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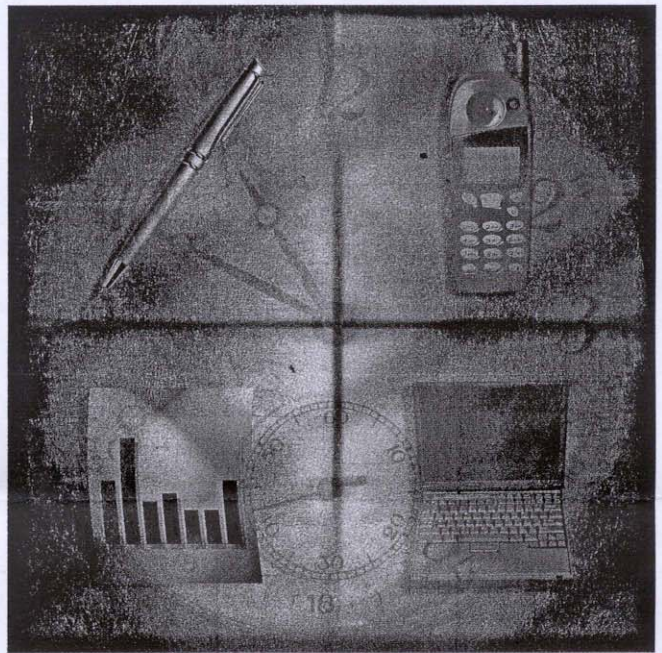
FEATURES SUPPLY CHAIN

## CYBERMASTERS OF THE SUPPLY CHAIN

The eCommerce revolution, which has changed the world forever, has re-ignited interest in the supply chain as a source of wealth creation. Chief executives and their management teams must re-invent themselves and adjust their leadership and management styles to cope with the new realities. Indeed, some are already emulating companies like Sun, Cisco, Intel, Oracle and Microsoft to get their more traditional multinationals back on the growth agenda. In this extract from 'Supply Chain Cybermastery – building high performance supply chains of the future', authors ANDREW BERGER and JOHN GATTORNA look at the dynamics of the new marketplace.

The expected role of eMarketplaces has changed significantly over time. Initially they grew out of the thinking of eProcurement vendors such as Ariba and Commerce One. Many started these new ventures by conducting auctions to capture value quickly, such as the Ford Tyre auction. Now the emphasis has started to change, with a much greater expectation that they will provide industry-level services and standards covering a wide range of supply chain and infrastructural capabilities. It is quite useful to think about these marketplaces as financial exchanges applied to other products and services. We see the same level of disaggregation and reaggregation of supply and demand as one would expect to see in a financial market. The big difference between these eMarketplaces and financial markets is clearly the need to include fulfillment costs and services into the overall optimization equation; for example, you do not buy a product unless you know how much it will cost to ship it to you. Sustainable business models and realistic stakeholder expectations eMarketplaces will need a sustainable business model based on offerings that will realistically command significant market shares and incentives for users to place a wide range of transactions through them. One of the surprises early in 2000 was the initial naivety of many of the revenue and profitability models that were promoted as the business cases for some eMarketplaces. Quite a few marketplaces sought to justify their future on transaction revenue models that were entirely unrealistic. Fortunately, this situation started to change very quickly by mid-2000. Most eMarketplaces now understand they need a business model and business case that is robust and recognizes that sponsors will only fund the initial build and are unlikely to subsidize transaction fees in the medium term. The best eMarketplaces are recognizing that long-term transactions viability is standalone and the time to create a sustainable business model is now.

Stakeholder expectations need to be clearly defined and managed. In our experience, the most likely outcome of multi-partner ventures is one of increasing costs, declining benefits and reducing functionality relative to initial expectations. Stakeholders must be aware of the realistic business plan and must have total buy-in to the business model, the partnerships, the commission structures and the value propositions on offer. A common consequence of over-optimism comes when reality dawns and the often 'all-important' second round funding is suddenly not forthcoming.



The high levels of eMarketplace complexity, the volatility of the competitive environment and the critical nature of relationships in eMarketplaces raises the importance of having the right management team in position. Management must know their target industries and markets appropriately. They must understand the competitive dynamics and drivers such that they are able to lead and manage change effectively. Management must be fast to act and react, and be prepared to quickly abandon strategies, approaches or partnerships that do not deliver on expectations. They must establish a performance management system that enables timely responses. There is no right formula for selecting the right management team, except that you will know how it feels when you have not got it right!

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### RAPID BUILDING OF KEY CAPABILITIES

Successful eMarketplaces must rapidly build a full range of capabilities to 'become the 'one stop shop' for an extended range of transactional and value-added services. It is not likely to be sufficient for an eMarketplace to sustain a niche set of offerings. eMarketplaces will need to balance the creation of liquidity in standard services with the need to continue the building of a more complete range of specialized services to capture market share and achieve the transactional volumes necessary to build longer term profitability and industry as well as customer acceptance. In the early days of eMarketplaces, few companies had the vision to see what this breadth of services would consist of, indeed most were entirely focused on winning the eProcurement 'PowerPoint war'.

The realization of the need for a broader range of services grew strongly in mid-2000 and has led to a range of alliances and acquisitions, such as Ariba and i2, SAP and Commerce One. The software vendors have been very active in developing their strategies for filling gaps in their product ranges, and there has also been a strong drive to understand how the key elements of eMarketplaces can work together. This is still very much 'work in progress'.

The real impact of this change in thinking has been a strong intent to combine the key supply chain elements of planning, procurement, manufacturing, design and fulfillment under common standards that unite an overall value chain. This is an ambitious vision that would have seemed inconceivable even two years ago.

### INTEGRATION OF ACTIVITIES WITH MAJOR STAKEHOLDERS

It is one thing to set up an eMarketplace, but quite another thing to get participants (even with equity stakes) to participate. Indeed, many of the early eMarketplaces now seem naive about the challenge of 'onboarding' equity participants. The level of integration required between eMarketplaces and participating companies is potentially huge, but most eMarketplaces, and the companies investing in them, do not yet fully understand this.

Long-term success of an eMarketplace will hinge more and more on the degree of integration between the eMarketplace and an ever-increasing range of partners and stakeholders. Seamless links must be established both upstream and downstream in the supply chain as well as with providers of specialized services such as financial, logistics services and possibly other marketplaces. There is renewed emphasis on connectivity with both supplier and buyer ERP systems. The required levels of integration and open communication intensify the need for all stakeholders to have a common language and shared standards and protocols.

The integration challenge has many interesting implications for the different levels of participants in eMarketplaces. For the eMarketplace owners and software suppliers, the challenge is one of setting standards, building capability and encouraging usage. For participants the challenge is one of 'onboarding' or getting companies to build the interfaces they will need with their own systems to be able to participate at scale. For eMarketplace vendors, such as software suppliers and providers of specialist services, such as logistics and payments service providers, the challenge will be filling product and service gaps fast enough to maintain credibility with eMarketplace participants.

### CAREFUL MANAGEMENT OF REGULATORY RELATIONSHIPS

Antitrust authorities in the European Union (EU) and the USA are still struggling with the questions of how, and to what extent, business-to-business (B2B) eMarketplaces should be regulated. While they do not wish to obstruct progress in this area through the enforcement of overly restrictive regulations, there is the concern that competition could be

significantly hampered if new eMarketplaces are allowed to develop without addressing potential antitrust issues.

After its ruling in the case of MyAircraft, the European Commission was quick to emphasize that the case had not established a precedent for other B2B marketplaces. Other exchanges should therefore expect to be examined on a case by case basis. While MyAircraft was investigated under the European Union's Merger Regulations because it is a full-function venture jointly controlled by its parents, B2B marketplaces established by single companies would not fall under the regulation because there would be no concentration. However, the B2B marketplaces that fall outside the merger regulations may come under general EU Treaty rules on restrictive business practices, in which case there is no obligation to obtain prior regulatory clearance.

The European Commission's investigation has no doubt brought B2B exchanges into the spotlight, with the prevailing concern that if companies entering online exchange platform deals exchange price-sensitive or other sensitive information, they are effectively acting as a cartel. In the same way as they are unable to do so offline, big businesses should not be able to set up cartels online. There is still much to be resolved around regulatory responses to eMarketplaces. In many ways, regulators have been slow to understand the dynamics of eMarketplaces and to decide on what is and is not acceptable. Many recent judgements seem to be more like holding positions rather than legal direction. However, this is understandable giving the loose nature of the definition around what individual eMarketplaces are trying to achieve.

In the absence of a definitive 'safe' model for B2B eMarketplaces, stakeholders must establish and carefully manage their relationships with the regulatory bodies from whom they require approval. Owners and operators should take all precautions to ensure that their marketplace is seen to be open and cooperative, and that there are sufficient measures in place to prevent any occurrence of anti-competitive practices.

### THE 'EMARKETPLACE IN A BOX'

With increasingly complex demands on eMarketplace capability, there is an emerging demand for 'eMarketplace in a box' solution offerings. 'eMarketplace in a box' offerings would essentially be a skeleton marketplace structure: a set of generic, partially configured components, ready to be populated and tailored to meet the specific requirements of the operators. These turnkey solutions will serve to minimize the time and effort spent on integration by using a pre-selected suite of best-of-breed applications.

Such 'Marketplace in a box' solutions may also have a number of beneficial solutions:

- Share development costs for eMarketplaces across multiple industries/horizontals.
- Define standards between industries where common eMarketplace solutions are used.
- Simplify the building of 'peripheral' activities in eMarketplaces such as logistics and payment services.
- Remove problems associated with custom build solutions in multiple eMarketplaces.

We expect to see a significant increase in demand for 'eMarketplace in a box' solutions as companies become increasingly frustrated due to the failure to deliver of early start-ups and industry consortia.

### SYNCHRONIZING THE SUPPLY CHAIN THROUGH EMARKETPLACES

An unexpected but predictable side to eMarketplaces is the opportunity to accelerate progress towards an eSynchronized supply chain world. We have been developing synchronization solutions using

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### CASE STUDY

## An open digital community working in real time

i2 Technologies' TradeMatrix is a dynamic Internet marketplace that provides a one-stop destination for online collaboration and dynamic trading, electronic procurement, spot buying, selling, order fulfillment, logistics services and product design services. TradeMatrix provides an open digital community where customers, partners, suppliers and service providers gather to conduct business in real time, enabling companies to make more profitable decisions

### LINKING ERP AND EAI TO EMARKETPLACES

A major barrier to synchronization within organizations has been the difficulty of sharing data and managing business processes across multiple IT applications, which are often running on different platforms in several locations. This problem is amplified when synchronization is attempted across a number of organizations. The current trend towards 'best of breed' application solutions means that this issue is not going away. Three or four applications within a single architecture are not uncommon, even before integration with legacy systems is considered.

There is an urgent need for solutions that reduce the cost of data integration and allow business processes and workflows to be managed across application and organizational boundaries. A range of solutions is rapidly emerging under the collective banner of enterprise applications integration (EAI).

Accenture has defined EAI as: a set of technologies that enables the integration of end-to-end business processes and data (information) across disparate applications to increase the organization's and supply chain's ability to respond and adapt to change.

EAI is not merely technology, nor is it simply the automation of business processes across otherwise independent systems. Rather, it is a set of complementary technologies, working together not only to integrate business processes in the existing environment, but also to allow an entity to evolve quickly and painlessly as its IT landscape changes. EAI is a strategic technology.

EAI solutions are more than middleware. Middleware solutions typically focus on integration at the 'data level'. While this provides the connections that allow applications to see each other's data, it does not necessarily mean that the data can be understood or used. EAI solutions, in addition to middleware, will typically offer:

- Packaged interfaces ('connectors' or 'adaptors') which reduce the development effort in getting information in and out of databases or applications.
- Transformation engines, which reduce the development effort in translating message formats and routing messages.
- Process management engines enabled by workflow capabilities, which reduce the development effort of coordinating the overall flow of information between applications and databases. This also enables management of business processes spanning multiple applications.

Industry analysts believe that the opportunity in this area is huge, but at the close of 2000, there was still no 'silver bullet' for solving the integration problem. Emerging vendors, such as SeeBeyond (formerly known as Software Technologies Corporation (STC)), Viewlocity, Vitria, webMethods Enterprise, Neon, TIBCO, CrossWorlds, Extricity and others, have jumped to the forefront of this market.

The focus of the EAI vendors varies significantly. It is the distribution of vendors over two criteria. The first, business process management versus data/messaging management, refers to the functional focus of the vendor, and the second, intra-enterprise versus inter-enterprise, refers to the scope of the application.

EAI offers the potential not only to share data within and across organizations, but to manage and use that data in an integrated way. These characteristics will be of enormous value to eMarketplace operators whose service offering includes collaborative supply chain planning. These applications are key enablers of eSynchronization.

the latest applications for several years. However, there has been little take-up due to lack of understanding or perceived relevance outside of high-tech industries. Moving forward, eMarketplaces look like being the next step towards eSynchronization. They are increasingly setting out an agenda that combines eProcurement with eDesign, eManufacturing, ePlanning and eFulfillment across a range of industries.

The requirements for increasing collaboration and synchronization are reasonably well understood. Major areas of work are being conducted on building supply chain planning and enterprise applications integration (EAI) solutions to enable individual companies and eMarketplaces to take the next step towards eSynchronization.

A key factor in this shift in the role of supply chain planning, EAI and eMarketplaces is the role of enterprise resource planning (ERP) systems such as those offered by Oracle and SAP. ERP systems will continue at least in the immediate future to be the backbone of both company and eMarketplace transaction systems. The key question is whether they should be high or low level in their functionality. Some companies are adopting a 'wall to wall ERP' strategy, choosing one vendor for everything. Others are building 'ERP Lite' solutions which have limited functionality beyond basic transactions and integration.

eMarketplaces represent a key step on a journey to supply chain synchronization but one that is difficult to deliver. We believe that the stage is now set for the best companies to exploit these collaboration and synchronization technologies as part of their strategy to dominate future transactions between individual companies and public and private eMarketplaces.

### THE ROLE OF COLLABORATIVE SUPPLY CHAIN PLANNING SOLUTIONS

Supply chain planning (SCP) incorporates a number of components, including forecasting, distribution resources planning (DRP), manufacturing resources planning (MRP2), transportation scheduling and manufacturing scheduling (see Figure 1). Initially most ERP systems had some of this functionality, but in many cases it was limited. Planning was therefore disjointed and piecemeal as ERP systems could only plan those parts of the supply chain with transactions on that particular system.

In recent years, SCP solutions have significantly improved in terms of both

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functionality and usability. SCP solutions now sit above the ERP transaction systems, lifting data such as orders, inventories and production quantities. The information is used to create plans for the entire supply chain and can be fed back down into the ERP systems for execution: a major step forward for supply chain synchronization.

In today's leading solutions, DRP and MRP2 have been merged into a single supply chain planning module. Demand planning (DP) tools have been developed so that it is now possible to build sophisticated event-driven forecasts that incorporate causal factors, track forecast consumption and monitor forecast accuracy. SCP and DP have been closely integrated so that the impact of a change of forecast on manufacturing and distribution can be seen immediately, rather than at a particular point in the sequential planning processes, as was the case in the past. This timely visibility enables scenarios to be tested and supply chain trade-offs analysed more rapidly than before. Exception-based planning, using exception alerting tools to plan, forecast or schedule, is also built in to all leading SCP applications. It is even possible to optimize the supply chain not just on the basis of cost but also on profitability and other key drivers.

The two dominant SCP vendors are i2 Technologies and Manugistics. Both provide a comprehensive range of functionality covering all the areas described above. Manugistics founded the first integrated supply chain management suite in 1986. i2 followed closely in 1988 and its 1999 revenues of \$571 million won it the market leader position. SAP and Oracle are rapidly developing their own SCP solutions, SAP Advanced Planning Optimizer (APO) and Oracle APS. Vendors focused primarily on process industries rather than discrete manufacturing include Aspentech and Logility, and other players include Numetrix (now acquired by JDE), Synquest and Adexa (formerly Paragon).

Leading eMarketplaces will play a key role in the delivery of collaborative supply chain solutions. Truly collaborative supply chain planning cuts across business unit, company and even industry boundaries, and requires more than the simple passing of limited information back and forth between the parties. The high levels of information sharing and openness required for true collaboration can best be met through the use of seamlessly integrated systems and shared databases or information repositories. The Internet, and in particular eMarketplaces, are well placed to assume the pivotal role of information repository host, coordinator, and collaboration facilitator.

eMarketplace operators have the opportunity to provide users with access to a full range of supply chain planning applications and collaboration tools. It will no longer be necessary for individual organizations to invest in and maintain their own applications. Instead, the eMarketplace would provide the network services and the hardware and software infrastructure while applications service providers would provide applications and content.

Faster and more accurate communications, including the alleviation of many of the issues of version control and inconsistent standards, will result from utilizing the common technical platform and applications on offer through eMarketplaces. In turn, improved forecast accuracy and more effective decision making will enable significant reductions in inventory holdings and a higher degree of alignment with actual demand throughout the supply chain. Other components of the value proposition include the reduction in information technology costs and

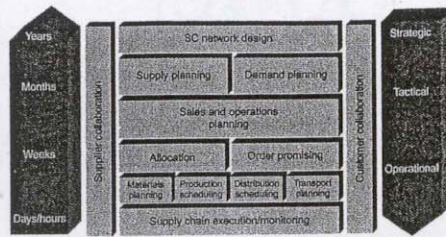


Figure 1: Components of Supply Chain Planning

the inclusion of business flexibility into the information technology structure.

The supply chain planning arena is set for rapid expansion, particularly as eMarketplaces recognize its value in their offerings. Web-based, or eMarketplace collaborative planning, will allow supply chain participants to create a 'virtual' store of inventory that each participant can access to satisfy customer needs from any available source. Full knowledge of availability across the supply chain will allow these participants to reduce costs through lower stocks and more efficient

shipment planning. By allowing participants to operate supply chains at 'eSpeed' through the sharing of production, inventory, product and shipment status, companies can gain competitive advantage by beating others to new customers and markets. This type of development is crushing old paradigms of 'ownership' of key strategic, planning and operational information. The significant benefits of sharing information with business partners are enticing companies to build trust levels and release key information from their direct control. □

### ABOUT THE AUTHORS

**Andrew Berger** is a Partner in Accenture based in London. He leads the new business models practice area within the global supply chain service line and is an active member of the Global Supply Chain Management Executive team. Andrew is one of the firm's most innovative thinkers, and through his leadership Accenture has pioneered much of the new eCommerce-driven thinking in exchanges, procurement, supply chain management, and customer relationship management. He works extensively throughout Europe and the US with such clients as BP Amoco, BOC, Kodak, Marconi and 3M, and is involved with a number of dot com start-ups and new ventures in which Accenture has equity. Prior to joining Accenture, Andrew was an operational intelligence officer in the UK's 5th Airborne Brigade.

**John Gattorna** is Managing Partner of Accenture's Australian and New Zealand supply chain practice based in Sydney and is also an active member of the Global Supply Chain Management Executive team. John's interests have long focused on channels strategy, logistics and the supply chain. The recent onset of eCommerce has provided him with an added incentive to explore new ways of doing business that go well beyond previous practice. John works with several major domestic and multi-national clients throughout Asia Pacific and is a sought after speaker at conferences and seminars on supply chain topics. This book with Andrew Berger builds on his previous book, *Strategic Supply Chain Alignment*, also published by Gower, but with a much greater focus on the new emerging business models made possible by developments in Internet communications and supply chain systems application technology.

Taken from *Supply Chain Cybermastery* (0 566 08413 9) by Andrew J Berger and John L Gattorna of Accenture, published by Gower.

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October: November 2001