European e-Catalogue Management Markets

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1

Executive Summary

Introduction to the e-Catalogue Software and Services Market

Market Overview

It has long been realised that the true growth of e-commerce will be in the business-to-business market. Much of the scope of this growth lies on the evolution of the e-catalogue Management Solutions and general content technology. These technologies are a crucial component of the whole B2B e-commerce infrastructure. Without them, the thousands of transactional net markets set up would be struggling to locate, share and access the trading partners data. Electronic procurement software is based on good quality product information of the buyer's supplier base. e-catalogue Management Solutions seek to make available the content that fuels B2B e-commerce and it should be complete, consistent and searchable. Quality content is rare and the effort required to e-enable existing catalogues is usually under-estimated.

There are multiple e-catalogue management solutions, but all centre around aggregating (turning paper catalogues into digital form), cleansing, normalising, rationalisating, publishing and maintaining a company's product information for business to business e-commerce. Some of the solutions are pushed buyer or net market that need content for their initiatives and others are implemented by the supplier to enable its products and services to participate in B2B e-commerce.

We have segmented the market in three major groups: e-catalogue Management Software, e-catalogue Services and e-catalogue Content Resellers. e-catalogue Management software is the tool that enables suppliers, net markets and buyers to create, maintain and search through e-catalogues. Typically they are operated by the suppliers and distributors.

e-catalogue Services are those that develop and manage e-catalogue content on behalf of a customer, be it a supplier, a buyer or a net market. These services are content factories that provide custom services for converting and structuring a supplier's content, usually on behalf of a buyer, and e-catalogue content transformation and maintenance services. Implementa-

tion or support services that are provided along with the e-catalogue software are not included in this report. e-catalogue content resellers are those that assume all responsibility for developing and maintaining e-catalogue content. Hence, these are product information content providers that have developed a catalogueue marketplace, or databases of vertical industries' product data specifications which can sell to those companies that wish to subscribe to it.

We include revenues attracted by the sale of e-catalogue Management Solutions and the use of them within the regions of Germany, France, Italy, the United Kingdom, Benelux (which comprises Belgium, the Netherlands, and Luxembourg), Iberia, (comprising Spain and Portugal) and Scandinavia (comprising Denmark, Finland, Norway and Sweden).

Summary of Major Findings

Market Growth and Forecasts

The market for business to business e-catalogue Management Solutions really began in Europe in 1999. At the end of 2000 Frost & Sullivan believe the market was worth $122 million. The market will grow to reach $231 million by the end of 2001, as the user market becomes aware of the of the importance of good catalogue management and the benefits associated with the technology.

Right after e-procurement and e-marketplace making software began to be under the spotlight, online catalogues started to attract much of the attention, as they are essential to bring the promised costs savings to buyers, the transaction base to net markets and new channels and markets to suppliers.

The market for e-catalogue Management Solutions will experience a big growth between 2000 and 2003. The growth will be slower in 2001 than in 2002 as the market will be affected by the weakness in the US. economy as well as the collapse of many Internet businesses. Between 2001 and 2002 the market will grow the most rapidly as new competitors crowd the market, and standards are developed. However, we expect growth to drop noticeably as the B2B infrastructure market growth slows down, the market establishes and net markets consolidation takes place.

The compound annual growth rate for the total e-procurement market for the period 1999 to 2007 will be 64.9 percent.

The primary engines of growth for the e-catalogue Management Solutions market are:

- Increase of supply chains automation and B2B e-commerce
- Benefit that e-catalogue technologies bring to businesses
- Companies begin to realise the importance of product information in e-commerce
- Net market's lack of and need for liquidity: e-catalogues help break the vicious circle
- Adoption of standards
- E-commerce success for the first movers
- Recognition and success of current net market makers initiatives
- Large buying organisations are propelling the e-catalogue market
- Encryption security will protect critical data

Restraints include:

- The lack of consolidated standards across different industries
- General confusion around online exchanges
- Suppliers reluctance to participate in e-procurement and net markets
- The amount of effort involved perceived by potential customers
- Underestimating the importance and benefits of an e-catalogue solution
- European companies' caution
- Logistics
- Tight margins slow the adoption of e-catalogue technologies
- New economy slowdown
- Lack of domain expertise

Analysis by Major Segment

The European e-Catalogue Management Software Market

In 2000, the year the market really began in Europe, the market for e-catalogue management software was worth $18 million. In this year the market was accelerated by the development of European operations of U.S. vendors and some European start-ups. Between 2000 and 2003 we expect the market to grow rapidly, reaching $146.7 million in revenue. The market

at this stage will be driven by the need of liquidity of private and public exchanges, the entrance of new competitors to the market and driven by the large indirect materials and electronic components industries suppliers and distributors. In 2007, we expect the market to be worth $2,319.2 million and to be growing at a rate of 91 percent. The compound annual growth rate for the period 1999 to 2007 will be 100.2 percent.

The European e-Catalogue Services Market

In 2000, the market for e-catalogue services was worth $95 million. The market will grow rapidly in the next 2 years with revenues of $355.3 million expected at the end of 2002. This growth will be influenced by large buyers and suppliers needing high-quality aggregated content, driven especially by big buying organisations that convert their major suppliers' catalogueues to purchase from them by electronic means. After 2002, the market will give way to other e-catalogue management provision.

The market will continue rising to $1,371 million in 2007, when it is expected to be growing at a 10 percent. The compound annual growth rate for the e-catalogue services market for the period 1999 to 2007 will be 46.4 percent.

The e-catalogue Content Resellers Market

In 2000, the market for e-catalogue content resellers was worth $9 million. The next year, the market will grow at a high pace, driven by buyers' and net markets' eagerness of critical mass of supplier product content and by suppliers that see in it an inexpensive way of opening to digital channels. Although growing fast throughout the whole forecasted period, from the year 2002 the pace declines as suppliers become wary about the suppression of branding opportunities and restriction of content creation that e-catalogue content aggregators may produce.

In 2007, we expect the market to reach $353.6 million and growing at a rate of 36 percent. The compound annual growth rate for the total e-catalogue content resellers market for the period 1999 to 2007 will be 69 percent.

Geographic and Competitive Analysis

Analysis by Geographic Region

Germany is the largest market in Europe for e-catalogue management solutions. In 2000 it amassed almost 42 percent of the total market. This is a consequence of a high number of e-catalogue management vendors founded in Germany and its large industrial base and strong economy. The market in Germany will account for 34.3 of the total European market as other regions develop further catalogueue content solutions.

The United Kingdom market held 26.4 percent of the market in 2000. This market share is a consequence of language, and, as in the German market, both the strength of its economy and the propensity for businesses within this region to adopt technologies in the early stages of their life cycle. In 2007, we believe the United Kingdom market will be worth 24.6 percent of the total European market as other regions progress.

The Scandinavia area held 9.5 percent of the total market in 2000. It is well known that in terms of Internet usage, Scandinavia is the most advanced of Europe. By 2007, the market share held by the Scandinavian market will be of 11.9 percent as the countries begin to enthusiastically take up e-catalogue content technology.

France claims 9.2 percent of the market for e-catalogue Management Solutions, low for such a robust nation. The market will experience a similar growth than the Scandinavian countries. The region has been slow to adopt Internet technologies. In 2007, the French market will be 11.1 percent of the total European market.

The countries that form the Benelux region held 5.4 percent of the market. There is a presence of large manufacturing firms and e-catalogue management solutions end-users in the region. The region will claim in 2007 8 percent of the market, as vendors develop business leveraging the established offices, and the e-procurement market expands.

Italy and Iberia (Spain and Portugal) represent 6.4 percent and 2.2 percent of the total European market respectively. The IT and telecommunications infrastructure of these countries lag behind of the rest European regions. However, we see this changing rapidly, and Internet usage both personal and corporate is improving every year. In 2007, Italy will hold 7 percent and Iberia 3.1 percent of the total market.

Competitive Analysis

In Europe, there are 17 vendors of e-catalogue Management Solutions. Frost & Sullivan anticipate this number will increase as document and web content management vendors and U.S. e-catalogue management companies, with very interesting propositions for and approaches to B2B online catalogueues, strike the European market in 2001 and 2002.

There is no clear leader in this market yet, as it is at a very early stage. Nevertheless, there are some patent heads of the market. Vendors can compete in diverse grounds , depending on the type of e-catalogue management offering they focus on. In the e-catalogue Management software market, Poet Software, Saqqara Systems, Vignette and Requisite Technologies stand out. In the e-catalogue Services arena, Requisite Technologies, i2 Technologies, Saqqara Systems and Content Europe are notable. TPN Register and i2 Technologies, and recently Saqqara Systems are the only e-catalogue Content Resellers in Europe.

The most used approach to the market is selling direct, especially for those US-based that have not developed the necessary channel partners in each of the regions. There are several

European-based players in Germany and in Belgium that currently have a significant slice of the European market. This will change very quickly as multinationals make headway in Europe.

Conclusion

Throughout this study, we will discuss how rapidly these areas, key for the effectiveness of B2B e-commerce initiatives, will grow for the next years in Europe. Catalogueue Management enabling technologies are needed by all parts of the B2B equation and are starting to reap attention as companies realise how important they are for online B2B transactions and e-procurement success.

New revenue models are being adopted as software evolves. Frost & Sullivan believes that supplier-led e-catalogue management initiatives should dominate in the future as oppossed to buyer-led. Thus, software solutions will grow more than services and content reselling.

2

Industry Challenges

Identification of Challenges Facing the e-Catalogue Software and Services Market

Industry Challenges and Time Frame Analysis

An industry challenge is any issue that can affect the development of the market or the competitors in the marketplace. Challenges include customer issues, regulatory programs, economic trends, market measurement trends, competitive strategies, new technologies, sales and marketing strategies, new market opportunities, and market threats.

Figure 2-1 lists the seven most challenging issues facing European e-catalogue Management Solutions market. These challenges have been identified and ranked on the basis of the research done for this report. This section provides a time frame for assessing when each challenge is likely to have the greatest impact on the market over the next six years.

Educating Organisations on e-Catalogues Content Solutions

Organisations do not realise the complexities of taking different product information or catalogues and putting them together in a unified structure. People are still very focused on connecting at just a data level, such as an XML (eXtensible Markup Language) level, various net markets together. Once these are tied at a data level, net markets need to be aware that to actually have a high level of information moving across, thus to be able to normalise catalogues so they have a common structure, is a complex and problematical course of action.

Thus, companies' realisation of the significance of the delivery of correct, relevant information and how critical it can be to the business, entails a fundamental challenge for both e-catalogue management vendors and e-procurement marketplaces in this early phase of the market. On the other hand, customers are still not able to define what is the right solution among the whole content management range of options available. For instance, customers have to decide whether to adopt a content solution approach that purely deals with catalogue

information, or a broader one which takes care of all kinds of programmes and documents. These company's assets can consist of web applications-related documents that could be included within the scope of a content management solution (Javascript-written documents, Active Server Pages and so forth)

Figure 2-1

Total e-Catalogue Management Solutions Market Top Seven Industry Challenges Ranked by Priority (Europe), 2000

Item	Challenge
1	Educating organisations on e-catalogues content solutions
2	Multiple e-Channels of the extended enterprise imperils brand consistency and data coherence and availability
3	Compliance to various standards formats implies daunting conversion process
4	Efficient Integration for Rich Product Content
5	Language and culture diversity throughout Europe
6	Developing the right strategic partnerships
7	Organisational change

Source: Frost & Sullivan

Language and Cultural Diversity Throughout Europe

With regard to language and culture, differences among European countries represent other key challenges for an e-catalogue vendor. Together with the previous concern, it stands for the first and most evident barrier of entry or challenge for US e-catalogue developers into the European marketplace. When a US company is designing a catalogue, it is designing it for a huge geography, in which the same values, tradition, culture, political situation, business environment and language (besides some minor exceptions), are shared across the country.

All these issues are principally a challenge for companies wishing to create personalisation of the e-catalogue for buyers . In Europe, what might be regarded as important or as capable to differentiate the product in one country, might not be as important in another. Suppliers and Net markets need to be able to answer to any kind of customer and at any location on a continental or local level. Consequently, e-catalogue solutions must be global but also address local needs, not only in terms of the ability to translate the content but of the localisation of the content itself.

The way most of e-catalogue vendors tackle this issue is creating multi-language for the product information and then delivering that catalogue content to the particular segment that

is addressing. e-catalogue vendors can support product description tags in different languages within the attributes data stored against the product. The server where the e-catalogue resides can sit anywhere. When a potential buyer logs in with its personal ID, the system would identify the user and then, based on that ID, provide a view of the information in the right language. The same personalisation technique is employed to provide the right discounts, complimentary products and services and so on.

Another aspect to bear in mind regarding multi-language is the user interface translated into the different European languages.

Adaptation to a Multi-Currency Marketplace

Europe is still a multi-currency area. Companies creating e-catalogues will need to address the fact that the product's price information supports every different currency in Europe. The creation of the European Union and the adoption of the Euro by its members will downgrade this issue to a minor challenge. Besides, the process of multi-currency to enable an e-catalogue application does not involve great amounts of technological efforts. Most of the main players in the e-catalogue space claim to support all European currencies.

On the other hand, the real need for multi-currency in its true essence is in accounting and finance systems. In a product information system, multi-currency is basically another attribute of the product. Whereas this characteristic of the product is a very important one, products are related to and stored against unlimited number of attributes and types of attributes, so suppliers could have a hundred different prices if they wished to. The important issue here is whether the supplier or e-catalogue content vendor supports automated exchange, so that the supplier prices it at one certain rate but it is presented to customers via a particular exchange rate in a different price. This can be done through business rules.

Small Trading Partners' Lack of Technological Knowledge

The lack of B2B digital technology and of the new business processes of the smaller trading partners stands as a challenge for e-catalogue vendors to help them, or the companies (buyers or Net markets) seeking to do things with them. Vendors, depending on the case, must be able to bring these small companies on board, not only in terms of infrastructure upon which to implement the content applications, but also in terms of the mentality change and ways of thinking on business processes.

Multiple e-Channels of the Extended Enterprise Imperils Brand Consistency, Data Coherence and Availability

Currently, companies do not just extend their business through a single e-channel, web site or online service as it used to be in the past. The delivery of product information is done to specific online services, platforms or networks. Different online sites are servicing different parts of the organisations' value chain such as design collaboration, online procurement, customer service and maintenance, selling and so forth. Consequently, each company needs to interface with various online channels, each of them requiring different types of product information. A major challenge that e-catalogue vendors have to deal with is the complexity of providing technology or service capable of preserving their customers' brand image, and product information consistency across all online businesses. Additionally, all this information has to be continuously accessible.

Efficient Integration for Rich Product Content

Of the two models described above, while the old one is far more simplistic and could contain a big volume of information, it did not enable the integration with enterprises' legacy systems as the current multi-channeled model can do. Owing to this integration capability, the information can be more accurate, relevant and rich in content, in terms of the type, quality and volume. Consequently, efficient enterprise application integration (EAI) and B2B integration still represents one of the vital challenges for e-catalogue vendors, and one of the top priorities.

Compliance to Various Standards Formats Implies Daunting Conversion Process

Each supplier has its own methods of cataloguing its goods. Many have yet to publish their catalogues electronically, and those that have use different mark-up methods to tag information, as there is no universally recognised standard for data tagging or description. Having to get large amounts of product information from various sources and to turn it into a standards compliant normalised format can mean changing suppliers' proprietary data or having to create duplicates for each individual standard. This implies a vast amount of work and subsequently an expensive proposition for suppliers. One of the key challenges for companies conducting B2B e-commerce is to be able to support all the standards that are coming out. In the publishing side of the e-catalogue, the confusion is similar. There are many formats used to communicate documents over the Internet: Electronic Data Interchange (EDI), XML (and hundreds of XML flavours), American Standard Code for Information Interchange (ASCII), Open Buying on the Internet (OBI), RosettaNet, Biztalk and so on.

Developing the Right Strategic Partnerships

As for most of the IT vendors, forging the appropriate alliances with the most suitable company is of highest priority, both in terms of technology partners that complement the solution, and channel partners and system integrators that help companies to, among other things, reach local markets. After entering these markets, customers will need to have access to local people who they can deal with and obtain support or training from. As demand for e-catalogue content grows, companies do not want to be constrained in terms of the ability to deliver solutions by not having the right consulting and implementation skills available.

Organisational Change

Companies adopting new technologies that integrate their products and processes into the web experience an organisational change which needs to be managed carefully. Management depends on much of the success of the e-catalogue technology adopters, and so e-catalogue vendors will confront this issue when looking to expand.

Time Frame Analysis of Industry Challenges

Figure 2-2 shows the time frames of the challenge analysis. Each challenge varies depending on the time frame that is likely to see the highest impact on the market. This time frame analysis directly affects the market forecasts and the development of market strategies and investment timing by industry participants.

Figure 2-2

e-Catalogue Management Solutions Market: Impact of Top Seven Industry Challenges Europe, 2000-2007

Challenge	1-2 Years	3-4 Years	5-6 Years
Educating organisations on e-catalogues content solutions	High	High	Medium
Multiple e-channels of the extended enterprise imperils brand consistency and data coherence and availability	High	High	Medium
Compliance to various standards formats implies daunting conversion process	High	High	Medium
Efficient integration for rich product content	High	Medium	Medium
Language and culture diversity throughout Europe	High	High	High
Developing the right strategic partnerships	High	High	Medium
Organisational change	High	High	Medium

Source: Frost & Sullivan

List of Definitions

- Active Server Page: an HTML page that includes one or more script (small embedded programs) that are processed on a Microsoft Web server before the page is sent to the user.
- Application Service Provider (ASP): A supplier of software applications that hosts these applications on its own servers within its own facilities for its customers. Clients access the applications they need through private leased lines or through the Internet.
- ASCII:is the most common format for text files in computers and on the Internet. In an ASCII file, each alphabetic, numeric, or special character is represented with a 7-binary digit binary number (0s and 1s)
- BizTalk: An industry initiative headed by Microsoft to promote Extensible Markup Language (XML) as the common data exchange language for e-commerce and application integration on the Internet.
- Business to Business integration: Extends application integration beyond the traditional enterprise walls by integrating applications from different corporate entities. It is often referred to as interenterprise integration and involves companies linking their applications directly to those of their partners or customers as part of an integrated value chain.
- e-catalogue: a catalog is a directory of information about data sets, files, or a database. It usually describes where a data set, file or database entity is located and may also include other information, such as the type of device on which each data set or file is stored.
- Common Internet File (CIF): A document that uses a standard protocol that lets programs make requests for files and services on remote computers on the Internet, using the client/server programming model.
- Electronic Data Interchange (EDI): A data communication system that allowed early adopters of electronic commerce to exchange data from computer to computer. Specialised software and terminals are needed by both traders, although integration with the Internet is obviating the need for specialised hardware.
- Electronic marketplace/net market/trading hub/exchange site: A website that allows access to electronic
- catalogues from suppliers in vertical or niche markets. These marketplaces can be hosted by a third party or by a trader.

- E-procurement: The procurement, through IP-based networks, of Maintenance, Repair and Operation (MRO) or indirect materials and services. E-procurement services are services that enable businesses to buy MRO goods and services via the Internet. Typically, these services are in the form of a website or portal.
- Extensible Markup Language (XML): A computer language that describes structures and data, allowing for the open and efficient transfer of business documents over the Internet.
- Firewall: a set of related programs, located at a network server, that protects the resources of a private network from users from other networks.
- Javascript: is script programming language from Netscape usually used in web development.
- Hypertext Transfer Protocol: is the set of rules for exchanging files on the web.
- Open buying on the Internet (OBI): An agreement among suppliers and buyers of MROsupplies. An attempt to establish industry-accepted standards and practices for message transport and business-to-business purchasing over the Net. The OBI standard is primarily intended for MRO supplies procurement.
- Portal: A website that acts as the gateway for end-users to access information, search engines, headline news, and services such as free e-mail. Portals are usually based on a common theme.
- Private exchange: Online marketplace comprising the automated supply chain of a buyer, who owns the exchange to integrate applications and processes with its suppliers.
- Public exchange: Online marketplace that is open to any trading partner wishing to conduct business on it.
- RosettaNet: is an organization set up by leading information technology companies to define and implement a common set of standards for e-business.
- Secure Electronic Transmission (SET): An industry standard to enable secure credit card transactions on the Internet.
- Secure Socket Layer (SSL): A protected data "tunnel" on the Internet for the secure transmission of funds and other private documents.
- Screen scraping: Screen scraping is programming that translates between legacy application application programs (written to communicate with now generally obsolete input/output devices and user interfaces) and new user interfaces so that the logic and data associated with the legacy programs can continue to be used.

List of Acronyms

- ASCII: American Standard Code for Information Interchange
- B2B: Business to Business e-commerce
- B2C: Business to Consumer e-commerce
- B2Bi: Business to Business integration
- BME: Bundesverband Materialwirtschaft, Einkauf und Logistik
- CBL: Common Business Library
- CIF: Common Internet File
- cXML: Commerce XML
- EAI: Enterprise Application Integration
- EAN: European Article Number
- EDI: Electronic Data Interchange
- ERP: Enterprise Resource Planning
- HTML: Hypertext Markup Language
- HTTP: Hypertext Transfer Protocol
- IP: Internet Protocol
- MRO: Maintenance, Repair and Operations
- OBU: Open Buying on the Internet
- OEM: Original Equipment Manufacturer
- RDBMS: Relational Database Management Systems
- RUS: Requisite Unifying Structure
- SCM: Supply Chain Management
- SET: Secure Electronic Transaction
- SIC: Standard Industrial classification
- SME: Small and Medium Enterprises
- SSL: Security Socket Layer
- SKU: Stock Keeping Unit

- WAP: Wireless Applications Protocol
- UCC: Uniform Code Council
- UN/SPSC: United Nation's Standard Product and Service Codes. It is a hierarchy that enables companies to classify a company's products.
- XML: eXtensible Mark-up Language

3

Market Engineering Research for the Total e-Catalogue Market

Forecasts of the Total Market

Market Overview and Definitions

There has been a tremendous increase in the number of 'Net markets' that have been launched over the past three years. At the beginning, these electronic marketplaces could not really offer the services needed for an effective trade among companies. Content management technologies developed in the past couple of years have made the B2B e-commerce evolve from very simple portals to expansive channels, thanks to which the procurement costs are slashed and new efficiencies are created. Without sufficient content and supplier participation, buyers are forced to use more expensive offline purchasing instead. For e-marketplaces, the lack of supplier product selection makes it difficult to attract buyers, resulting in lower transaction volume, which threatens the viability of the marketplace.

Until 1999, efficient tools for aggregating product information from various suppliers' catalogues and turning complex data into a uniform standard that can be accessed by all purchasers online did not exist. Unlike B2C (business-to-consumer) e-commerce, B2B requires significant customisation of the data for each buyer and net market maker that the supplier, manufacturer or distributor wishes to interact with. The recognition of the Internet as a means of automating supply chains across industries is, if not causing printed catalogues to disappear, is giving it no option but to reassess its role in the selling process. In the near future, the bulk of product specifications and graphical content will be conveyed by the e-catalogues, and printed catalogues will operate as promotional material.

e-Catalogue Management Solutions Providers' Customers

Online catalogue content is the essential component of trade among enterprises over the Internet. Suppliers, net markets and buyers, all participants involved in B2B e-commerce,

need some kind of catalogue content solution in order to ease the location, exchange and comprehension of product information. It can be a different case for commodity industries such as Energy and Telecommunications, where the most efficient trade method is by linking sellers and buyers through an exchange-like type of marketplace for which catalogues are neither necessary nor appropriate.

Undoubtedly, the biggest technical challenges are faced by the suppliers that need to have a successful presence in what is predicted to be the one and only business channel of the future.

The supplier has to convert all its product data into an electronic format and propagate it to its trading partners.

However, it is not clear which participant possesses the highest interest in web-enabling product content. While catalogues are the key product information communication vehicles for suppliers, from the buy-side point of view, the need to sustain e-procurement activities forces buyers, distributors and net markets to adopt e-catalogue content technology, compelling suppliers to web-enable their data.

Buyers capture the data from supplier's catalogues, and because they may come in different format, classification structure and coding standards, they are obliged to parse it, transform it into the suitable taxonomy and incorporate it into the aggregated catalogue. Purchasing staff can turn to this multi-supplier catalogue and evaluate which goods offer the best deal.

In general, Net markets have to undertake similar tasks as the buyer but also have to be able to interrelate with both sides of the commerce equation and, as opposed to buyers, be consistent with multiple users requisites instead of just one. Receiving the input from thousands of suppliers in different formats and making it available countless buyers' specific format requirements is a daunting process.

With the aim of trying to present a clear view and to break into the confusion around the e-catalogue Management solutions market, we proceed to segment the wider Content Management Solution Marketplace. For Frost & Sullivan, the market for content solutions providers consists of various segments in which the common denominator is their ability of managing some kind of content. Based on this description, the content management solutions market can be broken down in the following:

- Content Management Systems Providers
- e-Catalogue Management Solutions Providers:
- e-Catalogue Management Software Providers
- e-Catalogue Services Providers
- e-Catalogue Resellers

All the above mentioned are different within the content solutions scope, the type of content they endeavour to manage and they way they manage it.

Content management systems typically manage the digital content that organisations may have so they can effectively participate within an e-business environment, but normally do not create e-catalogues. Content Management software packages handle electronic documents for organisations to face the public via e-commerce web sites, as well as employees and close partners through corporate intranets. While the information managed can be of any kind, ranging from internal and external sources, data stored in Enterprise Resource Planning (ERP) systems to emails and long reports, each content management vendor usually concentrates on one particular area. Several storage methods are employed to keep the content. Some companies use Relational Database Management Systems (RDBMS), others File Systems and a few XML (eXtensible Markup Language) databases.

Companies such as Documentum, Interwoven, Filenet, Mediasurface and Vignette fall into this category.

The segment which this report focuses on is that of content solutions products or services designed specifically for the purposes of designing, organising, building, managing and publishing (as well as searching through) electronic catalogues to be utilised in business to business e-commerce. e-catalogue Management Solutions enable product information to be integrated and displayed in e-procurement systems and Net markets. Therefore, e-catalogue solutions would very rarely focus on helping companies organise and manage thousands of pages on web sites. However, because of the nature of some phases of the e-cataloguing process, some overlapping exists between pure e-catalogue and content management systems vendors' capabilities.

We are not including in this study any catalogue solutions or catalogue engines that B2B platform infrastructure providers such as Commerce One or Ariba make available as part of the whole solution. These companies aggregate product content from multiple suppliers into a master catalogue, and buyers using their platforms can download catalogues from their networks into their own server. Suppliers linked to these networks can easily publish their catalogues to be pulled in by many buyers. We have not included revenues for implementation services (pre-sales consultancy and installation services) or maintenance services as e-procurement services. By our definition, and that under which vendors operate, business-to-consumer (B2C) transactions are not a function of the market for e-procurement.

e-Catalogue Software Providers

The most common provision of e-catalogue content solutions is the software licensed to suppliers placed at the top of the supply chain (manufacturers, their suppliers and distributors) and net market makers. Customers use this software to develop, syndicate and maintain

their own e-catalogues. This way, companies are not forced to allocate bulky budgets to develop in-house cataloguing know-how.

e-Catalogue Service Providers

Also referred to as "Content Factories", these services are another option for companies that need catalogue content or to create an e-catalogue. Firstly, buyers that want to deal with a supplier that has only print catalogues can use services from vendors that would convert print-based lists into structured electronic catalogues for them. Suppliers lacking sufficient resources or expertise resort to a tailored solution to create their e-catalogues. Lastly, net markets need screen scraping, multi-supplier catalogue aggregation and normalisation technologies from vendors.

e-Catalogue Resellers

There are companies that, as in the case of services, act as third-party solution providers but in a rather different fashion. Typically, they collect vertical industry supplies information into a repository or network of converted and structured e-catalogues that can be published (resold) to any buyer or net markets having an urgent need for e-catalogue content.

e-Cataloguing Phases

The process of making available online catalogues comprises several steps and technologies. In general terms, the catalogue is designed and built and then is distributed, endowed with search and product selection capabilities. e-catalogue vendors provide solutions for one, a number of, or all of the e-cataloguing phases that we describe below.

Aggregation

The first phase for creating an e-catalogue is the aggregation stage. The first thing that needs to be done is to gather all the product information data from all the resources that an enterprise may have. This data can come from any source such as database systems, ERP systems, html and XML files, CAD (computer-aided design) files, paper documents, spreadsheets, diskettes, CD-roms and so on.

Once all the data is collected into a single platform (database), it is stocked within a structure of categories on a very basic manner, as the information must typically go through the cleansing process before being finally structured.

Cleansing

The vast amount of collected data needs to be filtered before creating the e-catalogue. Some of the products' information stored in the database can be redundant as a result of data replication, which can be due to double entry of the information or to the same data coming from

different sources. For the purposes of facilitating and meeting the requirements of the next phase in the e-catalogue creation, information that the products may lack is searched and added.

Rationalisation

The last stage to obtain a fine catalogue is the classification of the information into a structured schema according to a pre-determined system. Product types and attributes data are organised in different categories based on a predefined hierarchy. This classification structure is also called taxonomy. The entire group of product data is ordered by dividing it into subgroups, each of which is spliced into another set of smaller units and so on. The groups are related to each other, are mutually exclusive and include all the possibilities. Thus, product information with similar attributes is categorised into levels of further definition or more explicit attributes. Another way of seeing this is that analogous items are brought together under a common category, which in turn is associated with other similar categories to form a broader category and so forth.

The method of organising and putting together products with similar characteristics into this hierarchy of categories is creating a code for each of the items. There are several different classification coding schemas and conventions that create problems when it comes to communicating with trading partners. Some coding systems have been developed in-house, some other are standards pushed by consortiums such as the UN/SPSC (United Nation's Standard Product and Service Codes) classification standard.

Publishing

Once the supplier has a structured catalogue, it needs to be made available for trading partners: net markets, e-procurement systems, direct buyers, distributors and so forth. The catalogue has to be translated into a format that can be accessed by numerous customers. Each recipient can have different data format requirements and e-catalogue solution providers facilitate the dissemination of the content to meet all of them. These could be: XML, Commerce XML, CBL (Common Business Library), CIF (Common Internet File) among others.

Suppliers typically have to convert their catalogue data into a web format such as XML or html in order to incorporate it automatically into e-procurement processes. For supply chains automation there must be a connection between trading partners' databases that must be real-time and sharing a common language data. The adoption of the data interchange format XML is contributing to this automation, making it possible for companies to communicate electronically. Nevertheless, there are several types of XML formats and so companies still are having difficulties to propagate their content. Hence, in the e-catalogue solutions market, there are two major setbacks, both related to the lack of standardisation of different phases of the e-cataloguing process.

Maintenance

Once the product data within an e-catalogue is rationalised and customised by adding contract terms and conditions such as pricing, the information still has to be constantly maintained. Product and services prices, availability and changes on configuration, vary frequently. An e-catalogue that is not kept up to date is like not having a catalogue at all. Vendors need to provide efficient tools for suppliers to do the necessary changes to product information. In the case of e-catalogue management applications, the process is handled in-house using customer profile data to define the target's preferred output format and specific contract conditions, prices and discount structures. On the other hand, catalogue content resellers provide a web-based tool for making changes online. Buyers can be alerted of the alterations by e-mails so they can certify that the new catalogue is congruent with the contract.

Searching

With regards to purchasers looking for a product or service in the e-catalogue, some vendors have developed searching and selection capabilities as part of their solution. Also, there are specialised vendors that develop and market search engines for B2B and B2C e-catalogues. There are various searching techniques, which are faster and more effective, the better the data has been hierarchically categorised into a structure. The previous e-cataloguing phases have enabled the catalogue to be searchable. The categories structure permits the product searching by hierarchy "drill-down" method in order to locate data in relation to its logical classification. Also, searching by parametric values or traditional keyword can be provided for the production selection process. Thanks to these technologies, buyers are allowed to make price comparisons between similar products from different suppliers.

Challenges by e-Cataloguing Phase

There are different technical and functionality challenges depending on which part of the e-cataloguing process we consider.

The aggregation phase face the challenge of achieving the normalisation of all content into a single catalogue without having a good common content standard for that objective. Thus, programmes developed or services provided by vendors must cover all content specifications, types of information and naming conventions for a valuable aggregation process.

The management phase present the challenge of discerning when changes have been made to a supplier's catalogue to update the master catalogue accurately.

When considering the search side of the e-catalogue technology, the main challenge that vendors confront is to be able to return high quality search results while maintaining sub-second response time.

Chart 3.1 shows Frost & Sullivan's Market Engineering Research Measurements. This outlines the research measurements employed in this study of the European market for e-catalogue Management Solutions

Chart 3.1

Market Engineering Measurements: e-Catalogue Management Solutions Market (Europe) 2000

Market Engineering Drives Market Strategy and Planning

Measurement Name	Measurement	Trend
Market size in dollars	$122 million	Increasing
Annual market growth rate (2000)	5,000%	Decreasing
Compound annual growth rate (1997-2007)	64.9%	---
Market saturation (current/potential users)	2%	Increasing
Market age/Product life cycle	Development stage	Increasing
Potential revenues (maximum future market size)	$7.7 billion	---
Number of competitors (active market competitors in 2000)	15	Increasing

Note: All figures are rounded. Source: Frost & Sullivan

Market Revenue Forecasts (1998 - 2007)

Figure 3-1 and Chart 3.2 show the forecasts of the European e-catalogue Management solutions market. Before 1998, the European market for this kind of software was insignificant, so we start measuring it in year 1999, when B2B cataloguing really began. At the end of year 2000, we believe the market in Europe was worth $122 million. That year on, the market will grow fast until reaching $4.04 billion in 2007. Observing the growth rates displayed in the chart, we can notice a slower upsurge of the market in 2001. This is due to recently

announced continued weakness in the U.S. economy as well as the collapse of thousands of dot-com businesses, which has dampened our predictions for the inmediate year. The market is expected to grow faster in 2002 as trading partners understand the importance and complexity of handling product data in the digital space. The entrance and emergence of new competitors to the market will contribute to a higher growth rate in 2002.

Figure 3-1

Total e-Catalogue Management Market: Revenue Forecasts (Europe), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	1.1	---
1998	1.1	0.0
1999	55.9	5,000.0
2000	122.0	118.2
2001	231.0	89.4
2002	461.7	99.8
2003	853.4	84.9
2004	1,343.6	57.4
2005	1,906.0	41.9
2006	2,720.6	42.7
2007	4,043.8	48.6
Compound Annual Growth Rate (2000-2007): 64.9%		

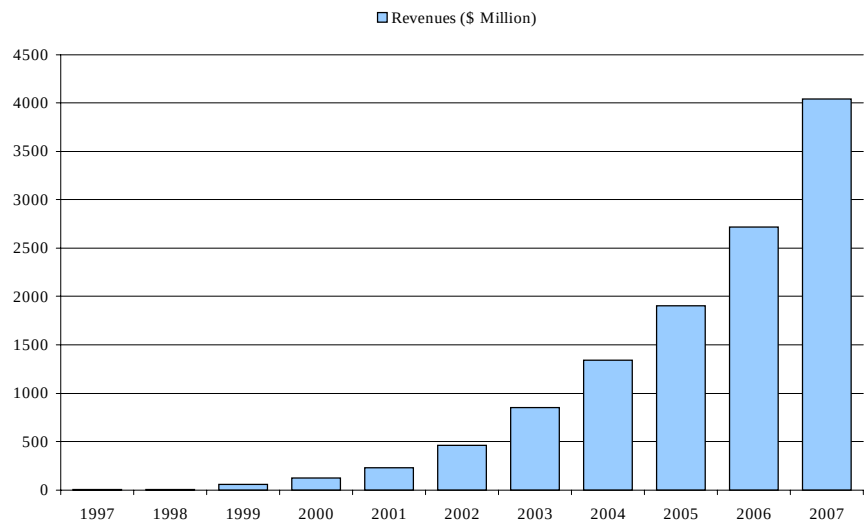
Note: All figures are rounded. Source: Frost & Sullivan

The demand for quality catalogue content that can operate worldwide is growing at a high pace as companies realise how essential it is for B2B e-commerce. As we discuss in the "Market Drivers" section of this study, the future development, success and growth of the e-catalogue Management solutions market is intimately related to the level of B2B e-commerce infrastructure embracing and its performance. Evidently, the market will also be affected by the degree of Internet acceptance and telecommunications network.

European companies are increasingly employing Internet-based procurement as a means to save money and time. On these still early days of the market, those supplies that have been the target of e-procurement applications and initiatives have been the indirect or maintenance repair and operations (MRO) goods. Net markets, either vertical e-marketplaces or private exchanges, are starting to blossom all across western Europe. There is a sudden need for having good electronic content, and so as the number of buyers wishing to trade over the Internet increases, so does the demand and the market for e-catalogue management solutions.

Chart 3.2

Total e-Catalogue Management Market: Revenue Forecasts (Europe), 1997-2007



Note: All figures are rounded. Source: Frost & Sullivan

Frost & Sullivan believe that the e-catalogue Management solutions market is approximately 6 months behind the whole B2B e-commerce market. The latter will grow rapidly until 2003 as net markets become an highly acceptable way to trade, and large organisations embark on e-procurement strategies. In addition, we expect further harmonisation of classification schemas and interchange languages to contribute to the strength of the market. There are relatively low barriers to entry in the market; additional competition from established and emerging companies is expected. However, market growth rates are expected to fall after year 2002. This can be due to the fact that most large buying firms will have the supplier's catalogue in place, and so vendors will see their one-time set-up fee revenues decrease.

The number of net markets across the world after 2003 is expected to decrease. We anticipate that the number of net markets could reach 10,000 between 2000 and 2003. After 2003 there will be a consolidation into a few global markets with the necessary critical mass and liquidity and also through standard linkages facilitating marketplace interoperability. Standards such as eXtensible Markup Language (XML) are rapidly emerging to permit the sharing of information, and with it, the creation of marketplace liquidity and critical mass among independent marketplaces. Small and low weight net markets will be acquired. There will be a rapid growth of specialised vertical net markets as well as to reflect national and regional differences. All this share of data across marketplaces means a smaller potential buy-side and trading hub customers base for e-catalogue vendors.

The compound annual growth rate for the total e-catalogue Management market for the period 1999 to 2007 will be 64.9 percent. By the end of 2006, the market could face a phase

of new growth, as small and medium enterprises (SMEs) really begin to embrace B2B e-commerce technologies, and wireless applications permit additional functions and opportunities.

Market Drivers

Figure 3-2 shows the drivers that will make the most impact on this market between 2001 and 2007, ranked in order of importance.

Figure 3-2

Total e-Catalogue Management Solutions Market: Market Drivers Ranked in Order of Impact (Europe), 2001-2007

Rank	Driver	1-2 Years	3-4 Years	5-6 Years
1	Increase of supply chains automation and B2B e-commerce	High	High	High
2	Benefit that e-catalogue technologies bring to businesses	High	High	High
3	Companies begin to realise the importance of product information in e-commerce	High	Medium	Medium
4	Net Market's lack and need of liquidity: e-catalogues help break the vicious circle	High	High	Medium
5	Adoption of standards	High	High	Medium
6	E-commerce success for the first movers	High	Medium	Low
7	Recognition and success of current net market makers initiatives	High	High	Medium
8	Large buying organisations are propelling the e- catalogue market	Medium	Medium	Low
9	Encryption security will protect critical data	Medium	Low	Low

Source: Frost & Sullivan

Increase of Supply Chains Automation and B2B e-Commerce

One of the major drivers is the idea of globalisation, that is, the possibility of meeting the requirements of lots of geographic areas in one simple centralised resource, and the possibility of trading partners getting together over the Internet to trade and deal with each other in a completely new way. As Internet usage increases, so does the market for e-catalogue management solutions.

As organisations' supply chains become more and more automated and as the number of transactions of goods and services that are traded over the Internet continues to grow, the pressure on buyers and Net markets to be able to accomplish further and to work more efficiently is one of the key factors driving the e-catalogue content market.

Impacting dramatically on e-catalogue solutions market are the evolution and rise of the Net markets. The adoption of content technologies in the B2B space will intensify, dependent on what the trading partners will demand from Net markets that could be regarded as content, and so be considered by the product content solution (i.e. negotiated contract document).

The proliferation of e-marketplaces backed by very strong institutions in Europe, mostly banks and telecoms, creates the vital need to handle more and more product and services information. Currently, we are at a stage when the marketplaces are putting pressure on distributors and buyers, who transfer it up to the manufacturers to take action. The need to participate in numerous marketplaces and so to comply with several standards and formats forces companies to take the right content related actions.

Benefit that e-Catalogue Technologies Bring to Businesses

Ultimately, the gains and advantages for companies adopting this technology and exploiting the Internet channel of delivery, as in any other market, is a major driver. Managing complex product content is top priority for the B2B and B2C e-commerce success. There is widespread recognition in the market that companies need to get away from using the web just as a brochure and more as a way of really delivering content and undertaking transactions. The most evident factor driving the demand for this solution is the possibility of cutting the costs associated with publishing hard-copy catalogues and keeping them up to date. In addition, once suppliers have decided on web-enabling their catalogues, by licensing e-catalogue software or hiring e-catalogue services they can get rid of the hassle of having to develop an internal system for aggregating, rationalising and managing data.

On the other hand, buying organisations or e-marketplaces opting for a services-type solution to web-enable their key suppliers' catalogues can exploit the Internet to generate substantial procurement cost savings and efficiencies.

In both cases, all parties win. Buyers, placing e-procurement systems behind their firewalls, can significantly change the way they have been traditionally dealing with suppliers. In addition, they may take the opportunity of changing their business models and reduce the number of suppliers that they work with. Suppliers supposedly can play in many markets and get through to new clients; e-catalogues are supplier's gate to the world. More than ever before, Net markets can offer, though a portal, the entire world of buyers for sellers to conduct business with. With the appropriate business rules and buyer personalisation in place, the supplier can electronically present a wide range of products and services to a customer in a

form where human intervention is removed by automating several processes. Thus, with an intelligent catalogue management system the seller can profile the customer's base to present them with a personalised catalogue view in order to upsell and cross-sell.

Companies Begin to Realise the Importance of Product Information in e-Commerce

At the end of year 2000, organisations started to realise that the efficient product information management is so crucial for e-business that there should be a sound system in place separate from others such as the merchandising and Enterprise Resource Planning (ERP) systems. Sellers need to provide customers much richer experience of product information. Companies just can't expect customers to buy online based on twenty words description, a price and a small picture. This is not going to be sufficient for them to buy anything of significant value.

In addition, they need to compete in more than just price; in many net markets, suppliers are primarily competing by offering the lowest price. Companies demand the possibility of offering the best product information experience, and so this way they can argue that they can put a higher price on a given product or service.

Net Market's Lack of and need for Liquidity: e-Catalogues help Break the Vicious Circle

This is one of the clearest factors that are driving the e-catalogue content market. The aspiration of Net markets and online exchanges in any industry is to raise liquidity, that is, to increase the number of companies that participate in them. Buyers would join a given Net market only if they can reach as many suppliers as possible, let alone their established suppliers. The suppliers will not bother to invest time and money to connect to a Net market in which their customers and other potential ones are not present. Whether it is a supplier focused or a buyer/net market focused solution, e-catalogue technology permits vendors to breach this vicious circle.

Adoption of Industry Standards

The rise of technology standards for the e-commerce industry is absolutely necessary for companies to communicate, exchange information, collaborate and conduct business with each other. Currently, too many standards lead to a confused marketplace, so that is why we also point out the standards issue among one of the restraints affecting the market. However, the fact that some of these standards are successfully developing (some along vertical lines and some pushed by other vendors) has a beneficial effect on the embracing of B2B e-commerce and e-catalogue solutions. Vendors must look to accommodating these standards if they are to gain customers in disparate vertical markets.

Several types of standards initiatives have seen general adherence by companies in certain vertical industries. Big Original Equipment Manufacturers (OEMs) in the European marketplace are pioneering the adoption of standards, and by taking these on for undertaking B2B e-commerce they are driving the whole of their supplier and distributor network around them. eXtensible Mark-up Language (XML) based standards for information and business processes interchange, such as those developed by RosettaNet, have emerged and proliferated as common languages for a particular sector (in this case, facilitating trade among organisations). RosettaNet's initiative for the IT and Electronic parts sector and Microsoft's Biztalk, among others, aim to provide a solution to cope with the incompatibilities of the various XML formats arising in the marketplace.

Equally, other types of standards that have been supported by the majority of e-catalogue vendors are helping to drive the e-catalogue market. Standards for product classification and identification aspire to create a shared method which encompass the numerous coding schemes used to categorise product types and attributes into a certain taxonomy. The United Nation's Standard Product and Service Codes (UN/SPSC), the Uniform Code Council (UCC), the Standard Industrial Classification (SIC) and the European Article Number (EAN) are all product classification coding standards accepted in several different industries. The pace to which these standardised classification structures (predominating one) are further embraced and developed will be a sign of the e-catalogue solutions market growth.

Moreover, in regions like Germany, several initiatives for standarisation of classification coding and exchange are going forward. Leading German companies have started an initiative for the development of a standard for electronic product catalogues: BMEcat. Simply by importing catalog data from various formats and based in XML, BMEcat creates the prerequisites for the electronic exchange of goods between companies on the Internet in Germany. The initiative is supported by companies such as Oracle, JBA Germany, Alcatel, American Express, Audi, Bayer, BMW, DaimlerChrysler, Deutsche Telekom, Lufthansa, Siemens and Visa.

Another hierarchical classification system arising in Germany is eCl@ss, offered as the standard for information exchange between suppliers and their customers. Finally, ETIM is German standardisation of the electronic exchange of catalog and marketing data in the specialist area of electrical goods.

Led by Ariba, Microsoft and IBM, the Universal Description, Discovery, and Integration (UDDI) registry was launched. UDDI is an XML-based public registry for businesses worldwide to list themselves, their web services and their business processes on the Internet. The registry allows businesses to list themselves by name, product, location, or the Web services they offer. This way, companies can find each other and find out how to integrate business processes with the rest. UDDI is not a new standards body, but a project focused on delivering a set of specifications based on existing Internet Standards. It is also a source to which companies can subscribe in a manner that other companies can easily understand and operate

a shared implementation of a web service. This service is a business registry. The level and breadth of support that it is receiving is encouraging for the accelaration of the adoption of B2B e-commerce.

E-Commerce Success for the First Movers

The B2B e-commerce is at a very early stage of development. Net markets are blooming (and dying) at a tremendous pace all across Europe. To be able to create and operate a Net market before one's competitors implies taking big chances to survive to the expected consolidation that we expect the industry will experience in the future.

In a similar way, suppliers and buyers that take the Internet as a key trading channel and e-business as their core strategy before other companies will differentiate from competition and have higher chances to succeed.

Recognition and Success of Current Net Market Makers Initiatives

The e-catalogue market grows alongside the B2B e-procurement and trading hub markets. Obviously, the degree of potential of the e-catalogue vendors are dependent upon the acknowledgement and credit of the B2B online markets. Moreover, it is still to be proven which of the various business models that e-marketplaces are adopting is the most appropriate in the long term. It seems as though there will be trend of B2B e-commerce software vendors implementing private exchanges in the next couple of years as oposed to large public exchanges. The need for certain e-catalogue solutions will decrease as these private marketplaces stop needing their supplier's data libraries.

Large Buying Organisations are Propelling the e-Catalogue Market

Clearly, the e-catalogue market is being pushed by buyers (and net markets) that increasingly approach suppliers wishing to make business with them over the web. If buyers cannot link with suppliers and find what they are looking for without difficulty, convenience and controllability, they are going to buy from someone else. It is usually up to suppliers or Net markets to make it easier for companies to buy the things they need to buy. Large buyers are forcing their major suppliers to adopt standards and electronic trading practices in order to retain preferred supplier status. Consequently, e-catalogues and the adoption of standards tend to be driven by major companies that cause a cascade effect.

All this is especially true when examining buying industry leaders organisations, excepting that these may employ the content services of a vendor to bring their trading partners into their e-procurement systems. Backed by these large companies, we are witnessing industry-sponsored buy-side Net markets blooming world-wide and in Europe. Suppliers within these

buyers-led industries have no choice but to adapt their products or services' content to the e-procurement marketplaces' specific requirements in order to survive.

Encryption Security will Protect Critical Data

The development and legislation supporting digital security technologies, among other aspects, enhances the buyers confidence in the Internet. This trust increases the number of transactions that a person or an organisation is willing to undertake to do. Encryption is the conversion of data into a form that cannot be easily be understood by unauthorised people. In order to easily recover the contents of an encrypted signal, the correct decryption key is required. The key is an algorithm that undoes the work of the encryption algorithm.

The trillions of transactions expected to be conducted over the Internet are at risk, so data encryption is here to help. There is also a need to execute quick e-commerce transactions on devices that were not designed to operate securely, like wireless devices.

The development of Secure Sockets Layer (SSL) protocol for message transmission on the Internet and Secure Electronic Transaction (SET) specification standard for credit card transactions will drive this market.

Market Restraints

Figure 3-3 shows the restraints that restricted market growth and will restrict growth in this market between 2001 and 2007, ranked in order of importance.

Figure 3-3

Total e-Catalogue Management Solutions Market: Market Restraints Ranked in Order of Impact (Europe), 2001-2007

Rank	Restraint	1-2 Years	3-4 Years	5-6 Years
1	The lack of consolidated standards across different industries	High	High	Medium
2	General confusion around online exchanges	High	Medium	Low
3	Suppliers reluctancy to participate in e-procurement and net markets	High	Medium	Medium
4	The amount of effort involved perceived by potential customers	High	High	Medium
5	Underestimating the importance and benefits of an e-catalogue solution	High	Medium	Low
6	European companies' caution	High	Medium	Medium
7	Logistics	High	High	High
8	Tight margins slows the adoption of e-catalogue technologies	Medium	Low	Low
9	New economy slowdown	High	Low	Low
10	Lack of domain expertise	High	Medium	Low

Source: Frost & Sullivan

The Lack of Consolidated Standards Across Different Industries

With some exceptions, there is still not a high-quality product classification standard, namely for normalising diverging naming conventions and information, that encompasses all specification and content types. Each individual or organisation defines an item's content. Different attributes are chosen to define the products. Due to its simplicity, ability to translate into various classifications schemes and to adapt to different industries, the United Nation's Standard Product and Service Codes (UN/SPSC) standard is considered the most appropriate for the ultimate purpose of automating transactions among organisations. With regard to publishing and data interchange tools standardisation, the other aspect that enables streamlined transactions between companies, (although eXtensible Markup Language (XML) promises to solve many of the problems), there is still a lack of a single common industry and market wide XML format. There are hundreds of XML flavours that companies have to cater for the needs and requirements of lots of trading partners. Organisations may be able to dictate their smaller trading partners that they will be making business with a certain flavour of XML, but it is not possible to go to the larger players and impose the way to do business.

General Confusion Around some of the Online Exchanges

Companies are holding back from developing their own e-catalogue strategy because they are confused over what they are going to be offered through the exchanges and e-business tools. In addition, there is a general confusion about the difference between buy-side and sell-side that is getting the B2B e-commerce water muddy. In the short term this may stop manufacturers and distributors getting on board with their own e-catalogue initiatives. We expect this to change in the near future as the education of the markets continues.

Suppliers' Reluctance to Participate in E-procurement and Net Markets

A major problem with the idea of e-procurement is that there is little incentive for suppliers to participate. Indeed, there are many reasons for suppliers to be wary of committing themselves to a buyer's e-procurement system or to an exchange.

- Transparency means they must disclose prices thus increasing the risk of being undercut by a rival.
- The expense of converting existing catalogues into the format required by the buyer or the exchange.
- The transaction fees mean that a supplier would effectively have to pay to sell their goods.

Vendors argue that there are indeed incentives because of the large volume of buyers concentrated on one exchange and the ability to gain large orders through aggregated sales. However, we believe that the value proposition for suppliers is far from proven.

On the other hand, most suppliers currently develop catalogues with internal proprietary technology without operating an e-catalogue management software tool. They are also merely publishing the product information on their web sites too. The reason for these is the fear of the commodification that web-enabling the catalogue and integrating into net markets and e-procurement systems can generate. That is why B2B e-commerce infrastructure providers created a method for buyers to jump to suppliers' web sites through a link on the net markets they have built. This way, suppliers can preserve the look and feel of their catalogues. Not until suppliers are able to extend their catalogues to the web in a way that their brand and price strategies are safeguarded, can the e-catalogue Management Solution market soar.

The Amount of Effort Involved Perceived by Potential Customers

Suppliers or distributors are concerned with the load of labour and costs, and the time associated with the process of investing on technologies to design and create an electronic catalogue. To digitalise the existing catalogue content of a big supplier entails converting vast amount of document with diverse formats such as paper into the right electronic structure. Although this is the raison d'être of the e-catalogue vendors, companies are scared about the big changes and held back from adopting any technology for their catalogues. Additionally, most of the companies have their catalogues written within a paper-based system so they are using desktop publishing and merchandising systems. Many people's minds are stuck in those product content tools, hence the change is too dramatic and can suppose a barrier of entry when seeking to place an effective catalogue online.

Underestimating the Importance and Benefits of an e-Catalogue Solution

Although progressively changing, the vast majority of organisations fail to appreciate the magnitude and value of a good e-catalogue solution. Even in large corporations there is a lack of awareness of the significance of managing product information to be effectively integrated into the online business environment.

European Companies' Caution

The US has historically been a country that has always adopted new technologies quickly, aided by better venture funding and a different business culture and mindset to Europe. Europe, which has been permanently looking at what is happening in the US European companies, would rather observe what could be learnt from the US experience before embarking on a certain e-catalogue solution.

Logistics

Online trading does not only consists of buying, selling or collaborating between organisations. Depending on the e-commerce application or solution, the processes automated via electronic means can be numerous, a few or just one. Common to any company is the effort to accomplish an efficient delivery of the product or service. When moving and distributing goods across Europe, companies come across customs that need to be paid. Several e-commerce initiatives have failed and others have been halted because there was a lack of the right logistics' infrastructure. There is an established network of distributors in Europe for each of the industries in each of the regions that are intermediating between the supplier.

Vendors stress the need to provide Europe with a global application using the local distribution channels available.

This is another issue that US e-catalogue companies have to take into account when planning to enter the European market.

Tight Margins slow the Adoption of e-Catalogue Technologies

The first type of products that are being requisitioned and ordered online by buyers are simple maintenance, repair and operations (MRO) and office supplies items, as they are the most straightforward to deal with. In the first wave of B2B e-commerce, organisations focus on indirect goods that are not critical for the running of the businesses, that is, not product-centric or mission-critical. However, this segment of the suppliers' market, for instance office supplies, can only reach low margins serving big customers. When a customer requires the suppliers' products to be delivered through an e-procurement system, the high investment for the latter makes it contemplate the possibility of not serving that customer anymore.

New Economy Slowdown

The boosting of the new economy is coming to an end as the business cycle begins its down-side. Investors in both Europe and in the US decided that the business models of most dot-coms were not going to be profitable any time soon. Big capitalisation high-tech companies were affected too, such as telecommunications companies. Venture capitalists withdrew their money as traditional valuation methods of target companies came back. The Nasdaq dropped over 50 percent from its peak and the US is currently undergoing a slowdown in its economy. Unsurprisingly this dragged South Korea's and Japan's technology stock markets and had an effect on the European economy.

Lack of Domain Expertise

e-catalogue Management software vendors regard the lack of knowledge or right skills as a factor holding back companies in vertical industries from acquiring their packages. The fact that a few number of companies have the wisdom, confidence and conviction to take on the creation of an online catalogue, is what has moved businesses away from e-catalogue Management software vendors to e-catalogue Services providers.

Trends by Geographic Region

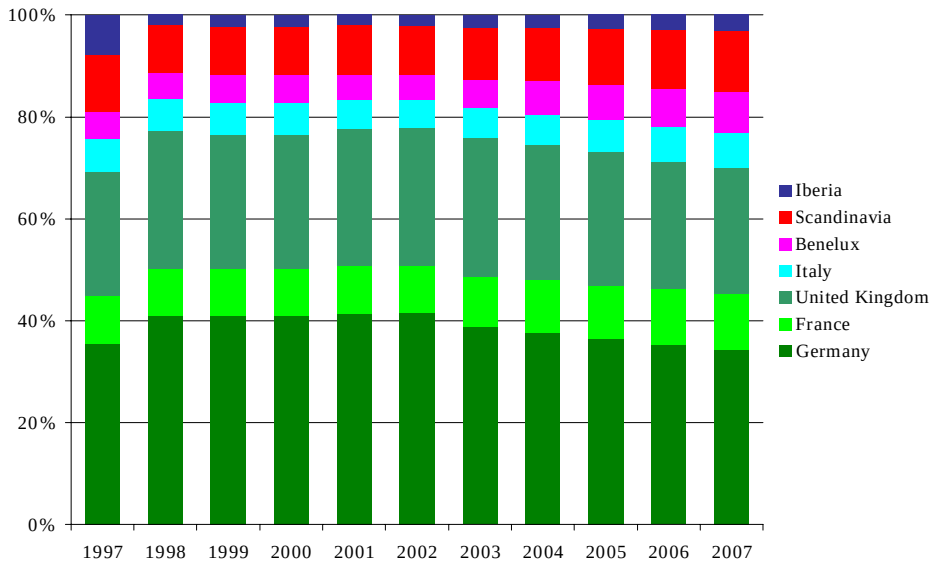
Because the Web is a global experience, the requirements to do business are pretty similar. The most obvious differences among regions across Europe are those typical to software technology overall and that is the degree of technology adoption and network infrastructure and marketplace awareness. The levels of adoption vary between countries in Europe, so some are more closely aligned with the U.S adoption level and some not.

Even on a simple level there are different regional methods of presenting product information. Besides different data formats, there exists differences regarding proposition management. In Germany there are lots of regulations that determine what special offers and promotions can be applied, which are not the same as the rules and regulations that are applied in the U.K. and so on. Thus, there are regional differences on how you use product data, how this data looks and also regarding the particular regulations of doing business between companies that would apply. Therefore, e-catalogue vendors need to have flexibility of the technology to support all these different ways of working in the B2B e-commerce environment.

Figure 3-4 and Chart 3.3 show the percentage of the total e-catalogue Management Solutions market amassed by each European region. As the whole market is in its early stages, all countries' markets will undergo remarkable growth. Those regions with the most vigorous e-procurement systems and net markets activities are usually the biggest e-catalogue solutions market. Hence, the regions with the highest potential for procurement processes to be automated frequently will be the ones with sharper growth rates.

C h a r t 3 . 3

Total e-Catalogue Management Solutions Market: Percent of Revenues by Geographic Region (Europe), 1997-2007



Key: Benelux - Belgium, the Netherlands & Luxembourg
Scandinavia - Denmark, Finland, Norway & Sweden
Iberia - Spain & Portugal

Source: Frost & Sullivan

Another factor to take into account is the number of large enterprises in the countries. Notable disparities exist among regions in Europe in terms of IT infrastructure, Internet usage and penetration, degree of connectivity and e-commerce growth rates. All these variables differ between North and South, West and East of the continent. Germany, the U.K. and France are the biggest e-catalogue Solutions markets and will swell for the next two and a half years. After 2003, the Scandinavian regions will rapidly take up the new technology. Southern Europe, especially Spain, will grow significantly, mainly because of its low starting point. All regions will see their growth rates increase after 2007 as we expect a whole new wave of technology to affect Europe.

Figure 3-4

Total e-catalogue Management Solutions Market: Percent of Revenues by Geographic Region (Europe), 1997-2007

Year	Germany (%)	France (%)	United Kingdom (%)	Italy (%)	Benelux (%)	Scandinavia (%)	Iberia (%)
1997	35.6	9.2	24.4	6.4	5.4	11.2	7.8
1998	41.0	9.1	27.2	6.3	5.2	9.2	2.0
1999	40.9	9.2	26.4	6.4	5.4	9.5	2.2
2000	40.9	9.2	26.4	6.4	5.4	9.5	2.2
2001	41.3	9.5	26.9	5.6	5.1	9.6	2.0
2002	41.4	9.4	27.1	5.4	5.0	9.6	2.1
2003	38.8	9.8	27.3	5.8	5.6	10.2	2.5
2004	37.7	10.3	26.5	5.9	6.6	10.5	2.5
2005	36.3	10.6	26.2	6.4	6.9	10.9	2.7
2006	35.3	10.9	25.1	6.8	7.5	11.4	3.0
2007	34.3	11.1	24.6	7.0	8.0	11.9	3.1

Note: All figures are rounded. Source: Frost & Sullivan

Figure 3-5

e-Catalogue Management Solutions Market: Revenue Forecasts (Germany), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.4	---
1998	0.4	15.2
1999	22.8	4,981.5
2000	49.8	118.2
2001	95.4	91.4
2002	191.1	100.3
2003	331.1	73.2
2004	506.5	53.0
2005	691.9	36.6
2006	960.4	38.8
2007	1,387.0	44.4
Compound Annual Growth Rate (2000-2007):		60.8%

Note: All figures are rounded. Source: Frost & Sullivan

The largest market in Europe is Germany with almost 42 percent. Hitting the highest point at 41.4 percent in 2002, the German market will be worth 34.3 percent by 2007. It is the largest e-catalogue market right now and will continue to be for the oncoming years, as it is Western Europe's richest and most populated nation. It will be the fastest growing country as it always has been an early adopter of technology. The strength of Germany-based SAP in the B2B e-commerce market is another reason why the region is bigger. Additionally, there is a major presence of e-catalogue vendors in the region and the German e-procurement and trading hub software market is the strongest of Europe. However, the decline starting in 2003 will be a consequence of e-catalogue solutions' adoption expanding in other regions. Figure 3-5 shows the revenues, forecasts and growth rates for the region between 1998 and 2007. We can observe a high growth rate of 100.3 percent in 2002 drop to the lowest growth rate of the total European market.

Figure 3-6

e-Catalogue Management Solutions Market: Revenue Forecasts (United Kingdom), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.3	---
1998	0.3	11.5
1999	14.8	4,858.1
2000	32.3	118.2
2001	62.1	92.6
2002	125.1	101.3
2003	233.0	86.2
2004	356.1	52.8
2005	499.4	40.3
2006	682.9	36.7
2007	994.8	45.7
Compound Annual Growth Rate (2000-2007): 63.2%		

Note: All figures are rounded. Source: Frost & Sullivan

The U.K. represents 26.4 percent of the total market in 2000. The country is positioned second in terms of size as a result of the use of English language, the high Internet usage and strong economy and infrastructure as well as highly qualified human resources. The UK market will peak at 27.3 in 2003 as companies continue to acquire B2B trading technologies. In 2007, we expect the market share in this region to drop to 24.6 percent as in other European regions e-catalogue solutions begin to be adopted. Figure 3-6 shows revenue forecasts and expected growth rates between 1997 and 2007. The U.K. attracts and will continue to attract the attention of vendors. U.S. software vendors have always considered the U.K. as a gateway to European markets as they share a common language and maintain close relationships. Most of the top players in the B2B technology markets have established their European headquarters in the country and the same applies for e-catalogue Management solutions vendors.

Figure 3-7

e-Catalogue Management Solutions Market: Revenue Forecasts (Scandinavia), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.1	(17.9)
1999	5.3	5,166.4
2000	11.6	118.2
2001	22.2	91.3
2002	44.3	99.8
2003	87.0	96.4
2004	141.1	62.1
2005	207.8	47.3
2006	310.1	49.3
2007	481.2	55.2
Compound Annual Growth Rate (2000-2007):		70.3%

Key:
Scandinavia - Denmark, Finland, Norway & Sweden

Note: All figures are rounded. Source: Frost & Sullivan

Scandinavia's share of the European market comes in third place. The four countries possess 9.5 percent of the market in 1999. With regards to degree of Internet usage and wireless technology expertise, the Scandinavian countries come first. Internet penetration in Scandinavia is around 30 percent, where the web is becoming part of everyday life at home as well as at work. Scandinavia has the world's highest percentage of online users per capita and is one of the fastest-growing regions for Internet usage and domain name registration. The region, in relation to the rest, will roughly maintain its portion of the European market until 2003, when it will grow alongside the amount of e-procurement and net markets initiatives. The take up of the technology will push the Scandinavian e-catalogue solutions market to represent nearly 12 percent in 2007 with revenues worth $481.2 million, as shown in Figure 3-7.

Figure 3-8

e-Catalogue Management Solutions Market: Revenue Forecasts (France), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.1	(1.1)
1999	5.1	5,057.0
2000	11.2	118.2
2001	21.9	95.5
2002	43.4	97.7
2003	83.6	92.7
2004	138.4	65.5
2005	202.0	46.0
2006	296.5	46.8
2007	448.9	51.4
Compound Annual Growth Rate (2000-2007):		69.4%

Note: All figures are rounded. Source: Frost & Sullivan

France is a country with a rather big potential in this market, which does not necessarily mean it will experience phenomenal growth. In 2000, the region held 9.2 percent of the total market. The nation's portion of the market is expected to experience a similar growth pattern as the Scandinavian market though reaching a smaller figure, 11.1 percent. Initiatives from the government to promote the Internet among small and medium enterprises (SMEs) and the push from large automotive and technology manufacturers benefited the market during year 2000. Figure 3-8 indicates growth rates starting to decrease from 2002 but in relation to the total market share the country will be shortening the gap with bigger markets.

Figure 3-9

e-Catalogue Management Solutions Market: Revenue Forecasts (Benelux), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.1	(3.7)
1999	3.0	5,197.7
2000	6.6	118.2
2001	11.8	78.8
2002	23.1	95.9
2003	47.8	107.0
2004	88.7	85.6
2005	131.5	48.3
2006	204.0	55.1
2007	323.5	58.5
Compound Annual Growth Rate (2000-2007):		74.4%

Key:
Benelux - Belgium, the Netherlands & Luxembourg

Note: All figures are rounded. Source: Frost & Sullivan

The Benelux area claimed a 5.4 percent of the e-catalogue solutions market in 2000. There are some significant end-users in the Netherlands and an important e-catalogue solution provider based in Belgium. After 2002, the region will grow from the low share level that held as a result of having missed out on the first wave of investment on trading hub software. In 2007, the region's market share will exceed that of Italy with 8 percent of the total market. The forecasts for the Benelux market are displayed in Figure 3-9. In 2002 and 2003, Benelux will be the second fastest growing European market; as a consequence, among other things, of higher adoption of Internet technologies and development of Belgium-based vendors' business.

Italy, Spain and Portugal are the smallest markets of western Europe. In these countries, the telecommunications infrastructure and e-commerce technology penetration is inferior to that of the rest of European nations. Both Italy and Iberia's market share will go through a diminishing period throughout 2001 and 2002 , but they will end up enjoying a 7 percent and 3.1 percent of the market respectively. Figure 3-10 and 3-11 show the forecasts of the Italian and the Iberian market respectively. The rapid growth of the Iberian market stands out as the fastest of the total European market between 2002 and 2003, especially because they have

begun from such a low level of development. Spain and Portugal ranks clearly below the average in overall usage and website visibility. The Internet penetration in 2000 is the lowest together with Italy and Greece, typically less than 10 percent. Spain has the opportunity of catching up with the rest of European countries led by certain large corporations. Telecommunications, technology and energy companies such as Telefonica, Endesa, Iberdrola and Indra, together with multinationals' offices in the region are powering the Spanish B2B e-commerce markets. For instance, in order to compete worldwide, many Spanish companies in particular are adopting B2B technologies faster than some German companies.

Figure 3-10

e-Catalogue Management Solutions Market: Revenue Forecasts (Italy), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.1	(1.6)
1999	3.6	5,082.3
2000	7.8	118.2
2001	12.9	65.6
2002	24.9	92.7
2003	49.5	98.5
2004	79.3	60.2
2005	122.0	53.9
2006	185.0	51.7
2007	283.1	53.0
Compound Annual Growth Rate (2000-2007):		67.0%

Note: All figures are rounded. Source: Frost & Sullivan

Figure 3-11

e-Catalogue Management Solutions Market: Revenue Forecasts (Iberia), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.0	(74.4)
1999	1.2	5,510.0
2000	2.7	118.2
2001	4.6	72.1
2002	9.7	109.8
2003	21.3	120.1
2004	33.6	57.4
2005	51.5	53.2
2006	81.6	58.6
2007	125.4	53.6
Compound Annual Growth Rate (2000-2007):		73.2%

Key:
Iberia - Spain & Portugal

Note: All figures are rounded. Source: Frost & Sullivan

Trends by Solution Type

Figure 3-12 shows the trends in the total e-catalogue Management solutions market by type of solution. In 2000, the markets for e-catalogue Management software, services and other solutions garner 14.8 percent, 77.9 percent and 7.4 percent of the total market respectively. This distribution of the market will change within the next five years, e-catalogue Management software becoming the most widely adopted solution and custom services losing market share. Frost & Sullivan expect this shift to take place due to various reasons.

Figure 3-12

Total e-Catalogue Management Solutions Market: Percent of Revenues by Type of Solution (Europe), 1997-2007

Year	e-Catalogue Management Software (%)	e-Catalogue Management Services (%)	e-Catalogue Content Resellers (%)
1997	12.9	80.9	6.2
1998	12.9	80.9	6.2
1999	12.9	80.9	6.2
2000	14.8	77.9	7.4
2001	15.1	76.9	8.0
2002	15.1	77.0	7.9
2003	17.2	74.9	7.9
2004	22.4	69.0	8.6
2005	32.3	58.4	9.3
2006	44.6	45.8	9.6
2007	57.4	33.9	8.7

Note: All figures are rounded. Source: Frost & Sullivan

Throughout the next two years, US-based vendors focused on developing software applications for online catalogues management will attack the European market . This will have a major impact in the total market as these companies leverage established multinational channel and consulting partners to promote their software among suppliers and distributors. At least three companies are expected to start making noise in this market in the next two years and probably another two between 2003 and 2006. In addition, eXtensible Markup Language (XML) enabling technologies firms and content management systems vendors (as defined in the "Market Overview and Definitions" section of this study), are contemplating the possibility to offer full e-catalogue Management software. As an example, SoftQuad Software announced in September 2000 the availability of SoftQuad MarketAgility, an e-catalogue management offering built upon XML content applications.

New revenue models are starting to be adopted by software vendors that will provide new streams. Recently vendors have launched versions of their software to be delivered as a hosting Aplication Service Providers (ASP)-like solution for creating and maintaining e-catalogue content. For small and medium enterprises (SMEs), the possibility of having someone hosting the catalogue for them eliminates the need of big software acquisition and catalogue maintenance cost. This new channel will create a continual stream of revenues. The success of e-catalogue service providers and resellers in this space took place especially among SMEs as the market was deficient in solutions suitable for them. ASP's offerings can change this.

Buyer's demand of online catalogues to take advantage of e-procurement applications and e-marketplaces' necessity to satisfy customers with supplier's catalogues, and so achieve liquidity, has often led to a solution where the supplier does not own the process. On-behalf-of-the-buyer services approaches dominate the supplier enablement. However, we expect suppliers to become aware of the challenges of the digital economy and to realise that software tools generally provide the best option. Outsourced catalogue services for suppliers are often slow and cumbersome, creating a bottleneck in the flow of timely and accurate product information to the e-marketplace. e-catalogue content resellers' offerings may lack support for product differentiation, which is one of the things that suppliers dread most. Also, e-catalogue content resellers may remain as providers for specific vertical markets and product types in the future. Services provision for e-catalogues can lack the ability of being a one-stop solution and the flexibility of serving multiple commerce sites and trading partners at low cost. In addition, the more extended among suppliers the software tools are, the less need for buyers and net markets to use custom content factories services for converting these suppliers' product information.

We can summarise the factors that will change the current split between software and services/resellers

1. Suppliers' realisation of the importance of owning the catalogued data (content directories)

2. Supplier's concern on losing control over the structure of the data (content directories)

3. The e-catalogue services solutions is usually buyer focused (content directories)

4. The fear of losing product differentiation in e-catalogue reseller's offerings

With regards to e-catalogue resellers, the market will be worth 8.7 percent of the total market in 2007, compared to 7.4 percent in 2000. e-catalogue content resellers are aggregating content and increasingly covering more vertical industries. The demand for these third-party companies solution will increase, but not extraordinarily. B2B hub market trading will consolidate, and the number of net markets will significantly shrink. Hence, the demand for a catalogued content repository will fade. As mentioned, the increasing availability of supplier-focused solutions can also affect this type of provision.

Eventually, companies may use all types of e-catalogue Management provision anyway, using content factories services for high-quality content, maintenance, management and searching software, and resellers for specific vertical industries data.

Other Trends

New Technologies

Agent Technologies

Intelligent agents are a new paradigm for developing software applications. More than this, agent-based computing has been hailed by some as the next significant breakthrough in software development. An agent is a computer system situated in an environment that is capable of autonomous action (meaning the system should be able to act without the direct interventions of humans) in the environment in order to meet its design objectives. Agents are being used in an increasingly wide variety of applications, ranging from comparatively small systems such as email filters to large, open, complex, mission critical systems such as air traffic control.

This is one of the technologies that can affect the e-commerce market and consequently the e-catalogue management market. As mentioned, the agent technology has been around for some time now, but it has not been fully applied to the Internet yet. These agents would assist companies in searching and finding any trading partner over the Internet and then grabbing the relevant information from them. We expect products or services based on this technology to emerge as a valuable tool for B2B e-commerce.

Wireless Technology

Wireless technology is rapidly evolving, and is playing an increasing role in all IT sectors. There are currently tens of millions of employees world-wide working outside of traditional office settings. Organisations are challenged with providing these mobile workers access to corporate resources so they can work as productively on the road as they can in the corporate office. The development of wireless technologies also affects the e-catalogue management market as it entails a new technological challenge. In the future, the catalogues designed should support to interface with wireless devices and so comply with all the new requirements that comes with this new way of interrelating with the user. The technological challenges that vendors will confront are different to those faced when serving a "workstation audience". One method of accessing the catalogue in the future will be through devices such as Personal Digital Assistants (PDAs), Wireless Application Protocol (WAP)-enabled phones, pagers and email boxes. Moreover, the input of changes of product attributes and description will be possible to be done real-time from the factories and plants using wireless equipment placed connected to the Internet via specialised modems.

In Europe, this will take place sooner than in the US due to the higher penetration of the wireless technologies.

XML-related Technology

eXtensible Mark-up Language (XML) is a way to create common information formats based on Internet protocols such as Hypertext Transfer Protocol (http) and share both the format and the data over IP-based networks. XML is gradually becoming the lingua franca of B2B e-commerce. The maturing of XML will improve B2B interoperability. XML alone is in many ways responsible for the progression of net markets. Before the adoption of this standard, whether using Electronic Data Interchange (EDI) or their own proprietary approach, companies did not have a standard communication methodology and language with which to communicate content and transactions data remotely machine to machine. While Hypertext Markup Language (html) simply describes the content of the web page only in terms of how it is to be displayed, XML describes the content in terms of what data is being described. It is much easy to deploy on the web than EDI.

Improvement of Network Bandwidth

The other major technology issue is bandwidth. Bandwidth is the width of a communications channel to support ranges of electronic signal. It is used to describe how fast data flows on a given transmission. It especially affects the trading hub software market. In some cases, end-users prefer their trading hubs to be hosted by the vendor. In these cases the vendor must have the facilities in house or a partnership agreement with a network provider, such as an Internet Service Provider (ISP) or Application Service Provider (ASP). When dealing with rich e-catalogues with product specifications' drawings and graphs, the bandwidth of the telecommunications infrastructure becomes critical.

Various new technologies to access are augmenting the bandwidth of telecommunications infrastructure facilitating large applications flow across companies. These include Digital Subscriber Line (DSL), local loops, modems, satellites, digital cable and fibre optic systems.

e-Catalogue Management Vendors and B2B E-commerce Infrastructure Providers

One of the options that a supplier has is to send its product offerings data directly to net markets, which will operate in a similar way as e-catalogue Content Resellers. It is important for the supplier which B2B e-commerce infrastructure provider is behind those net markets. A buyer operating e-procurement applications vendors such as Clarus or Rightworks can use these to convert its suppliers' catalogues if they do not have an online catalogue.

All the major B2B e-commerce platforms and e-procurement applications providers acquire or tie up partnerships with e-catalogue and content management solutions vendors. One of the goals is to synchronise standards for exchanging documents between trading partners and the net markets built by the B2B infrastructure vendors. These B2B infrastructure vendors also have developed or acquired some kind of e-catalogue management technology to aggregate catalogue content from multiple suppliers and reflect specific participant's relationship,

pricing and net market maker revenue model. Some vendors offer dynamic trade capabilities to complement fixed-price catalogue mechanisms.

Thanks to partnerships with e-catalogue management software, e-catalogue Content Resellers and databases companies, firms such as Ariba can offer customers access to catalogues managed by suppliers on the network and to aggregated content to be imported into e-procurement systems.

In January 2000, Commerce One acquired Mergent Systems for $148.4 million. The technology obtained by Commerce One was integrated into its products and enables customers whishing to automate their procurement processes to create, manage and operate aggregated multivendor catalogues.

During first quarter of year 2000, Commerce One forged relationships with Poet Software, Saqqara Systems and Documentum to deliver e-catalogue solutions to enable suppliers to participate in net markets powered by the Commerce One MarketSite Portal Solution. All products developed by these companies support the Commerce One xCBL exchange standard. Suppliers and manufacturers can make their catalogues available to Marketsite-based net markets. In addition, Commerce One acquired Mergent Systems in 2000, to be equipped with multi-supplier aggregation technology.

Metiom launched an e-commerce platform at the end of year 2000 that enables large organisations to set up a network that automates trading with multiple suppliers. As part of the package, suppliers can use a web-based tool that enables suppliers to build and upload e-catalogues and storefronts to the marketplace. This is quite different from what other vendors offer: there is no central multivendor catalogue. Instead, each supplier creates its own e-catalogue, which can then be searched centrally by dynamic agents.

In May 2000, it was announced that using SAP's Open Catalogue Interface, Poet's eCatalog Suite can be linked directly to SAP's Business-to-Business procurement (BBP) system. The Poet "eCatalog Suite Supplier Resident Edition" is a self-service eCatalog management solution that connects a supplier's product offerings with a buyer's e-procurement system. Suppliers are able to produce master catalogues from a variety of sources and then add buyer profiles to tailor catalogue variables, such as product selection and contract pricing. Custom e-catalogues are then distributed to buyers via the Internet in their preferred catalogue format and protocol.

iPlanet, agreed with Requisite, among other things to support its Requisite's Unifying Structure (RUS), allowing iPlanet customers access to catalogue content organised in RUS.

Competitive Structure

Figure 3-13 also shows the competitive structure of the European e-catalogue management solutions market in 2001.

At the moment there are no clear leaders in this market although some vendors have been able to establish themselves strongly in it. As in any new market, vendors are still adjusting their products and technologies to the needs of the users, and the barriers of entry are low. We expect to see a drastic increase of the competition in the European market for various reasons. Recognised U.S. firms with powerful technology and business models plan to enter the European marketplace during the oncoming two years. In addition, Content Management Systems vendors can break into the e-catalogue sector rather effortlessly just by adding cleansing and rationalisation functionalities to their offerings. Companies that design and develop document imaging and document management software such as FileNet, vendors that market database and file management software such as Oracle and Informix, and Web content management software vendors like Interwoven and Allaire could all turn into e-catalogue Management solutions providers.

Figure 3-13

e-Catalogue Management Solutions Market: Competitive Structure (Europe), 2001

Number of Companies in Market	15
Types of Competitors	Big U.S.software and services vendors
	Small regional players
	Several start-ups
Distribution Structure	Mostly direct sales and complementing e-commerce software suites
Tiers of Competition	No clear leader
US e-Catalogue and Content Management Vendors	**Numerous regional players**
Notable Acquisitions, Mergers	Commerce One & Mergent Systems
	Requisite & Antaeus Systems
	Peregrine Systems & Harbinger Corp
	i2 Technologies & Aspect Development
	Vignette & OnDisplay
Key End-User Groups	Large industrial supplier
	Large buying-organisations
	B2B Net markets
	Distributors
Competitive Factors	Support of industry standards
	Strategic partners
	Breadth and/or depth of the solution

Source: Frost & Sullivan

The ubiquity of the Internet makes it very difficult to identify companies competing in a certain market. The top e-procurement and net markets software vendors create platforms of services, catalogue content services being one of those. Among other possibilities, these cata-

logue content is available to companies browsing the trading network from e-catalogue content vendors. This implies that if a Spanish enterprise's procurement person buys e-catalogues through a net market from US based e-Content, we have to consider this vendor as a competitor in the European e-catalogue management marketplace. Nevertheless, we decided to focus our study on those vendors with a physical presence in Europe.

Figure 3-14 lists all the major companies in the European e-catalogue Management market identified in this study. As discussed in the market overview of this chapter, e-catalogue Management vendors provide several forms of delivery of e-catalogue solutions. Several of these firms are in more than one subsegment and, as in the case of Aspect Development (part of i2 Technologies), in all. Some deliver the solution through an ASP (Application Service Provider) model.

Figure 3-14

Total e-Catalogue Management Market: Database of Key Industry Participants by Market Segment (Europe), 2001

Company	Software Provider	Service Provider	Content Reseller
Saqqara	■	■	■
Requisite Technologies	■	■	
TPN Register		■	■
Content Europe	■	■	
Poet Software	■		
Vignette	■		
i2 Technologies	■	■	■
Cataloom	■		
Cataloga	■	■	■
Wallmedien	■	■	
Empolis	■		
E-Pro	■		
MRO Software	■		
Peregrine Systems	■	■	
Zygon	■		

Source: Frost & Sullivan

Figure 3-15 shows a market ranking of major companies of the market. The majority of the market is dominated by third-party e-catalogue solutions such as e-catalogue custom creation services from companies such as Requisite Technologies and i2 Technologies (the new name for Aspect Development). Then, e-catalogue reselling and e-catalogue software come second

equally preferred solution. This shows that the e-catalogue market has been principally driven by large buyers in particular industries.

Figure 3-15

Total e-Catalogue Management Solutions Market: Market Ranking of Major Participant (Europe), 2001

Company	2001
Requisite Technologies	**1**
Content Europe	**2**
i2 Technologies	**2**
Vignette	**3**
TPN Register	**4**
Poet Software	**6**
Saqqara	**7**
e-Pro	**8**
Cataloga	**9**
Zygon	**10**

Note: All figures are rounded. Source: Frost & Sullivan

The figure above shows what is the current competitive situation and how is likely to develop in the near future. Leading the ranking list we find vendors that focus on e-catalogue Service provision. Third-party bespoke catalogue content solutions are the greatest generators of revenue in this market. These solutions serve the needs of buyers in specialised industries that do not have the expertise to create tailor-made catalogue content. Requisite will have further resources to expand as it is preparing its first Initial Public Offering (IPO) in Nasdaq in 2001.

However, there are some factors that may cause the shift of attention from e-catalogue services providers to e-catalogue software vendors. these factors were discussed in the "Trends by Solutions Type" section of this study.

It is difficult to foresee how the competition will evolve in the oncoming years as U.S e-catalogue software players will make efforts to enter the European market. The demand for the whole e-catalogue market will be very strong in the future and so all the current European players will experience significant growth. Frost & Sullivan expects the market leader Requisite Technologies to continue being in the forerunner in the next two years. However, as in the case of Aspect Development, we anticipate the possibility of being relegated as a market leader. Software companies may increase their visibility throughout Europe. Poet Software, Vignette, U.K. start-up Zygon and smaller regional players are estimated to grow faster.

Aspect Development was acquired by i2 Technologies in June 2000. The combined company expanded i2's TradeMatrix marketplace solutions and offered a separate e-content solutions organisation. Aspect Exchange solutions (eMarket and Aspect Content Exchange and Discovery) were incorporated into i2 TradeMatrix Content Solution. Finally, i2 established Infinite Content as an independent business unit in October 2000 to accommodate Aspect eContent and Infinite Supply. i2 Technologies is the only company that delivers software, e-catalogue services and content reselling either through i2 Tradematrix Content or Infinite Content's reference database of supplier's items.

Aspect was a major player for design collaboration, direct procurement and content, enabling companies to manage the mission-critical parts and supplies used in design and operations. i2's Infinite Content is the former Aspect Development's Infinite Supply, a startup company launched by Aspect in the third quarter of 1999. GEC Marconi, UK-based JCB are some examples of Aspect's European customers. Infinite Content provides information on more than 17 million standard products and more than 100,000 suppliers which is collected and maintained in a searchable database. Customers can search for and compare parts and suppliers from repository. It also provides custom content conversion services with content factory in India and content management and search software.

Companies such as TPN Register offer an interesting proposition for cost-effective and fast e-catalogue content solution for both buyers and suppliers but has failed so far to gain European customer base.

Content Europe offers e-catalogue content factory facilities and e-catalogue Management software, the latter comprising e-catalogue management and searching software. It is one of the leaders in the European e-catalogue solutions marketplace. Content Europe is the only Europe-focused vendor and enjoys an extensive list of European list of clients. The company partners with notable B2B players (Oracle and SAP) as well as with leading system integrators. The company claims it can achieve $30 million in 2001.

In Germany, there are e-catalogue Management software vendors that are progressively gaining regional and foreign customers. Wallmedien, Cataloom, e-Pro and Empolis are companies participating in this market. Each of them approach the e-catalogue market differently.

Cataloom (formerly IoS) offers a multi-lingual platform for managing catalogue data for Oracle and Openshop procurement systems. The Cataloom (formerly PZwo) platform allows companies the structuring, maintaining and distributing of the product content for B2B and B2C markets. Nevertheless, the practical totality of its customers are companies using Cataloom in a B2C environment or as an internal product management tool. The company's core competence besides the catalogue engine is its maintenance and update technology. Although not many, Cataloom has significant customers: Electrolux, Krups/Moulinex and Deustche Telecom.

Wallmedien offers Catone, a B2B catalogue solution for both suppliers and buyers operating on SAP e-procurement systems. It also offer e-catalogue services for buying organisations. This small vendor will do well in the region as long as the company continues being a consulting partner for SAP e-procurement package. Catone's customers include Hella KG Hueck & Co, Hahn & Kolb and Kistenpfennig.

Another German player worthy to be remarked upon is e-Pro. The company provides a set of e-catalogue software tools that seeks to provide a comprehensive end-to-end solution. e-proCAT for suppliers is the software that creates e-catalogues in BMEcat publishing format. With e-proEDIT suppliers can visualise modify existing BMEcat catalogues and in the case of short range product lines, suppliers can create them. The classification tool is called e-proCLASS and it structures product data into eCl@ss, ETIM or UN/SPSC (United Nation's Standard Product and Service Codes) formats. Last but not least, e-proCLEARING is the multi-supplier catalogue creation product for buyers and net markets. e-proCLASS and e-proCLEARING are still not available but will be later in year 2001. Customers include Dresdner Bank, PBS Network and ETIM (Electro-technic Information Model). The company obtained approximately as much revenues as multinational Saqqara.

Another small German player to be mentioned is the start-up e-procurement software vendor CaContent.

Cataloga is a UK-based e-catalogue Management Solutions provider established in January 2000. The company has the advantage of having established before Us vendors launched in Europe. The company has developed CatTrade, a suite of software to develop and maintain online catalogues. CatTrade helps suppliers to develop, maintain and distribute e-catalogues in various formats to be integrated into multiple e-procurement systems, be it of a buyer or a net market. Cataloga's business offerings include software, services that perform tastks as cleansing accessing to the same tools as suppliers, e-catalogue content and ASP-type of offering. Cataloga can provide suppliers different versions of CatTrade depending on the complexity of their network of buyers they wish to communicate with. Thus, the revenue flows escalates as the suppliers are engaged with more net markets

Although focusing on enabling the supplier, Cataloga also offers CatContent, supplier's product content for buyers.

A company to follow is IBM; it has unveiled the last version of its content management tool designed to help businesses develop and manage electronic catalogues on the web. It can be bought as a separate product or as part of IBM Websphere Commerce Suite. WebSphere Catalogue Manager enhances the former Catalog Architect product, some of the improvements being that it supports 9 languages for Europe and Asia-Pacific (different language for the catalogue descriptions) as well as multiple currencies. Catalog Architect was a developer tool to edit catalogues within the WebSphere Commerce Studio. Websphere Catalog Manager focuses on the specific content management requirements for the WebSphereCommerce Suite editions and is solution for both the buyer and the net market maker, but IBM is especially

targeting the big manufacturing companies and distributors. If companies do not have Websphere Commerce Suite in place, the Websphere Catalogue Manager can be a solution, albeit costly.

With reference to the e-catalogue Management market, there is a type of company that specialise in developing and marketing catalogue search engines. However, Frost & Sulilvan have not included them in this study as these technologies are regarded as web tools rather than B2B tools, although most of vendors, such as Mercado Software, concentrate on B2B functionalities. Other major e-commerce search engine companies are Empolis' Orenge, Verity, Altavista and Requisite Technologies with its BugsEye product.

We discuss the rest of the participants of the market in our Company profiles section. It is prudent to bear in mind, however, that there are a number of companies that have provided some sort of catalogue management capability. Enterprise Resource Planning (ERP) vendors, business intelligence and database vendors can provide catalogue functionalities as part of their enterprise software package. Suppliers also have the option to simply send the product information to net markets and these can deal with converting and structuring it accordingly.

Figure 3-16 shows the products offered by the major vendors in this market.

Figure 3-16

Total e-Catalogue Management Solutions Market: Products Offered by Major Market Participants (Europe), 2001

Company	Primary Products
Saqqara	CommerceSuite
Requisite	eMerge. BugsEye
i2 Technologies	Content Exchange
Content Europe	OMCT
Zygon	Enterprise Catalogue Management (former PPM)
TPN Register	TPN Marketplace
Cataloga	CaTTrade, CatContent
e-Pro	eCat
Poet Software	ECatalog Suite

. Source: Frost & Sullivan

Saqqara Systems

Saqqara Systems is a privately held company based in San Jose, California, and venture-funded by Vision Capital, a trans-Atlantic high-tech venture fund thats specialises in firms bridging the US-European markets. Saqqara delivers a set of software tools and services to form a complete solution for product content management and e-catalogues. Saqqara is primarily a supplier enablement focused e-catalogue software vendor. Thus, as the company likes to present it now, it seeks to address the three fundamental requirements or issues that a supplier has with regards to catalogue solution:

The transformation of existing product data, which exists in a broad number of formats in a company, into product content. That is, getting hold of technical, marketing and business information about the product to then organise and structure it in a way that it can drive the buyer's search and selection processs as well as being published and syndicated out to trading sites. This is what we have named within the market overview as the aggregation, cleansing and rationalisation phases of the e-catalogue construction.

The management of the catalogue once you have the product information in the right structure and format. There are, from Saqqara's point of view, two dimensions of management: keeping it up to date, complete and accurate, and the ability to leverage that product content as part as the marketing and selling process. To that end, Saqqara has recently added capabilities to the system that extend the catalogue from being just a repository or a source of publishing data, to being able to have interactions with the customers to help guide the buyer in the product selection process. We give details about these new features of Saqqara offerings further on.

The exchange of the product content with customers. This could include publishing product catalogues to net markets or private exchanges, syndicating all or portions of the catalogue data to various trading partners in different formats and taxonomies.

Products

Saqqara markets four core product lines:

1. Saqqara Commerce Suite. This is the catalogue management solution that includes several applications:

- Product Server is the core application. It integrates into Enterprise Resource Planning (ERP) and other existing systems in order to aggregate data from multiple sources into a unified content database and so be rationalised. The application includes a parametric search engine capability called Step Search that allows customers to quickly make

informed buying decisions through a natural search and compare process. Additional search capabilities such as keyword and hierarchical drill down search are also provided.

- SolutionServer allows guided selling to help customers configure complex products or to support upsell and cross-sell opportunities. What the guided selling function consitsts of is a sequel of questions and answers on a sequence of web pages that will help the buyer build the solution (buyers usually buy more than one product). SolutionServer will go to the catalog to pick compatible products based on the customer's answers to satisfy its need.

- StorefrontServer provides branded web storefront and buyer interaction capabilities including shopping chart interchange with Ariba and Commerce One, buyer registration, pricing availability response and so forth. This new product is certainly augmenting Saqqara's capabilities beyond standard e-catalogue management.

- Analysis server is the tool that helps the marketing people to analyse what the buyer is doing

- Pixserver is Saqqara's content export function so companies can syndicate the relevant information to trading partners in the appropriate format.

2. Saqqara Contentworks is the application at the very front end of the process, automating many of the tasks associated with acquiring, aggregating, cleansing and transforming diverse product data into product content that can be used in the catalogue. Contentworks was introduced in April, 2000. It does not directly handle the management or exchange of the product content but it is a transformation solution. The product provides an application framework for users, such as distributors or net markets, that may have a rather extensive specific domain expertise, and may require aggregating and transformation of the product data into content in the appropriate format and taxonomy. It is not a complete automated solution, as there is probably no way to completely automate the acquisition and transformation of the data. Yet Contentworks aims at enabling companies to organise and manage their expertise in a set of rules that can then be applied quickly via purely manual techniques to obtain e-commerce ready content.

3. Saqqara CornerStone is the company's newly launched ASP solution. Saqqara delivers to the customer a completely outsourced product content solution that addresses all the mentioned phases of the e-catalogue creation and administration. Hence, this is an end-to-end e-catalogue solution. Saqqara works directly with customers to provide expert content services. They also manage the e-catalogue for them, host it together with the Commerce suite application which augments that catalogue, and finally provides the capability to syndicate that product content automatically. This goes out to partners in any format and taxonomic structure. The price when the service was launched was of $7,000 per month.

4. WhoMakesit.com is the e-catalogue content reselling business of the firm. The company has aggregated electronic components information from hundreds of manufacturers in this

vertical portal, so users can search using the Step Search tool for a specific item. Once located, the portal links with the supplier's web sites so they can be bought. Saqqara receives commisions from referring customers to those supplier's sites as well as advertising revenues. Therefore it acts as a supplier and neutral infomediary, delivering accurate information from the manufacturers' web site, eliminating searching a manufacturer's home page or handling imprecise results from general search engines.

Partnerships

Saqqara is looking to expand partnerships already established in the US with Commerce One, Ariba, Microsoft, Sun Microsystems, Extricity and the big five consulting organisations. The company supports the information exchange standard specification of the first two and has recently enabled its solution to support "punch-out" and "round-trip" methods.

Combining order management and business intelligence software with Saqqara products, it promises to provide an even a wider solution to its customers. That is why Saqqara is partnering with companies such as Ironside and OrderFusion. Saqqara has forged relationships with other vendors of related technologies that offer complementary solutions such as Vignette.

A special mention needs to be done over the alliance with the German software company living systems. The company develops B2B collaborative e-commerce tools based on agents technology (see New Technologies section). After being engaged in a project with them in the U.S., Saqqara wishes to develop further the partnership to attack the German and European market.

Customers

The company has fifty customers worldwide, of which six are European. Practically all of Saqqara's revenues were obtained in France and in the Netherlands in 2000, although they also had some presence in Spain. Saqqara plans to establish regional offices in the U.K. and Germany throughout 2000. Despite having channel partners in Europe, all the six customers were achieved through direct sales. Due to the fact that Saqqara was created by people with extensive backgrounds on the electronics components industry, the majority of its customers are big suppliers in this area, such as Alcatel.

Primary customers worldwide include: Fujitsu, AMD, Agilent Components and General Electric.

Requisite Technologies

Requisite Technology, a private company, was established in 1993 in Westminter, Colorado and has operations in Toronto (Canada) and London. The company was initially founded to address the emergent indirect e-procurement market. It was not until 1997 that Requisite did

not entirely focus on e-catalogue content management. The company seeks to address all the crucial elements of the e-catalogue content solutions. It is the world leader in the e-catalogue services space with its catalogue content creation factories, and also offers management and finding software tools. Requisite transforms and unifies content from a variety of sources and suppliers to create single e-catalogues; a multivendor e-catalogues for buyers and marketplaces. Then, customers are equipped with the tools or services to maintain the e-catalogues, and users with technology to find what they need. The solution supports B2B e-commerce industry categorisation standards such as UN/SPSC (United Nation's Standard Product and Service Codes) and eCl@ss as well as interoperability standards such as Commerce XML (cXML), XML Common Business Library, Common Internet File (CIF) and BMEcat, a European e-commerce standard.

The catalogue has been web-enabled on behalf of the buyer but the data ultimately belongs to the supplier. The buyer just owns the data instantaneously and the supplier can buy the converted catalogue back.

Products and Services

Content factories are the core competence of the company. In 1998, the acquisition of Antaeus Systems provided Requisite with e-content creation and transformation capabilities. Around three hundred people (software developers and linguists) work in content factories in Toronto office dealing with unifying and structuring disparate naming conventions of diverse products attributes. Typically, Requisite would work with a buyer or a net market that has many suppliers to trade with. The company would create e-catalogue content on behalf of the buyer from its key supplier's product information. For that purpose, Requisite has developed a catalogue classification schema called the Requisite Unifying Structure (RUS). This technology permits the bringing together of all the data from all the different sources and suppliers that the buyer or a net market is working with in a common way. It is a proprietary structuring schema, but is compatible with the industry standard UN/SPSC, which Requisite helped create in 1997.

The company is planning to build content factories in Europe.

eMerge is the suite of content management browser-based tools that enables suppliers, buyers and net market makers to manage and maintain the content of the catalogue. The set of tools create, in Requisite's very words, a community authoring environment for buy-side organisations. With eMerge, suppliers can load, delete and edit product information (that is organised by eMerge) and buyers can alter the e-procurement catalogue. Before the content is rearranged, eMerge facilitates its staging, so it can be reviewed and approved thanks to the product's workflow rules capabilities. With eMerge, procurement managers can also design and revise the catalogue structure.

Requisite's e-catalogue management can also be offered as a pure service.

Bugseye is the finding solution. BugsEye is a search engine which enables the desktop end-user to find products and services by common language requests. Requisite started working on the development of the product in 1996 but it did not sign its first agreement until 1998. BugsEye customers are the e-procurement solution providers that channel BugsEye engine by embedding it into their systems.

Partners

On a worldwide basis, the most strategic partnerships are Ariba, SAP, Oracle and Hewlett-Packard. These companies need to offer a rich product content solution to their customers, hence they develop joint marketing programmes with Requisite. Other enterprise software vendors partners that embed Requisite's tools are Ironside Technologies, Yantra, Remedy Corporation and ICG Commerce. The partnership with Remedy is significant as it can take Requisite down to the buy-side SME's market.

Particularly in Europe, the partnership with Infobank is very promising. Infobank, also a content creation customer, will resell eMerge management tools to support its e-procurement system as well as BugsEye. Certainly, Requisite's operations success in Europe is extraordinarily dependent on SAP and Oracle routes to market.

In terms of system integrators, Requisite partners with most of the leading big consultancies. In the U.S. they have tied up relationships with several net markets: PlasticsNet.com, Petrocosm, totalMRO.com, findMRO.com and SciQuest, among others.

Customers

As we mentioned earlier, Requisite is focused on providing e-catalogue solutions for the buy-side of the B2B e-commerce equation. The company is increasingly experiencing demand from net markets that need some of the three main offering. Some of them request the full e-catalogue package.

The vast majority of Requisite's European clients are SAP or Oracle customers, habitually utilising mySAP.com or OracleExchange.com. Achiless Information, procurement and business solutions hosting U.K. company, is one of the examples of net markets using both SAP and Requisite. Heavy processing goods net market IndustrySuppliers.com chose Requisite within an OracleExchange environment. Hence, Requisite licenses its software to companies such as Oracle and SAP, which integrate it into e-procurement packages in exchange for license and royalty fees. SAP, W.W. Grainger, and SciQuest.com account for about 80 percent of total sales.

Some of the primary European customers are Reuters, Basf, Lloyds TSB, Industrysuppliers.com, BAA, Anheuser-busch and Osram Sylvania.

Poet Software

Poet Software is public software vendor company founded in 1992, headquarted in San Mateo, California, and traded on the Frankfurt Stock Exchange since January, 2000. Numerous Independent Software Vendors are licensing their packages with embedded Poet products. The company markets object data management software and focuses on XML-based content management systems for distributed desktops and Internet applications running on Netware or Windows NT.

Poet might still be considered by competitors as concentrating around engineering building materials product management rather than e-catalogue management vendor.

Products and Services

Poet eCatalog suite is the out-of-the-box supplier enablement e-catalogue software application launched in September, 1999. Poet offers two different editions, whether the customer is a supplier or an ASP (eCatalog Suite Service Provider edition). Poet is repurposing its software to serve as an e-catalogue solution, having its roots in the object database software sphere.

The application copes with the product information aggregation from ERP systems, flat files, relational databases, web files and so on, into a master catalogue in the Poet data repository. Then it cleanses the data and maps it to structure coding schemas such as UN/SPSC. In addition, in order to deliver accurate information to trading partners, the transaction data is customised to the each recipient's specifications, thanks to customer profile capability. Poet incorporated support for the Microsoft BizTalk Framework into its eCatalog Suite during second quarter 2000. In May, the company announced the release of eCatalog Suite Supplier Resident Edition, which expands catalogue management with a browser based interface for online access by buyers to manage their content requirements, an expanded schema for multi-supplier aggregation and scheduling capabilities across the eCatalog Suite range of functions.

Poet started developing an ASP and net market maker programme that allows suppliers to leverage the eCatalog Suite in a hosted environment.

Traditionally, the company has concentrated on software packages that lets users share, reuse and deliver XML for print production and web publishing. To that purpose, Poet markets the following key suite of software.

Poet Object Server Suite is a platform and programming language object database server. It is the database management solution system solution to create complex data applications.

Poet Content Management Suite is an XML/SGML document management framework for the Poet Object Server Suite. The product is made up of three major components to create, manage and deliver XML and SGML content: SGML Parser for interpreting SGML documents, the SGML Navigator for viewing and administrating SGML documents and

Programmer's API for building SGML applications. Content Management Suite provides the advantages of a highly structured document format and leading edge database technology.

In October, 2000, the Content Management Suite was sold to the Swedish company, Sörman Information AB. Sörman will assume the intellectual rights of the product worldwide except North America and South Korea, but Poet will be receiving revenues for three years more from its sale.

Professional Services are provided in the form of consulting to support Poet's offerings and assist with the customer strategy and technology.

Partners

Poet's partnerships network is rather extensive. The most significant technology partners in relation to Poet's eCatalog Suite are Ariba, Commerce One and SAP. Poet seeks to enable suppliers' e-catalogues with export adapters to each Ariba and Commerce One B2B platforms. Poet maintains with SAP both a joint sales relationship and collaboration for SAP's Open Catalog Interface integration. Other technology partners include Softco, Adobe, Interleaf, Ericsson, General Dynamics, Intel, Microsoft, Rational Software, Simba technologies, SoftQuad, Staffware, Orderfusion, Ereo, Seeburger, Symantec, Verity, Datachannel, Arbortext, Allaire and Velvet Logic. The relationship with the B2B software vendors were established to take advantage of Poet's data management software to embed in the applications or to help develop specific XML-based standards. Nevertheless, Poet can now leverage those alliances to market its eCatalog Suite.

With regards to systems integrator partners, the company has chosen to forge relationships with: Architag International, Calian Technology, Isogen, RSG Systems, Osemann & Lauridsen, SAIC and Techsight Engineering Services.

Poet works together with other e-catalogue management or content solutions vendors. In the US, Poet has partnered with Liason to complement eCatalog Suite with Liason's Dexter DE product to provide a more comprehensive e-catalogue management solution. Also in the US, it has partnered with ec-Content, an e-catalogue content aggregator or content library. Poet and e-catalogue software and services provider Wallmedien established an alliance to market and cross-sell their offerings.

Customers

The target customer for Poet are both suppliers and ASPs that offer supplier enabling services in a hosted version. The fact that Poet boasted numerous customers worldwide for its Content Management Suite in various industries positioned the company in an excellent and timely situation to cross-sell its eCatalog Suite application. Primary worldwide customers are BuildNet, Lucent, Ericsson, Echelon, F.A. Davis, Minolta, Marcel Dekker, IntelliCorp, Johnson Control, PE Biosystems and Sales Media. Specifically for the eCatalog suite: Deutsche Telekom, Smartmission (European healthcare marketplace), Bardusch (German auto

supplier), Kraiser & Kraft, COngex (Australian ASP), Omnicell.com, Reiff, Dietrich Schuricht Elektronik GmbH (European catalogue distributor)

TPN Register

TPN Register, which we have categorised as an e-catalogue Content Reseller company, originated in General Electric (GE) in 1995. The U.S. multinational initially developed an internal internet-based indirect procurement initiative to improve purchasing across GE business units. General Electric Information Systems (GEIS) gathered this group of in-house hosted e-procurement services under the name of Trading Process Network. In 1997, GEIS and Thomas Publisher signed a joint venture to market TPN Mart to the public labelled as TPN Register. Thomas Publisher is the publisher of Thomas Register of American Manufacturers, which had long standing relationships with US suppliers and their purchasing staff, and so designed and maintained an index of supplier's products information. Procurement administrators used that guide to find and obtain the relevant items using a proprietary Thomas Register classification system. TPN Register began focusing exclusively on catalogue management by 1998, when it got rid of the broader e-procurement service offerings. One year later TPN Marketplace was launched.

The company is based in Rockerville, Maryland (U.S.). To put it in a simplistic way, TPN principally offers a marketplace of catalogues. The company converts supplier's catalogues and aggregates them into a hosted network of catalogued information. When a buyer needs a certain supplier, TPN adjusts the transactive data of that supplier's catalogue to the buyer's specific requirements. In the sense that it converts a supplier's non web-enabled catalogues on behalf of the buyer, there is a similarity between TPN, Requisite, and in some cases, Saqqara. Customers can either download the catalogues into their servers or have them hosted in TPN marketplace.

Services

TPN Marketplace is the core offering of the company. TPN Register have developed throughout the years a technology that allows suppliers and buyers to interact and collaborate with each other to quickly create e-catalogues; the proprietary Interactive Catalogue Management technology. Through a browser-based interface, e-catalogues can be created and views customised for each of the different recipients in terms of the structure. TPN Markeplace is integrated with various e-procurement systems to reach buyers. Thus, TPN Marketplace can help suppliers, buyers and net markets to create and distribute e-catalogue content.

The network accepts paper or electronic catalogue content, then cleanses it; whenever needed, it creates data attribute fields, structures them into a classification schema, incorporates private contract information, presents it to the supplier for approval and is ditributed.

Buyers are allowed to approve the catalogue contract conditions before circulating it to purchasing officials. Suppliers are responsible for the online maintainance of the e-catalogue.

TPN ContractSource is the supplier service that allows e-catalogue version tailoring for each buyer, so sellers do not have to maintain countless different catalogues. Both sides (and net markets as well), cooperate on the contract creation and its specific pricing, volume discounts, preferred currency and other negotiated contract contract terms.

TPN TotalSource is the service for non-contracted suppliers to provide for the spot buy market. TPN encourages buyers to nominate their traditional group of suppliers so they can leverage existing contract terms. However, buyers can also use TPN TotalSource tool to source items from new suppliers and find new products from established suppliers. In plain words, allows companies to purchase quickly from a supplier with whom they have no formal relationship.

Partners

Certainly, the most significant TPN partners are the e-procurement providers: Ariba, Oracle, Clarus, Rightworks, Metiom and GE eXchange Services. TPN marketplace integrates into each of these networks in order to link communities of buyers with suppliers' catalogues. The company also has strategic relationships with data and content management companies like Intermat and Vignette (initial partnership with On Display). Other technology partners include Webmethods and Eccubed.

Clients

TPN services' clients operate in diverse industries: financial services, high-tech, manufacturing and higher education. They are the buyers, the net markets (both needing product information for their e-procurement processes) and their suppliers. TPN, leveraging its joint venture, operates for all GE business units and boasts several Fortune 500 companies. Other buyers and e-marketplaces include: 3M, Ametek, Boeing, Cinergy, Harley-Davidson, Industry Networks, Unilever, Level 3 Communications, Seagate Technology, Smurfit-Stone, Sunoco Oil, the University of Pennsylvania, the Government of Victoria (Canada), and Wachova.

More than 1,150 suppliers are using TPN to manage and distribute its e-catalogues. In Europe, there are 27 TPN suppliers located in Holland, Italy, France and the United Kingdom. The main suppliers are: 3M, Boise Cascade, Fastenal, Fisher Scientigic, Grainger, Kaman, Motion Industries, Norton, Office Depot, Staples and Wesco Distribution.

Zygon Systems

Zygon Systems is a privately owned software vendor, established in June 1999 and based in London (U.K.) that produces catalogue management software. It also has offices in Scotland and San Jose, California. This software, in 1999, was primarily in demand in Europe from

the multi-channel retailer, so companies who needed to sell across different media, not only online but offline to subsidiaries, stores, staff, brochures and some through interactive television. Initially, Zygon was founded to respond to that market demand for information publishing technology. However, its customers today span both B2B and B2C spaces, including net markets, rather than just the retailing industry. Futhermore, retailers have also to communicate to customers internal to the organisation.

Products

Product Portfolio Management

The software is designed to enable the management and flow of product information within organisations and between organisations. The company is developing a new version of this product that will be released by second quarter 2001. This will be a re-engineering of the product, rebranded under Enterprise Catalogue Management.

As mentioned, Zygon's product sought a solution to merge traditional retailing with "digital retailing". The company performs the three fundamental e-cataloguing processes. Zygon do not just focus on product information management but also on how that information would flow. Firstly, it collects all product information from every source where it may sit within a company: merchandising systems, ERP systems, financial and marketing management systems, multimedia systems, web content management systems and other sources of product data. Then, all the product information is managed within a single PPM user-oriented platform followed by the publishing of the information to different channels.

Zygon tries to differentiate from the competition offering a different approach to e-catalogue management. Most of the competition propositions are focused on storing structured data in an e-catalogue and then enabling end-users to retrieve it. Nevertheless, Zygon points out the relevance of helping machine-to-machine automation, that is enabling automatic processes (standard process query), following what standard initiatives such as UDDI and RossetaNet are ultimately trying to achieve. Therefore, Zygon products enable not only access from front-end applications like e-commerce systems, but integration with the B2B process integration companies like Extricity. Zygon solutions focus then on the process's automation, which is worthless without data, and vice versa.

The value proposition of Zygon centres around the structure organisation of the catalogue. Zygon believes structures should not be imposed to companies as currently available software tools do. Because the supplier should be able to face numerous different channels or relationship environments that surround the products, there is a need to be able to provide a different structure of the information to each of them. If the supplier has classified the e-catalogue in a single certain structure, it will restrict its ability to service all its customers. Zygon guarantees that its product eliminates the hassle of having to design several different structures, and so having duplication, for the product data. Zygon technology permits the attachment of as many structures alongside the catalogue items as different viewers inter-

acting with them. In fact, these are not really structures but a set of logic relationships of the items to its target groups. Thus, these relationships are stored beside the product line items at the repository, so when it is viewed from a particular standpoint or process, the product data gets re-structured. A subset or a virtual catalogue of that repository is offered to the person accessing the catalogue based on that relationship criteria. Concisely, the structured view of the catalogue is different whether who retrieves it is an online customer, a buying organisation, a supplier, a subsidiary, an employee, or a business application. For instance, Zygon regards the classification structure UN/SPSC as an additional view of the data. In addition, the software includes multi-functional searching capabilities.

Zygon also can help net markets to aggregate multivendor catalogues to create a master catalogue. Its technology would operate in the same way as in the case of the supplier. Zygon can label the product items as being part of a product set so that when a buyer views the net market products repository it just gets to see the products from the company for which it indicated preference.

Partners

They would work with technology partners that have complementary SW, marketplace partners that understand our customer base, as well as system integrators that can do service implementations around us.

The most important are IBM, Sun and Extricity. Zygon does joint selling and marketing. IBM provides the storefront capabilities to complement Zycgon's software with Websphere. Other partners include: Oracle, Intershop and Extricity.

Target partners for Zygon are companies such as Ariba and Commmerce One, as it claims it can enhance their technology with Zygon's catalogue engine.

Clients

The company targets both B2B and B2B buy-side marketplaces. Although having been concentrating in the B2C industries, Zygon's clients can, now that they have all their data organised from the customer point of view, leverage that by taking a step further, pushing down to their suppliers. Because they have all the information in a single repository they can streamline their supply chain of product information.

The product is only installed in the U.K. Zygon assisted Argos, a subsidiary of Great Universal Stores (GUS plc.), with its product portfolio cataloguing. In the B2B space, Electro-Speed, a sister company of RS components and part of the Electro Components group of companies, is another important Zygon client. They focus on the distribution of connectors and electronic components. They run the catalogue, web site and internal product management on Zygon.

Zygon has also achieved some sales engagements in Central and Northern Europe, although these are prospects and have not closed a deal yet.

Pricing Strategy and Trends

Prices for e-catalogue solutions vary widely across the market depending on whether e-catalogue software, content resellers or services are considered. Vendors also apply different revenue models and streams.

Software vendors primarily obtain their revenues from license fees. The customer typically pays these fees for each of the applications upfront. The license amount is revised and adjusted whenever any of the variables on which the fee is based changes. Usually, license fees are based on the number of Stock Keeping Units (SKUs) of the supplier's products.

The number of SKUs is the dimension of product data that must be aggregated and converted. The setup costs per supplier vary depending on the complexity of the data. Other factors intervening in the fee paid can be the number of CPUs (processors) administrating each application or module or the number of users. The revenue model changes for each e-catalogue tool or module. Thus, a syndication application price is based on the number of trading partners to which suppliers or net markets have to exchange information.

License fee price ranges from $2000 to $800,000, including implementation and support services. Such a wide price range is explained by the diversity of breadth in the software available. The average license price is of $150,000.

Additionally, e-catalogue software vendors and e-catalogue Content Resellers are using the content subscription revenue model. Developing this model, the vendor turnover is spread across a longer period of time and the uncertainty about when the money comes in is minor. In the case of e-catalogue Content Resellers, the supplier pays an annual fee and the buyer pays to set up the supplier's catalogue depending on the number of SKUs and/or number of supliers.

Catalogue content creation and conversion services pricing is also determined by the amount of SKUs that the supplier wants to operate on. In addition, prices commonly vary, conditional on the quality of the existing content. Even if it may seem surprising, services providers prefer paper catalogue documents because they give the greatest detail of information. With regards to the tools that buyers, net markets and suppliers have to manage and update the catalogue information, the revenue comes form an annually paid license fee. In the case of buyers and marketplaces it depends on the number of suppliers they are dealing with.

e-catalogue Content Resellers usually generate revenue from a subcription and licensing fees. Regarding subscription revenue, the supplier fees are usually an annual quantity and on the buyer side there is a setup fee, and then a fee per supplier or per SKUs can be charged.

Regardless of the type of the solution, once the e-catalogue is set up, companies have to pay for its ongoing maintenance. This recurring cost can be as high as half of the initial setup cost.

Several vendors are adopting new revenue models, which will boost cash if proven successful

Transactions-Based Fees

Both e-catalogue Content Resellers and software providers have plans to or some are already charging their customers based on the number or amount of transactions that are conducted over their e-catalogues. Of course, as B2B e-commerce transactions increase, the revenue potential of this model is huge. As the commerce volume of all trading partners escalate, so do the e-catalogue management vendors.

Nevertheless, Frost & Sullivan believes that it will be difficult to win, going to the market-place with such a pricing strategy. It will prove difficullt for vendors to persuade trading partners to use a solution where commision fees will cut a piece of the flow they are able to generate, adding up to other transactions-based charges coming from other B2B software and services vendors.

Catalogue Hosting

e-catalogue vendors are starting to develop other options of offerings and revenue sources. Some of them offer the possibility to host the catalogues for their customers. This way, suppliers and buyers can outsource the maintenance and storage of their catalogues, which means cost savings. With the ASP model mushrooming across all the software industry, the least one can expect in such a "hostable" sector as the e-catalogue sector is it keeping up with the trend.

Suppliers and buyers generally pay for catalogue hosting on a monthly basis. The average price charged is of $3000 per month and catalogue.

The ASP model has proved to be very successful to work for the needs of SMEs, and Frost & Sullivan believes revenues derived from this model in the e-catalogue solutions market will increase considerably in the oncoming months. However, what these catalogue hosting solutions offer is neither more nor less than what net markets offer through the B2B e-commerce applications behind them.

4

e-Catalogue Management Software Market

Forecasts of the e-Catalogue Management Software Market

Market Overview and Definitions

Frost & Sullivan define e-catalogue Management Software as those tools that enable companies trading and communicating with each other over IP-based networks (Internet Protocol) to create, publish and maintain online catalogues. This software can address data aggregation, content cleansing or filtering, content transformation or rationalisation, catalogue syndication, catalogue maintenance and catalogue search. Depending on the vendor, the tools cover all areas or just some of them. There are also differences in terms of soundness and depth of each of the functionalities. As opposed to third-party e-catalogue provision, software tools imply implementation time and intense capital investment in technology

Currently, there is a lack of comprehensive efficient automated e-catalogue management software tools. This gap in the e-commerce infrastructure represents a huge opportunity for e-catalogue management vendors. The e-catalogue technology market is very immature and current tools to aggregate, categorise, and rationalise content within a catalogue are somewhat, one could say, still at a trial and experimentation phase. Although recognised vendors are starting to establish in the e-catalogue marketplace, there are no clear leaders. Those that could be regarded as leaders now could easily be downgraded in the near future, as the degree of market saturation is so low. Vendors' technologies differ and usually concentrate on a particular aspect of the e-cataloguing process. The trend for the e-catalogue software market is the provision of an end-to-end solution. In order to do so, we expect further mergers, acquisitions and alliances among vendors in Europe and worldwide.

e-catalogue Management software aids suppliers and buyers that have decided to develop their catalogue in-house by automating the e-catalogue creation. Suppliers can always develop their e-catalogues with their own technology. Creating e-catalogues from scratch provides the greatest control over the content format and structure. However, building an e-catalogue is a very high-cost approach and the rise of industry standards induce supplier to

acquire software. On the buyer side, purchasing departments can also manually create information with in-house resources. Buyers can create an internal database for suppliers and items matching their specific requirements. As well as for suppliers, this provides a good solution for creating the catalogue. Nevertheless, the content has to be updated on an ongoing basis and manually again. Software packages can effectively facilitate this process as well as the prior catalogues aggregation.

Chart 4.1 shows Frost & Sullivan's Market Engineering research measurement system as used to measure the European market for e-catalogue Management Software.

Chart 4.1

Marketing Engineering Measurements: e-Catalogue Management Software Market, (Europe) 2000

Market Engineering Drives Market Strategy and Planning

Measurement Name	Measurement	Trend
Market size in dollars	$18 million	Increasing
Annual market growth rate (2000)	5,000%	Decreasing
Compound annual growth rate (1997-2007)	100.2%	---
Market saturation (current/potential users)	2%	Increasing
Market age/Product life cycle	Development stage	Increasing
Potential revenues (maximum future market size)	$3.5 billion	---
Number of competitors (active market competitors in 2000)	14	Increasing

Note: All figures are rounded. Source: Frost & Sullivan

While content management software can help companies with some phases of the e-catalogue solution, in this study, we only include pure B2B e-catalogue Management Software providers. We do not include companies that merely aggregate data from multiple sources

and translate it into a standard format. Collecting dispersed data can be part of a content management strategy for an Internet portal, for instance. We consider catalogue search engine software when its use is in the B2B environment. Regarding the publishing of catalogue content, there are a number of vendors that can facilitate this propagation based in eXtensible Mark-up Language (XML) format but that are not included in this study.

Market Revenue Forecasts (1998 - 2007)

Figure 4-1 and Chart 4.2 show Frost & Sullivan's forecasts of the e-catalogue Management Software market in Europe. In 2000, the market was worth $18 million. As shown in the figure, this market will grow at a compound annual growth rate of 100.2 percent for the period 1998 - 2007.

Figure 4-1

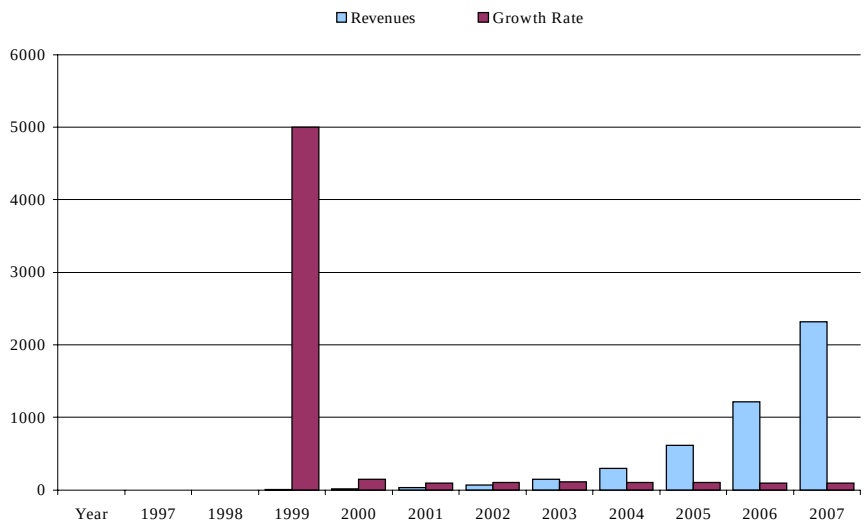
Total e-Catalogue Management Software Market: Revenue Forecasts (Europe), 1997-2007

Revenue		
Year	**Revenues ($ Million)**	**Growth Rate (%**
1997	.1	---
1998	.1	0.0
1999	7.2	5,000.0
2000	18.0	150.0
2001	34.9	94.0
2002	69.8	100.0
2003	146.7	110.0
2004	300.7	105.0
2005	616.4	105.0
2006	1,214.2	97.0
2007	2,319.2	91.0
Compound Annual Growth Rate(2000-2007)		100.2%

All figures are rounded. Source: Frost & Sullivan

Chart 4.2

Total e-Catalogue Management Software Market: Revenue Forecasts (Europe), 1997-2007



Note: All figures are rounded. Source: Frost & Sullivan

Between 2002 and 2005 the e-catalogue software market will enjoy its highest growth rates as suppliers, marketplaces and buyers have bigger needs to develop and maintain e-catalogues. We have fully explained within the "Trends by Solution Type" of this study some of the reasons why e-catalogue software will experience the highest growth rate of solutions available. Solid U.S e-catalogue Management software vendors will endeavour to enter the European market in 2001 and 2002. Companies such as Cohera, CardoNet and Liason, all proclaim their plans to open regional offices in Germany or the U.K. We anticipate the market to peak in 2003 as a consequence of the customer base expansion that these vendors will attain. Net markets are "desperate" because their hubs lack liquidity. Partnerships with e-catalogue content software vendors will continue to overcome this problem. By 2004 the e-catalogue software market is expected to be $300.7 million. Growth rates for the market will begin to decline after that year. The market will have started to establish itself, vendors' consolidation slowed down and B2B e-procurement market began to decelerate.

5

e-Catalogue Management Services Market

Forecasts of the e-Catalogue Management Services Market

Market Overview and Definitions

e-catalogue management services providers develop and maintain online catalogues on behalf of the customers. When we say e-catalogue services, we consider those that have focused resources to address the data acquisition, conversion and rationalisation. They are not the implementation, support and consulting services that typically all software vendors offer in this space.

These services can be content factories and catalogue content maintenance services. They can be engaged by buyers and net markets to enable their suppliers and also by suppliers to build the e-catalogues. Usually, it is the buyer who contracts these services.

There are different benefits and drawbacks that companies can achieve using e-catalogue management services. The major benefit is, as with e-catalogue content resellers, the speed of execution. Buyers and net markets can have converted catalogues from their suppliers in a shorter time than it would take if companies had to develop them themselves. Also, there are specialised industries for which third-party solutions such as content reselling may fail to serve. Even in more conventional sectors, there are companies that prefer the tailored content creation facilities of e-catalogue services providers to suit their specific needs. e-catalogue service providers usually possess high technology and implementation expertise. Another series of advantages over software implementation are common to all outsourcing services. It saves companies with considerable capital investment and lowers the hazard of in-house e-catalogue development programmes going wrong.

Chart 5.1 shows Frost & Sullivan's Market Engineering research measurement system as used to measure the European market for e-catalogue Services.

Chart 5.1

Market Engineering Measurements: e-Catalogue Services Market, (Europe), 2000

Market Engineering Drives Market Strategy and Planning

Measurement Name	Measurement	Trend
Market size in dollars	$95 million	Increasing
Annual market growth rate (2000)	5,000%	Decreasing
Compound annual growth rate (1997-2007)	46.4%	---
Market saturation (current/potential users)	2%	Increasing
Market age/Product life cycle	Development stage	Increasing
Potential revenues (maximum future market size)	$2.7 billion	---
Number of competitors (active market competitors in 2000)	8	Increasing

Note: All figures are rounded. Source: Frost & Sullivan

Market Forecasts (1998 - 2007)

Figure 5-1 and Chart 5.2 show Frost & Sullivan's forecasts of the e-catalogue Management Services market. In 2000, this sector of the market gathered the majority of the total market being worth $95 million. By 2007 we expect this market to have increased at an compound annual growth rate of 46.4 percent from 2000, and to be worth almost $1.4 billion.

Figure 5-1

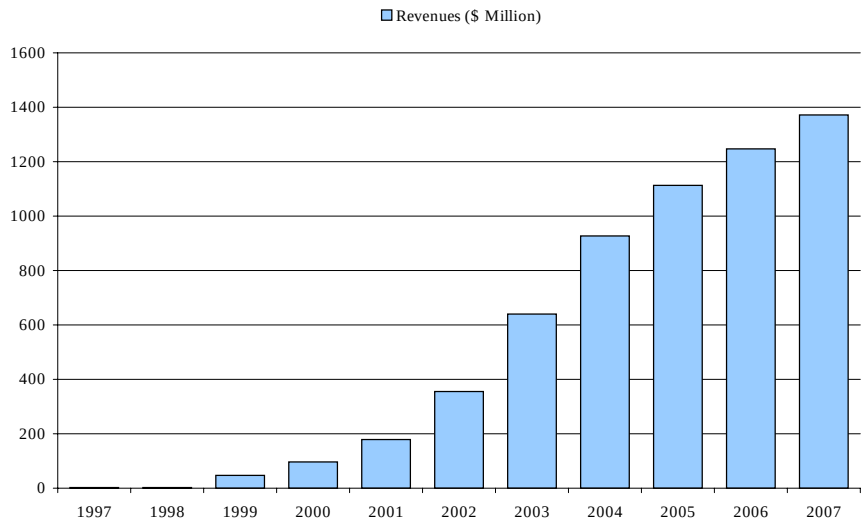
Total e-Catalogue Management Services Market: Revenue Forecast (Europe), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.9	---
1998	0.9	0.0
1999	45.2	5,000.0
2000	95.0	110.0
2001	177.7	87.0
2002	355.3	100.0
2003	639.5	80.0
2004	927.3	45.0
2005	1,112.8	20.0
2006	1,246.3	12.0
2007	1,371.0	10.0
Compound Annual Growth Rate (1997-2004): (2000-2007)		46.4%

Note: All figures are rounded. Source: Frost & Sullivan

Chart 5.2

e-Catalogue Management Services Market: Revenue Forecast (Europe), 1997-2007



Note: All figures are rounded. Source: Frost & Sullivan

Between 2000 and 2002, the e-catalogue services market will grow at high rates. After 2002, the market will continue growing but at slower pace. Growth rate will peak at 100 percent in 2002. During those couple of years, although there will be out-of-the-box software out in the market, content conversion services provided by expert staff will be the most common choice for will large distributors and buyers. A shift of demand towards other sorts of e-catalogue management provision will mainly account for the change of growth speed that the e-catalogue services market will experience in 2003, as discussed in the "Trends by Solution Type" section of this study.

6

e-Catalogue Content Resellers

Forecasts of the e-Catalogue Content Resellers Market

Market Overview and Definitions

Within this segment of our study we include offerings in the e-catalogue Management Solutions space that do not fall into the software tools and services categories. However, what these solutions have in common with e-catalogue management services is that they are a third party solution as opposed to an in-house solution.

We define e-catalogue Content Resellers as those companies that transform and web-enable different suppliers' catalogues and aggregate them into a network or repository of catalogue content. The product data, once aggregated, goes through the cleansing and rationalisation processes. If a buyer needs to find a supplier, it can choose catalogues from this network either to pull them onto its own server or to keep them hosted by a third party (or within the e-catalogue reseller). Once the buyer has picked the catalogue that best suits its needs, the reseller can provide it with the transactive data adapted to that specific supplier-buyer relation. As we said, in a sense, these companies are providing e-catalogue services. As the e-catalogue Service providers, these companies can convert designated supplier catalogue on behalf of the buyer and they offer services to the supplier as well. Some vendors just gather data from different sources but do not resell it, so they are just aggregators. Instead, they are employed to meet the particular requirements of online purchasers. Aggregators can market a products' information database Internet portal with mere links to suppliers' web sites, generating revenue from commission for those suppliers' customers that are referred by the aggregator's portal. We are not including those in this study.

There is another type of e-catalogue content provision that we have included within the e-catalogue Content Resellers category: content libraries. This is a solution for buyers that want to use a particular e-procurement application but do not have optimal relationships with suppliers. The solution is to use a agreggator's library or database of supplier's product specification data where buyers license it integrating the suppliers with their e-procurement

systems. The difference with the first type of e-catalogue Content Reseller is that it does not convert catalogues on behalf of the buyer.

e-catalogue Content Resellers are looking at new ways of leveraging the huge repository of supplier's data that they have made the effort to aggregate. One recent initiative from vendors is to provide Content Reseller engine services. e-catalogue Content Resellers lease the use of aggregated catalogue content to companies. Companies then do not own the data, but would retreat content from the vendor's platform of information to have ready-made e-catalogues whenever they need it. The vendor develops and maintains the content but is the distributor or the net market who integrates the content engine to their sites. On their portal, there would be a search engine (leased as well) that links with the content provider's server to obtain the pertinent data and upload it to the portal.

Chart 6.1 shows Frost & Sullivan's Market Engineering research measurement system as used to measure the European market for e-catalogue Content Resellers.

Chart 6.1

Market Engineering Measurement: e-Catalogue Content Resellers Market (Europe), 2000

Market Engineering Drives Market Strategy and Planning

Measurement Name	Measurement	Trend
Market size in dollars	$9 million	Increasing
Annual market growth rate (2000)	5,000%	Decreasing
Compound annual growth rate (1997-2007)	69%	---
Market saturation (current/potential users)	1%	Increasing
Market age/Product life cycle	Development stage	Increasing
Potential revenues (maximum future market size)	$1.5 billion	---
Number of competitors (active market competitors in 2000)	4	Increasing

Note: All figures are rounded. Source: Frost & Sullivan

Market Revenue Forecasts (1998 - 2007)

Figure 6-1 and Chart 6.2 show the forecasts of the e-catalogue content resellers market. The market in 2000 was worth $9 million. Before 1999, the market size was negligible. We expect next year growth rate to be 105 percent. This growth will decline in 2002, but it will be the following year when we anticipate the e-catalogue reseller market growth to really begin to slow down. The facts that can make this type of e-catalogue provision preferred among businesses will continue to drive the growth of this segment. Moreover, vendors are starting to experiment with new revenue models such as transaction based model and via the referral commissions discussed in previous section of this study.

Figure 6-1

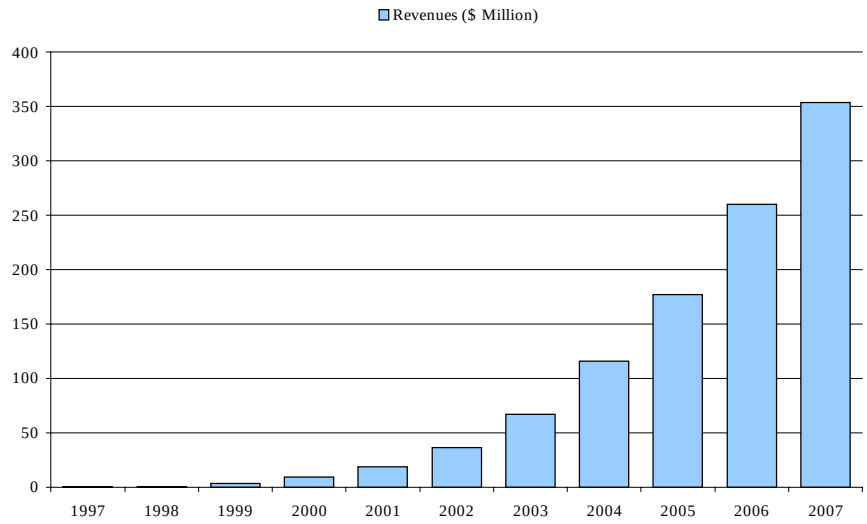
Total e-Catalogue Content Resellers Market: Revenue Forecasts (Europe), 1997-2007

Year	Revenues ($ Million)	Revenue Growth Rate (%)
1997	0.1	---
1998	0.1	0.0
1999	3.5	5,000.0
2000	9.0	160.0
2001	18.5	105.0
2002	36.5	98.0
2003	67.2	84.0
2004	115.6	72.0
2005	176.9	53.0
2006	260.0	47.0
2007	353.6	36.0
Compound Annual Growth Rate (1997-2004): (2000-2007)		69.0%

Note: All figures are rounded. Source: Frost & Sullivan

Chart 6.2

Total Other e-Catalogue Management Solutions Market: Revenue Forecasts (Europe), 1997-2007



Note: All figures are rounded. Source: Frost & Sullivan

However, more and more suppliers and distributors will find in software applications the most appropriate tactic to be present in multiple net markets. More educated on the e-catalogue strategies, European suppliers can find in e-catalogue aggregators the same benefit as that received form net market makers. That is, product differentiation may not be optimal and the degree of product commoditisation can be high. In addition, the market for e-catalogue resellers will amount to $353.6 million by 2007, with a compound annual growth rate of 69 percent.

7

Database of Key Industry Participants

Cataloga

www.cataloga.com

Cataloom

www.cataloom.com

Content Europe

www.contenteurope.com

e-pro solutions

www.e-pro.de

Empolis

www.empolis.com

i2 Technologies

www.i2.com
www.infinitecontent.com

Peregrine Systems

www.peregrinesystems.com

Poet Software

www.poet.com

Requisite Technology

www.requisite.com

Saqqara Sytems

www.saqqara.com

Mercado Software

www.mercado.com

MRO Software

www.mro.com

TPN Register

www.tpn.com

Vignette

wwww.vignette.com

Wallmedien

www.wallmedien.com

Zygon

www.zygon.com