

Revolution through electronic purchasing

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Abstract

Automation is finding its way in the world of purchasing. This development could evoke dramatic effects in the long term, not only on purchasing but even on the market place itself. Nowadays, EDI and CD-ROM are examples of automation applications that purchasing departments use frequently. Internet and other global communication systems are not yet perceived as major added value applications for purchasers. Nevertheless this medium could change purchasing in a revolutionary manner, provided that the information such global media present, is structured in an easily accessible way. At that point major elements of traditional purchasing will be automatically shifted to the end user. As a consequence the marketplace for these products will become completely transparent, creating a new fundamentally different reality. This will allow new competitors to enter and will demand new services to be rendered.

Purchasing

Purchasing concerns all goods and services for which an invoice is received. This definition covers a very broad range that includes such diverse items as raw materials, office equipment, investments, cleaning services, consulting etc.

Purchasing activities comprise more than the work of the purchasing department; other employees in an organisation perform activities in that field as well. Just think of the activities regarding accounts payable, inspection of incoming goods, administration and the many things that are bought without any interference of the purchasing department at all.

The purchasing process consists of six phases: specification, selection, contracting, ordering, monitoring of the contract and follow-up. Generally during the specification

phase the purchasing department determines the requirements for the product or service in consultation with the end users in the organisation. Then the purchasing department searches the suppliers that can provide the product or service according to the specifications. During the next phase, when the selection takes place, the purchasing department chooses the supplier that meets the specifications best with the most favourable conditions. Next a contract between the supplier and the buyer is concluded and the ordering takes place. After the agreement is finalised the contract should be monitored, to ensure that the supplier sticks to the agreement. Finally the experiences should be registered and variations and deviations should be dealt with.

The rise of electronic purchasing

Basically a large part of the purchasing process could be automated, in particular for standard goods and materials. However, today automated systems are generally only used for the ordering and monitoring phases of the purchasing process. But more and more other areas of purchasing are going to take advantage of the automation possibilities as well. Electronic purchasing is in the making.

Examples are there. Since a few years suppliers provide information on their products via CD-ROM, instead of in a traditional catalogue. The CD-ROM informs the purchasing department in a structured manner on the products of the supplier. The CD-ROM is time-saving in the market research and selection phase of the process; finding the relevant information with a CD-ROM is less time-consuming than reading a catalogue. However, the use of CD-ROM is not optimal yet, since the purchasing department has to compare several suppliers with each other, each having their own information format. The use of CD-ROM will only slightly change the nature of the purchasing process.

Another medium that is a part of electronic purchasing is EDI. The ordering phase of the purchasing process can become considerably faster and more efficient by EDI. Especially organisations that frequently purchase large quantities of the same goods and rely on fast delivery, can take advantage of EDI and recover the costs that are substantial. The purchasing department determines the long-term framework for the cooperation between the supplier and the buying organisation. EDI replaces many administrative tasks of the purchasing department, so that the focus of the relation can be on the strategic aspects of the purchasing process. EDI implies a partnership relation between supplier and buying organisation. After all, both parties need to invest a lot before an EDI connection is established. The purchasing department is not interested in the price of the moment, but in the long term costs of the cooperation.

An example of the use of EDI is the procurement of company cars by the American company R.J. Reynolds Tobacco Co. Since last year Reynolds uses EDI for the ordering

of new cars. Reynolds has a fleet of 3200 cars for employees that work at 100 different locations. Every year 1000 new cars are ordered. Until recently the ordering of a car resulted in a mass of paperwork. The correspondence with the lease company and the car dealer was on paper. This resulted in many administrative actions and involved unnecessary high costs. In response, Reynolds automated all the actions between the head office, the sales offices and the leasing company. Each office can select the type of car, the colour and other specifications in a database on the computer. The data are transmitted by EDI to the leasing company, that orders the car from the car manufacturer. Data about delivery times are transmitted back to the head office and to the sales office. In this way ordering a company car is reduced to a few touches on a keyboard. The costs for implementing this system were US\$ 75,000 and the savings amount to US\$ 800,000 a year. The savings consist of forms which are made redundant and the reduction of postal expenses. Furthermore Reynolds needs less employees, floor area was made superfluous because 50 filing cabinets, containing information about the different cars, became unnecessary.

Another step on the road to electronic purchasing is the use of combined information from different suppliers. So far it is only used on a modest scale. As an example in the Netherlands since 1994 some health care institutions use the electronic purchasing system ProductView. ProductView is an electronic catalogue with a central database that contains information about medical materials. The information is updated every day. The transmission of data uses the EDI-fact standards. The database includes a wide selection of suppliers and roughly ten thousand articles. Twenty two health care institutions use the electronic catalogue. ProductView offers buyers the following information: a product description, information about the use of the product, tax rate, packaging, a unique identification number (convenient if the institution wants to use EDI), sterilisation specifications and environmental information. The information of the central database can be disseminated to employees in the hospitals, giving users access to the information, which is currently a one-way flow of information.

Hospitals can build their own internal automated information system, enabling end users to place their own orders. In addition to this system the hospital can use EDI for ordering. Due to this electronic catalogue the purchasing department spends less time on operational purchasing activities such as filling out order forms and glancing through catalogues. The purchasing department gains time for strategic purchasing.

A comparable system has been developed in Northern Ireland. ESIS (European Satellite Information Services) was founded by the Northern Ireland Government Purchasing Agency. ESIS is an electronic catalogue, comparable to ProductView, for computer products, furniture and health care products. The catalogue contains information on 500 suppliers and is used by 40,000 clients.

The transmission of information takes place via satellite to the buying organizations. Suppliers send information on their products to the ground control station that translates

the information (code and product numbers, descriptions, sizes etc) to 'plain english' in order to be useful to non-specialists. The signals the users receive combine all information from different suppliers so that users can query the system in plain english to find the best

or cheapest supplier for a certain product.

The satellite is used because of the low costs involved. With a normal satellite receiver a wealth of information for many users can be distributed in a company or hospital. As a result of this electronic purchasing system, the requisition costs for the buying company are reduced from \$ 50 to 50 dollarcent per order. Furthermore, the amount of paper is reduced and the catalogue information can easily be made accessible to more employees.

Examples such as the ones above show that electronic purchasing is more than theory. Many companies have already started to work with these new technologies and reaping their benefits. The future impact of electronic purchasing will be immense not only on these organisations but also on the total marketplace. And Internet is likely to play a very important role in this revolution through purchasing.

Internet as the driving force to a completely transparent market

Basically everyone can contact everyone through Internet. Suppliers can put information about their products and services on a website and purchasers can search for relevant information on Internet. Most of the websites on Internet are more like advertising pages, that do not contain the information required by purchasers. Experts call that 'a waste of the Internet'.

But there are other suppliers that really use the internet as a sales channel. An interesting example is the website (Virtual Vineyard (<http://www.virtualvin.com>)) of an American wine shop, that is intended for private persons. This website contains information about: prices, wine regions and taste qualities. The ordering can take place by electronic mail. The wine will be delivered within five weeks. The first time a client places an order, many questions are asked about wine preferences. This information and information about all orders from the client are stored in a database. In this way the wine merchant gains insight in the needs and tastes of every client and can prepare tailor-made offers for every single client.

Usually websites contain information on one supplier. From the point of view of the purchasing department this approach is not very interesting. It necessitates surfing across the Internet to compare various suppliers. The purchasing department is interested in a certain product; which supplier offers the product is of secondary importance. There is a clear need for a structure on Internet arranging websites by article instead of by supplier. When a purchaser types 'pens', he would like to be informed about pens, irrespective of which supplier offers them. The purchasing department wants to find out what the

specifications are, what the price is, when the pens could be delivered, what is available from stock and how much the shipping costs are. The purchasing department is definitely not interested in a long search on Internet for a supplier that can provide him with the product he is looking for.

But before websites on Internet will be arranged per article, there is still a long way to go. The need is urgent, but meeting this need requires a great organisational and technical effort. The difficulty is that there is no specific organisation that has a commercial interest in bringing the information about products together. Generally suppliers (who have the means to do so) are reluctant to make it easier for their clients to buy from a competitor. And buying organisations lack the means or have difficulty in organizing their constituents. So everybody is waiting for an authority to set up this combined information service. Will it be the independent brokers or will suppliers join forces and set up a cooperation? Even buying organisations can try to force suppliers to provide data in a common database. The last possibility is that wholesalers - that already sell goods from different suppliers - take the initiative to cluster the information. And remember: the Internet is a likely candidate to prompt such information clustering, but it is not the only medium possible; the ESIS example shows that other forms of electronic communication can do about the same thing.

The role of the purchasing department will change

And as soon as the information is structured in a way as described above, purchasing will take another form. Then the purchasing department is not unique any more in its knowledge of the market and the available products. Nor will it be unique in its ability to handle a purchase order. Many employees of an organisation will have access to all the information about the products and will make their own choices. In fact, end users can purchase the products by sending an e-mail to the supplier, much as is currently done by purchasing cards. If the order is placed by Internet, the invoice can also be sent electronically. The work of the purchasing department will become less administrative. The purchasing department will have to play a facilitating role. It has to determine the preconditions for the individual purchasing processes, to monitor the entire process and to adjust the purchasing behaviour of individuals when necessary. The role of the purchasing department changes from an operational and tactical role to a 'control' role.

Revolution in the marketplace

When commercial purchasing takes place on the Internet, no supplier can afford not to be present on the Internet. And if all suppliers are on the Internet in an organized way with easy 'plain english' access to all information, why buy outside of the Internet? Especially

for standard goods and materials this mutually reinforcing effect can go very far. When prices for standard products and materials will be available on Internet, buyers will choose the product that meets the specifications at the lowest price. Suppliers that sell the same product at a higher price will be left without business. The result will be that only suppliers with the lowest prices for a product will survive and that price is becoming the main issue for these standard products. As a consequence real prices will not be hidden from the end users through some form of discount only known to the purchasing department and the supplier. The market will be totally transparent with rock-bottom prices. As only lowest prices will be available the art of negotiating (for standard products) will be redundant, thus adding to the changing role of the purchasing department.

It is to be expected in such an environment that end users will not stick to the preferred suppliers that offer a wide range of products. They will tend to look out for the best bargains. Note that a negative effect of such behaviour in the current situation is not present then. If end users go shopping now they create adverse effects on total costs, standardization and administrative handling; but in a well-arranged Internet world these effects will be absent for standard products! Thus products will be bought from a wide range of suppliers.

To handle the logistics of all these transactions a completely new market will come to life (better: will be born again), the business of collecting, routing, shipping and distributing all kinds of small orders and parcels. This is different from the work that wholesalers do today and more closely resembles the work of parcel handlers like TNT, DHL or Federal Express.

This development opens up possibilities for small suppliers. Nowadays suppliers must offer a wide range of products to survive in a market with blanket orders, where having a wide range of products is essential for attracting enough business. When only the lowest price for a product is a guarantee for sales, small suppliers will be able to survive. Joining the market will become easier, because even if you offer only one product you can just put it on the Internet and everybody will know about it. There is no need to have an expensive sales network or to sell through wholesalers. In fact wholesalers will lose their position in the market for standard products entirely.

The future is in the making

The above is so logical and self-explaining that nothing can stop this development. It is not a question whether this will take place or not, it is just a question when. There are still a number of potholes in the road ahead that have to be filled in in order to have a smooth ride.

First and foremost the swing towards product-oriented information (in stead of supplier-

oriented) is required. But that is an aspect that some commercial providers are already looking into. Both on the Internet and through some satellite systems new developments are to be expected in the coming months.

Even before that is finalised, major players in the parcel handling business are already positioning themselves for the next step. The merger of PTT-Post and TNT is merely an example of such positioning on this potentially huge market, that is international by definition.

A third deflector is the reliability and safety of commercial traffic through an electronic medium such as Internet. Especially for the ordering and payment processes such issues are of vital importance. One needs to receive a confirmation that the order has been received and accepted or that the payment has been made. And one needs to be certain about the correctness of the payment (amounts, receiving party, etc) for normal business purposes. But these are in fact merely technical issues that may be resolved in the near future. For example for payments in the Netherlands in the last 6 months alone 3 new systems started a pilot on the Internet. Because they are based on an existing superior 'giro' payment system, they exceed current safety and reliability standards by far. It is to be expected that technical issues will be resolved in the next year or so and that a world-payment-standard will be established before the turn of the century.

Finally there are some technical issues that do not concern the development per se, but they do influence the way it will be implemented within organisations. As an example both suppliers and buying organisations may want to stick to their old volume discount arrangements. But if many people within the organisation are buying, it may be a problem to inform all these people of the volume-discount arrangement and its effects without disclosing this information to others. Probably some kind of filter or 'screen' will have to be developed to arrange for this. Another example may be the provision of location dependent prices (because of shipping costs). But that again can be handled in a number of ways including such arcane ways as differentiating between various delivery zones or just leaving it up to the logistics provider to find the best overall prices.

Conclusion

Purchasing is now at the start of a revolution. Electronic purchasing enables employees to purchase without support of the purchasing department. Buying organisations will be confronted with a much more decentralised purchasing activity. Internet could play a major role in bringing about the changes and in acting as a market place. This point will be reached as soon as websites are organised by product, not by supplier. Then a completely transparent market will be reality, with all its consequences.

Suppliers of standard products have to organize themselves according to the principles of such a transparent market, where price is of major importance. This market will be characterized by price competition and many smaller players including new entrants. New

services in the logistics area will be required and wholesalers will disappear.

This is a true revolution in the marketplace caused by changes in purchasing. It is still some way to go, but as indicated here, the first steps have already been taken.