturingsystems.com, July 1999

manufacturers that partnering with customers and suppliers is one of the most important factors in managing a supply chain to improve competitive advantage. One third of the respondents currently use the Internet to share information with strategic supply chain partners, and this number is expected to double in the next few years.

As further indication of this growing trend, Forrester Research of Cambridge, Massachusetts, reports that more than 3 out of 4 dollars spent on the Internet result from business-to-business transactions. Their analysts predict this segment will represent total purchases of \$183 trillion by the year 2001.

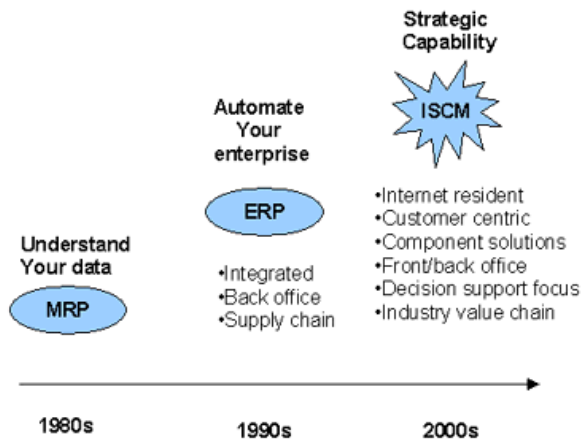
Strategic advantages

All information on goods and output can be made accessible from the Internet. By combining business and this technology, companies can control long, complicated supply chains and decrease stock inventories – both with simplified administration. These opportunities were unknown just a few years ago!

This new technological approach to business shows there are both strategic and operational rewards to be had. On the strategic level, SCM gives the ability to change a company from being functionally focused to being process-oriented. In doing so, management achieves the goal that all processes in the supply chain become more transparent, which makes it

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Internet Supply Chain Management



The scope of information technology systems is spreading quickly outward, from simple plant inventory management, to enterprise coordination, to Internet Supply Chain Management.

possible for them to improve control and make better business decisions.

On the operational level, SCM makes it easy to link different information from the sales channels and to better direct sales with both suppliers and customers via the Internet. For example, via the up-to-date online data, salespeople can answer immediately such customer questions as the following:

- Is the product available right now and which location is it in?
- Can we transport the product to the customer by the agreed delivery time?
- Can we save or make more money by procuring the goods from an alternate warehouse/supplier?
- Can we produce/procure a product that has run out of stock, and how fast?
- Do we have the necessary raw materials, resources and capacity at our disposal?

- Can we customize a product to a customer's special requirements?
- Do we have alternative production locations?
- Which suppliers/distributors can help us?

Phase 1: The organizational challenge

There is no right or wrong way to begin Supply Chain Management implementation. It is a concept to be created and developed in connection with each company, in relation to that company's preferred method of handling their business relations and processes. SCM improves both production and service companies, regardless of their size.

Supply Chain Management can be implemented at whatever tempo suits each company. It can be started with smaller projects that indicate the future direction, thereafter taking further steps in the order that best ensures an optimal implementation.

Forget about the technology in the beginning. As a starting point, it is always top management who must drive the project. International analysts indicate that SCM initially is a strategic task for the company's management to shape. Basically, it deals with identifying which suppliers and distributors make it possible for a company to realize its strategies for its most important customers in the most optimal way.

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Analyze work processes and define roles

Management also must identify the unnecessary work processes, ineffective methods, waiting periods and delays in their current procedures – and remove them. These are weakening the company's ability to compete in the global marketplace.

Management will need to create a framework for which roles in the company should be fulfilled in their supply chain. Which requirements can be covered by the company's own resources, and which could be handled best by outsourcing in the supply chain?

Widen customer contact network

Before focusing on the salesperson's role towards the customer, it is a good idea to establish communications between specialists in the company and specialists at a customer. Through this connection, a company's salespeople and a customer's purchasers are transformed into coordinating partners in the business process.

Reorganization: Promotions, Training, Recruitment

Experience shows that SCM often requires a reorganization and requalification, promotion, or training of certain employees. Such reorganization deals with breaking down functionally divided structures. Instead, cross-functional solutions must be created that connect and optimize work processes across separate traditional functions like purchasing,

inventory, production, distribution and sales. This makes it easier to handle planning, product flow and marketing. However, it also means that each individual division of a company no longer can run on separate IT systems that cannot connect with each other.

Re-qualification, for example, can be the promotion of a salesperson to a division manager, if that person has the important ability to communicate well with customers or to localize needs. Perhaps some communication courses and seminars will be required for employees. Generally, it is necessary to evaluate which employees have to be educated; the goal is to upgrade each employee's competency in connection with the customer responsibilities he or she will have in the new organizational structure, in relation to how important the customer is to the company's business. Perhaps some new employees also should be hired to infuse new competencies and ways of thinking. This is another method to ensure being on the competitive edge in today's marketplace.

Choose the best suppliers then minimize

The company will have to choose which suppliers, distributors and business partners can contribute more than others, and simultaneously introduce solutions that ensure they can work in a goal-oriented way with them.

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A company has to consider the value of cutting back the number of suppliers and other business partners they deal with regularly. The advantages of this can be, for example, fewer orders, less purchasing, reduced stock-on-hand, and fewer invoices to go through the system. All of this means more efficient processing due to less administration, easier control and lower costs for running a business.

Begin by analyzing which suppliers are critical for the supply chain, and their quality levels. Those at the top of the list are the ones who should drive the Supply Chain Management for a company and become the key strategic alliances. Experience has shown it is a good idea to check the main supplier's own sub-supplier potential, too.

Many companies are able to highlight a number of "super suppliers" to undertake leadership tasks and control of a number of other suppliers within a particular segment of the company's business areas. Through such focus, companies can reduce the number of their overall suppliers and concentrate on working more closely with those chosen. This achieves the best advantages that lie in outsourcing areas previously handled in-house.

Internal sales

When a company has chosen an appropriate number of suppliers and business partners, it is often necessary to undertake some internal sales work.

This refers to the need for communication to make it clear to employees why it can pay off to choose the right suppliers.

This internal communication also will be necessary for any structural, procedural and employee role changes that are decided upon as part of a company's SCM strategies. Involving employees in the change process early on helps towards their "buy-in", improving motivation and commitment to make the transitions successful.

Integration of external competencies

Something new in the Supply Chain Management approach is using suppliers to supplement a company's own competencies, for example, by having them undertake development projects. This integration of competencies requires trust and being ready for an open cooperation with suppliers. For many companies, this is quite a challenge. In return, however, this can create real competitive advantages for the entire supply chain, which are necessary in order to operate in the global marketplace.

Phase 2: the technological mission

Once the important strategic questions have been clarified about the extent of Supply Chain Management a company wishes to implement, and which suppliers and other partners are chosen for closer long-term relationships, it is necessary to establish how to best create the right IT foundation for

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this. In other words, evaluate the system solutions to find one that can handle both the comprehensive handling and transference of information together with automated interaction between companies. Remember to look ahead to future needs, as well, to ensure the longest return on the IT investment.

Effective SCM demands an integrated software solution that can optimize all processes in a company's business network – across the entire organization, its divisions, departments and warehouse locations. The entire business process and workflow must be able to move at the right speed required, too. This applies to the need for companies to handle the exchange of large amounts of data across their entire supply chain.

To face the challenges of ever-decreasing margins and heavy focus on costs of operation, companies have to strive for high efficiency throughout the processes of receiving and tracking orders, purchasing and manufacturing, managing the inventory and servicing the customers.

ERP as the strategic Internet backbone

"The impact of electronic commerce on internal operations must be understood as these new systems rely on significant amounts of operational data contained in ERP systems. Successful electronic commerce demands back-office excellence. The processes that support the promise and expectations

of the Internet must deliver fast turnaround and flexible product configuration.

Now the Internet-based economy promotes open communication with customers and suppliers that goes beyond traditional transacting. Real-time trading exchanges where buyers and sellers bid and negotiate without intermediaries will promote an exciting new marketplace that thrives on open competition. Finally, access to the universe of data available on the Internet will enable managers to develop benchmarks and competitive information as we have never seen before. Combining this information with internal performance metrics will make ERP systems a truly strategic tool³."

Supply Chain Management with Navision Axapta

Navision Axapta is an integrated enterprise solution designed for companies who want to simplify internal processes in order to strengthen their ability to react quickly to a constantly changing market and to standardize with one flexible system worldwide.

Navision Axapta offers control of the supply chain with the functionality found in the Trade and Logistics Series. These are modules fully integrated with the Finance Series, which is the core of the solution. The Trade and Logistics Series can be expanded with the Production Series for manufacturers (including a

³ Ibid

special Option Pack offering for Shop Floor Control) and the Project Series. Human Resources Management and Customer Relationship Management are also available.

This comprehensive functionality supports both simple and complex Supply Chain Management, that is to say, no matter how many departments, warehouses or suppliers a company may have.

With Navision Axapta companies will improve customer service efficiency, optimize inventory management and receive reliable forecasting for purchasing and production. It is all tightly integrated into the full ERP system, giving benefits from streamlined financial reporting, easy trading with customers and suppliers (whether in traditional ways or via the Internet) including multi-language and multi-currency handling, to advanced manufacturing with full Materials Resource Planning. All of this is accessible through traditional Windows clients as well as through the Internet.

Strengthening logistics

Navision Axapta puts the people in charge of logistics in a position to control individual price and discount agreements, business agreements, budgets, rebates, inventory lists and goods reservation.

Warehouse Management

The warehouse management functions in Navision Axapta optimize a company's warehouse locations, providing a solid overview of goods placement, zones, picking routes, etc. This eases the work in picking and packing goods for a chosen truck, container, etc. In this way, Navision Axapta acts as a tool to make a company into a smooth link in the supply chain.

Since all of these processes are fully integrated with the Finance Series, related vouchers, freight costs, warehouse invoices, etc., can be posted, as well.

Strong tools for budgeting with forecasting

Proper forecasting ensures effective budgeting for goods production, which makes it possible to determine the long-term needs for materials and capacities. Multiple forecasts can be carried out for the ability to see resource needs for different possible situations. Such scenarios can be further developed in the Navision Axapta simulation tools. These provide a believable, long-term picture of net resource needs – both for materials and capacity planning.

The forecasting can help a company to see one to six months ahead with scenarios of optimistic, pessimistic, or average expectation. The forecasting takes into account the simulated plans and can show detailed requirement needs so it can be assured that all goods are in stock and that production is carried

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out on time. This greatly improves customer service and shortens order processing time.

Always the right goods in stock

Requirement planning ensures that any changes in deliveries can be traced. Navision Axapta supports inquiries and gives the option to go back to previous requirement planning versions. Collecting all information in one place provides a clearer and more reliable picture of the supply pipeline - to the benefit of purchasing and production planning.

Optimize the production process

Navision Axapta gives a company solid tools for controlling time registration and management, including production planning, job scheduling and feedback, as well as personal productivity analysis. Capacity planning works together with the materials planning.

Better control of materials

Navision Axapta offers three MRP (Materials Resource Planning) solutions, which ensure that all production projects can be handled, no matter how complex. MRP 1 includes requirements planning, inventory lists and warehouse storage data. MRP 2 includes resource planning, work centers, routes and operations. MRP 3 includes job planning, complex resource planning, simulations, reports and Gantt Charts.

Fast moving goods and efficient space management

By automating inventory and warehouse management, companies can handle the same volume of business with fewer items in stock. Tighter control of inventory means knowing sooner when stock is running low. This is particularly important for fast moving items, where an area of the inventory or warehouse can be set up specifically for "quick-pick" or "speed-pick" items. Navision Axapta will automatically refill the speed-zone when it is running low, from the buffer in the regular inventory.

Some other supporting features are: effective and detailed handling, storing and tracking of goods, including moving them around to and from different locations. Navision Axapta also provides serial-and batch-number tracking. When combining this functionality with the benefits of an integrated ERP solution, information flows in the whole company become much more efficient.

Mobility

Mobility for goods is critical, as well as for the employees working in a warehouse or with inventory. With Navision Axapta Object Server (AOS), laptops with Windows and low bandwidth networking can be used to provide this mobility. Employees can move about in forklifts, etc. to get their work done and still be able to use the system. Any information entered or viewed is updated online. This means no time delays

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between performing an action and someone in sales or purchasing being able to see it right away.

Easy tracing of transactions

The Trade and Logistics Series automatically update all information so users can generate valid reports from every part of Navision Axapta. There are also automatic links for audit trails on every transaction, integrated from the Financial Series. This means that companies can always track related events and vouchers or invoices through the entire system.

Ready for e-business

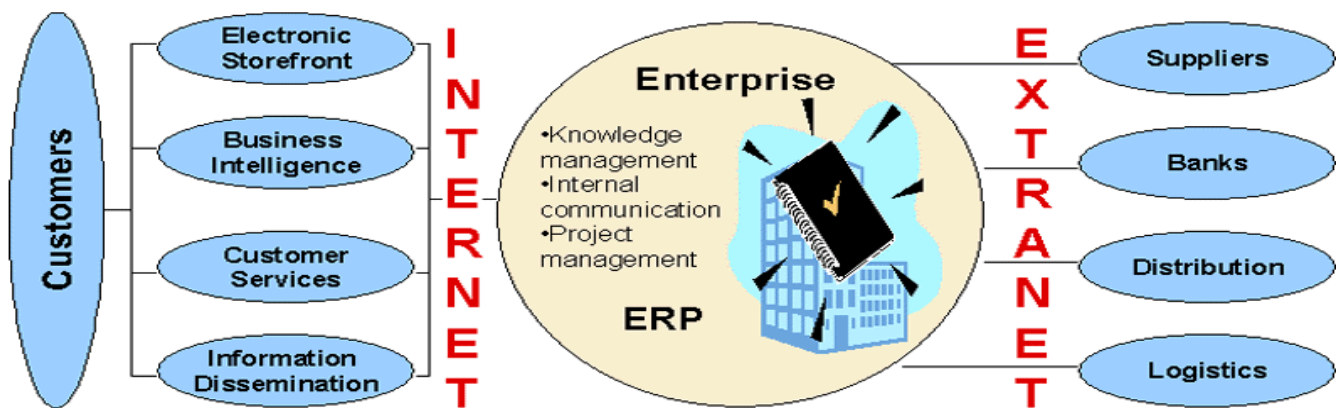
“The success of supply chain thinking demands that procurement, manufacturing, and distribution act in unison and address issues that stretch far beyond the four walls of the plant⁴.” Navision Axapta makes it possible for companies to undertake ‘virtual partnerships’ via extranets, intranets, or the web. This greatly improves communication with suppliers,

transport companies and customers. Based on Microsoft’s NT Internet Information Server and Commerce Server, both are integrated seamlessly with the Navision Axapta COM (Component Object Model) interface. The industry standards for security are incorporated.

“The supply chain systems of today and tomorrow must be capable of optimizing the performance of the supply chain across multiple dimensions – customer service, costs, investments, profits, and speed. Companies need to break down barriers with partners and use technology to share information⁵.”

Interaction with business partners

Along with getting an integrated enterprise solution, Navision Axapta is based on unique technology that puts companies in the position to use data across their own and other companies’ solutions running with XML standards. Such data communication between



⁴ Ibid

⁵ Jim Kilpatrick, Senior Manager in Deloitte Consulting’s Supply Chain Results Practice, as quoted from the article Internet takes on collaborative planning published on www.manufacturingsystems.com/newsletter/lead0110

companies can be accomplished via the Internet, EDI, online, the coming Microsoft BizTalk server, or other interfaces. Therefore, Navision Axapta can support e-procurement, where important suppliers have access to the company's main system, and the company has access to the supplier's order database.

Strong Internet engine

The COM connector and Internet connector in Navision Axapta ensure a strong web engine with all the power necessary for effective data communication. Information can be shared across the supply chain without the need for other applications. Everything can be controlled from the main Navision Axapta system.

Targeted information via the Internet

It is not all employees who have a need for access to all information via laptops. Therefore, Navision Axapta is designed for it to be easy to make chosen information and functions available on a website, which different user groups can connect with via a browser.

An easy way to set this up is by using the web wizard templates, built right into Navision Axapta. These make it simple to design individually-customized web pages. For example, there can be one page for sales people to log on to from out at a customer site visit, where they can place orders directly into the main system, or check the history of an account.

There could also be a web page for informing suppliers of product requirements, etc. The options are manifold, as are the benefits – no matter what kind of manufacturing is involved: make to order, make to assemble or make to stock.

Fast, efficient customer service

E-business allows customers direct access to their own account information, thereby increasing customer satisfaction while also reducing customer service or call center costs. Navision Axapta's Customer Self-Service web application enables companies to provide customers with secure, direct Internet access to placing orders, checking order history, correcting their own account information, and more.

Customers get better service by gaining immediate access to information - 24 hours a day - without having to wait in telephone queues.

Customer service resources can be freed up from calls with simple questions and concentrated on servicing those customers with more demanding requests. When simple questions can be answered better by a customer searching for the answers on the Internet, a company's customer service representatives can spend their time more efficiently.

Customer Relationship Management

With increased use of the Internet and other electronic communication vehicles, customer relations must also

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be electronic. It becomes easier for customers to turn to other vendors, so companies must build relationships and loyalty to retain customers and get more business from them.

The Customer Relationship Management Series in Navision Axapta provides access to all information (e.g. on product specifications, availability and prices) when needed, thus allowing companies to give customers quotes faster than competitors can - thereby winning more orders.

Immediate access to all information on each specific customer allows better knowledge of them, which can lead to more business from existing customers, and a longer lifetime for each customer.

Handling the transition to SCM

As mentioned earlier in this paper, when a company is undergoing the implementation of Supply Chain Management and a new system, organizational procedures and structures are being changed.

Human Resource Needs

Navision Axapta offers a Human Resource Management series to handle just this kind of transition with ease. The HR functionality includes organizational diagrams with simple upkeep features, job positions which can be standardized or customized, all employee information for ongoing career development and tracking of job movements

when changing departments, etc. with automatic updates to the system. Skill mapping aids companies in competency searches when trying to determine the best resources for new projects or job positions.

The traditionally time-consuming process of recruitment also can be handled efficiently by Navision Axapta to help cut costs in resources and keep companies on the competitive edge. The Human Resource Management Series even tracks the effectiveness of recruitment advertising, as well as providing training course administration and results, ensuring the best return on investments in these areas.

Project Costing

Along with handling the human resource matters of Supply Chain Management implementation, such organizational transitions implicate costs beyond just the price of a new ERP system.

The Navision Axapta Project Series can handle efficiently the planning and tracking of all the costs involved. This expands on the Financial Series to include planning, monitoring and follow-up on the current and future financial status of internal and external projects. It supports a wide range of capabilities including managing time and materials in projects, fixed price projects and project accounts. It helps companies to budget time and materials consumption for better control of all project costs.

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Long-term return on investment

Navision Axapta is future-safe because it is built with the newest technology that will not be outdated too soon. This technology allows companies the flexibility to tailor the solution to their needs as they grow. Customizations easily can be carried into future upgrades of the system, too.

A company can start with a few basic series to establish their ERP backbone, then scale upwards and outwards as desired. This approach gives companies full control over the implementation process of their Internet Supply Chain Management, and ensures the best return on their IT investment for years to come.

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