



Chapter Nine

Case Studies

Case Study for Business-to-Business

McKesson

With 13 billion in revenues, McKesson is the leading wholesaler in the pharmaceutical industry. Maintaining this leadership in an industry where average net profits hover around 2% requires constant innovation. McKesson has achieved this by growing its generic drug inventories, providing value-added services and improving the efficiency of its own operations (Oswald and Boulton, 1995). McKesson's huge inventory of high margin generic drugs positions it favorably in the cost conscious managed care environment. This position can only improve as more drug patents expire.

Key acquisitions and its own internal development have made McKesson a leader in the provision of value added services to many segments of the health care industry. Many of these services involve the application of information technology to rationalize and improve the efficiency of pharmaceutical and managed care procedures. Not surprisingly, McKesson's early forays into the application of web technologies impact this aspect of its strategy.

Finally, McKesson continues to improve the efficiency of its own operation, most significantly with consolidation and



rationalization of its warehousing operations. Its current major initiatives have the goal of reducing its 32 warehouses down to 5 mega-warehouses by the year 2000.

McKesson provides complete information technology solutions to support pharmacy operations, inventory control, benefits management and supply chain management to all segments of its customer base.

McKesson systems and programs rationalize and support every aspect of pharmacy operations that impact the delivery of pharmaceuticals to the end consumer. These operations include:

- Front office (in-store) activities –physically dispensing the product (RxOBOT), promotions (HealthyValu\$), point-of-sale applications (McKesson POS), generics management (McKesson Select Generics), catalogs of products (Home Health catalogs)
- Tracking Patient records – benefits (Omnalink, Caremax), patient's dispensing histories and health plan coverage (Integrated Medical Systems),
- Back office administration – inventory management (Econolink), Store controls (Phamaserv)
- Financial Services – Omnilink financial services provides automated reconciliation and reporting services, advanced payments and offsets on receivables
- Warehouse administration – providing warehouse space to major retailers (32 warehouses nationally), warehouse management tools (Acumax Plus)

The company appears to be positioned to operate profitably in a managed care environment, providing the benefits information, product substitutes (generics), and financial analyses that enable pharmacists to achieve the greatest margins within the limits of their contractual arrangements. These capabilities are achieved primarily through networks that pool information from various players in the health care industry – including manufacturers, hospitals, pharmacies, and managed care providers. The networked nature of these applications makes the web platform a logical infrastructure for them.

The Benefits of Web Technologies

The most obvious benefits that McKesson hopes to gain from the use of web technologies stem from the cheaper infrastructure afforded by these technologies. Currently, there is a push to substitute the Internet for the private networks that the company currently uses in its flagship applications, Econolink and Omnilink. There is also a move to replace the high end PC clients in pharmacies with cheaper, low maintenance network computers running browser software. These clients will be used as the front end for accessing McKesson's current information



technology products. To date, this is being piloted with the Omnilink Financial Services application.

The current push for using web technologies was fueled by their successful application to a high profile, high profit Department of Defense (DoD) project. Within 90 days, McKesson was able to meet the DoD's contract requirements for EDI and exceptions ordering over the Internet. The rapid development of these applications was achieved through the use of browser and scripting technology (Netscape and PERL for exceptions ordering) and off-the-shelf applications (Premenos' Templar for EDI). The rapid deployment of these applications, coupled with the magnitude of the contract that they won as a result, piqued McKesson executives' interest in exploring the potential for using the web infrastructure for providing its services. Key members of the DoD team act as evangelists for the continued deployment of the technologies within McKesson. A sampling of current projects being piloted or planned includes a corporate-wide Intranet (including support for the sales force), Econolink over the web, expansion of the exceptions ordering application to provide access to all customers, and an on-line catalog for Home Health services.

In addition to reduced maintenance costs and rapid development, McKesson managers expect that a web-based client-server platform will enable them to provide customized and current information to both their sales staff and customers. They plan to use this capability to allow their salespeople to download the most current customer profiles in preparation for their sales calls. They also plan to use the capability to provide customized promotional materials both to their sales staff and directly to their customers.

Challenges for the IT department

Achieving the deployment of web technologies presents special challenges to McKesson's IT department. These center around issues of managing expectations and overcoming the legacies and building flexibility into the infrastructure.

- **Managing internal expectations.** The rapid development cycles of the DoD project created an expectation within McKesson that web applications involved short development times. This expectation may be further reinforced by the practice of using rapid application development (RAD) teams to build the front end for current web applications. These teams have the goal of getting projects done in 8 weeks. However, much more time is required to build the back-end to these applications – e.g. logic, database extracts/links – with traditional software development methods. Because RAD is still in the early stages of deployment, it is difficult to assess its effect on user



expectations regarding delivery of a given application. According to Dan Gray, so far, RAD has actually helped users form realistic expectations of a given project's time requirements. During the RAD process, users get a better idea and articulation of the application that they want and in the process appreciate the programming effort required to address those requirements.

- **Managing customer expectations.** As more of McKesson's networks are replaced by the Internet, there will be a need to reassure customers and field staff that service levels and security will not change. This is particularly crucial since one of McKesson's key strengths is the quality of its customer service. In an effort to maintain these levels, McKesson provides 24 by 7 availability and establishes satisfactory levels of security using Netscape's SSL. Dan Gray also spoke of helping users maintain realistic expectations of the systems. He reminds users that although they have to sit and wait for a report to download over the Internet, it is still faster than waiting to get the report through regular mail.
- **Legacies and futures.** Because of its recognized leadership in information technology solutions for the pharmaceutical industry, McKesson has a huge investment in traditional mainframe architecture and developer capabilities. For example, it currently has 300 COBOL programmers on staff – versus less than 10 in the new technology solutions group! While it has been the mainstay of their past success, this infrastructure has also created problems for building a web-based capability. The problems include commonly recognized legacy issues like data integrity and compatibility with web technologies.
- **Human resources.** Investment and reliance on legacy systems also present a difficult human resources dilemma – how to quickly build competence with web development tools among McKesson's programmer group. Programmers well versed in web development tools are currently scarce and highly valued resources in the job market. Additionally, McKesson's salary structure for programmers, based on compensation models for COBOL programmers, is less attractive than that of other companies in the market. Thus, programmers who gain facility with new web technologies at McKesson are likely to leave the company. To circumvent the limits of current salary caps and quickly ramp up to competence with the new technologies, the company has been forced to hire a large number of outside contractors. This latter solution, however, could potentially make maintenance problematic and very expensive – since much of the knowledge required for maintenance is possessed by outside contractors. To address this last issue, McKesson's IT department has started partnering internal



programmer/consultants with outside contractors, building the competence internally as the new systems are being built by the contractors. However, there is still no guarantee that once trained, these internal programmer/consultants will stay with McKesson, particularly when there are so many firms competing for their skills. Clearly, this is not an easy dilemma to resolve and as a start there is currently an executive level effort between HR and IS to work on revising the salary structures for programmers.

Given their role as the hub connecting a wide range of health care constituents, Web technologies clearly have much potential for improving McKesson's ability to enhance the value-added services they provide to their customers. Ironically, the company's past success with networking business partners and customers have created an entrenched infrastructure that presents complications for their exploitation of the web model.



Case Study for Business-to-Consumer Cybergold

Background and Introduction

Cybergold wants to establish a new paradigm for Internet advertising. Once established, Cybergold expects to profit in two ways: to become a primary brokerage of the new advertising service and to sell its enabling pioneering technologies to other potential Internet partners. Cybergold faces vast challenges since they must demonstrate the viability of both their advertising concept and their enabling technology to survive.

History of Internet Advertising

Web advertising, like the web itself, is new. When the web first began, traditional, mainstream companies had no use for advertising in this medium. The birth of advertising on the web began with "link trades" whereby two web sites would provide hyperlinks to the other party's site.

As the web grew, these link trades proliferated to include commercial advertisers. As the web's original population was chiefly avid computer enthusiasts, computer companies were the main commercial presence on the 'net. They (computer companies) could place links anywhere, and be assured of a targeted audience - computer enthusiasts.

The web soon reached a wider audience, interested in more than just computers. Advertisers from more industries entered the web advertising fray, paying real money in exchange for links. Furthermore, advertising became more formal, with highly designed "banner" ads replacing the simple hyperlinked text.

Measures and Advertising Effectiveness

Widespread web advertising spawned the need for effectiveness and pricing measures. How much will it cost to reach an appropriate and interested audience? How can an advertiser be certain the audience has been reached? These issues are far from resolved, and advertisers are finding that traditional advertising model may not apply to the web.



Today's dominant pricing model is measured in "CPM", a standard advertising industry measure for cost per thousand. This figure attempts to describe the cost of exposing an advertisement to 1,000 people through traditional media such as newspapers, TV show, and radio spots. On the web, the CPM paradigm is less well understood and explained; however, as it is an industry standard that advertisers are used to, so CPM on the Internet will not disappear quickly if at all.

At the present, web CPMs range from around \$10 up to \$150 for such "hot" or targeted sites as HotWired. This fee per 1000 consumers is not small - a CPM of \$15 translates to \$15,000 for a four-week placement. That wide price range exacerbates the web CPM confusion because it fails to take into account the quality of how a user relates to a web site and just who the user is. Lower CPMs generally indicate high-volume, untargeted traffic. Sites citing a higher CPM generally have a more loyal following and let advertisers target a more specific audience, such as those reading The Wall Street Journal online.

A less well understood measure of advertising effectiveness is transfer rates. Transfer rates measure the "clicks" on an ad, indicating that viewers are paying attention to that ad. Through the act of clicking on the ad, the viewer goes to the web site to obtain more information about the product or service advertised. The transfer rate may allow the advertiser to more effectively measure return on investment. Yet they are missing the effect of building brand equity though awareness may have on future returns on investment. Other ad effectiveness rates follow:

- **Impressions.** Also called page views, these count how many users call up a page with an ad banner on the ad and allow it to load onto the page.
- **Click-through.** Counts how many people click on an ad banner. Click-through rates range from 1 percent to 10 percent of page views.
- **Keyword searches.** Search engines sell banner ads for particular, popular searches on their site. Whenever anyone searches for "Apartments" on any of the major search engines, for instance, a "RentNet" banner will appear. Standard rates have been \$1,000 a month per word, but many of the more popular engines have begun rotating ads for popular keywords.
- **Sponsorships.** Sponsors generally obtain more prominence or exclusivity in particular areas on a web site. This category includes "entitlements" - getting a sponsor's brand into an area's title.
- **Joint development.** In this model, the advertiser's brand and products are integrated into the content of the site itself, often in a game or narrative, thus blurring distinctions between advertising and editorial.



These models and measurements are among those that have been developed for the web, but no one has been ubiquitously accepted or gained a firm hold. Furthermore, these measurements have shown that banner advertising is much less effective than many had originally surmised. Many "netpreneurs", therefore, are introducing ways for advertisers to more effectively reach their Internet audiences.

The New Concept

One such example is Cybergold, founded by Nat Goldhaber in 1995 and based on the attention theory work of his philosopher cousin. Nat's cousin believes our global society is turning into an "attention society" where the largest payment anyone can give is his or her attention. Cybergold matches this concept of attention as a valuable commodity with the interactively, multimedia, and user tracking capabilities of the World Wide Web.

Nat, well known as a Silicon Valley Technology entrepreneur, brought in other prominent advertising and marketing "gurus" to help direct the company. Regis McKenna, a noted marketing expert, sits on the Board of Directors along with Jay Chiat who is famous for his advertising prowess. Nat also brought in Dr. Peter Sealey, another noted expert in the advertising industry, as an advisor to the company.

Nat's team of prominent advertising and marketing experts complement his own technical and entrepreneurial experience. The team's synergy has increased Cybergold's ability and credibility to market itself as a player in the Internet advertising field. This proves to be a significant asset as advertisers will take Cybergold seriously based on its well-respected supporters. Cybergold is not just another group of unknowns with an unproven concept, it is a group of "very well knowns" with an unproven concept. Whether Cybergold can live up to the brand equity built on its board's reputation and unique idea remains to be seen. However, this strategically-created entity is sure to draw both immense publicity and speculators by the droves.

The basic Cybergold concept is to have advertisers pay potential consumers to give their attention to product information. The concept seems foreign and unworkable based on today's understanding of advertising as unwanted, broadcast noise. Cybergold hopes to propagate this payment for attention advertising concept by changing all the rules of the current advertising "game." Cybergold provides a virtual meeting place for advertisers and consumers with similar interests.

First, Cybergold will match advertisers to "interested" potential consumers. The interested members agree in varying levels to view advertisements that are focused, in some way, at them. This creates advertisements that are no longer be considered



unwanted noise by the consumer. Cybergold members fill out an initial questionnaire to specify their profile and areas of interest.

Every time consumers log onto the Cybergold system, they allow Cybergold to glean more information about themselves. The software tracks information such as time spent within an ad, which ads are chosen and in what order, where the consumer chose to click within ads, what time of day the consumer log in, and whether the consumer answers the ad questions and/or participatory information correctly. Cybergold combines this information with filed questionnaires and other information on the consumer. Cybergold tracks the evolving preferences of this consumer through the life of the relationship of Cybergold. Each consumer interaction gives Cybergold a new opportunity to learn about the consumer. Cybergold's underlying software is proprietary and, they claim, a source of competitive advantage.

Second, Cybergold will harness the interactively and multimedia capabilities of the web to make the advertising entertaining. Similar to the concept of "edutainment" in today's software learning tools, Cybergold hopes to make advertisements compelling "infotainment" so consumers want to be involved. Cybergold will provide members with three minutes of information, games, and a quiz about the content of the site they just viewed. This means that consumers will consider web advertisements to be a fun activity worthy of their effort and attention.

Third, Cybergold will only charge advertisers for consumers that actually view and participate in their web advertisements. A member must complete an activity or quiz within the web advertisement in order to be paid for their attention. With this requirement, advertisers are guaranteed a minimum level of consumer involvement in the product advertisement. This is a new and exciting possibility for advertisers that radically changes the whole concept of advertising.

Finally, Cybergold will pay members for their attention in "Cybergold" which can be paid via cash, airline miles, or charitable donation. They are looking to change this payment scheme in the near-term when a better more global e-cash payment scheme emerges as the Internet standard. Obviously the current lack of flexibility of the payment scheme is a large problem since it will effect the consumers that Cybergold can attract to its site. The payment scheme combined with the targeting of interests and the "infotainment" factor is intended to make the new web advertising medium much more compelling than traditional media.

Cybergold's new advertising concept is broad in scope and radically different from today's Internet advertising paradigm. In order to implement this scheme, Cybergold must overcome current advertising notions and biases as well as potential



technological, cultural, and business roadblocks. If the concept works, Cybergold will open up a whole new concept in advertising with many potential avenues of growth for the company.

Case Study Questions

In order for Cybergold to make this new concept work, they must address some significant issues:

1. Will consumers willingly surrender some level of privacy in order to participate?
2. Will consumers find the combination of monetary rewards and "infotainment" compelling?
3. Will advertisers spend the extra money and effort to develop interactive web-ready advertisements?
4. Will advertisers find Cybergold's targeted database valuable enough to spend money placing ads at Cybergold in addition to or instead of their own web sites?
5. What electronic medium (such as CyberCash) will Cybergold use to pay consumers to avoid the expense of sending out checks?
6. What can Cybergold offer to maintain current members and capture the new users?



Case Study for Intra-Business

Ford Motor Company

Intraorganizational electronic commerce (e.g., intranets) are arguably the hottest electronic commerce applications organizations are implementing today. From disseminating newsletter information within the organization to redesigning organizational processes to make them more efficient and less costly, companies are using and creating intranets as an “on-ramp” onto the information superhighway and the emerging digital economy.

Traditionally, the sharing of information within organizations has been problematic. The coordination of multiple platforms, data formats, interfaces, and protocols, mitigated the sharing and exploitation of knowledge within an organization. This has created islands of information which are redundant and underutilized.

Ford, in spite of its size, history, and bureaucracy, has made the decision to eliminate many of its old computing paradigms in favor of exploiting web-based technologies to create a new work environment which is platform and format independent – with one interface and one protocol.

Realizing the potential of new markets for their cars throughout the world, as well as the increasing demands of consumers in more mature markets, Ford Motor Company launched a globalization program in January 1994. Called Ford 2000, the program aimed to make Ford a truly global company centralizing the development of global product categories while simultaneously customizing them to meet the demands of local markets. Incorporating lessons learned from its past efforts at globalization, the company's central goals for the Ford 2000 program were:

- A company-wide reorganization that established five Vehicle Centers to take responsibility for the developments of a given class of vehicles and an Advanced Vehicle Technology center to design, engineer, and test new technologies.
- Shorten new car development times from 37 months to 24 months or less through vertical and horizontal integration as well as by reducing the variety of parts that go into its vehicles



- Identify the aspects of any car model that can be developed commonly and those that are best customized for a given market.

Information Systems for Product Development

Central to the new organization structure and product development processes is the need to coordinate disparate product development activities. This called for flexible information systems and an application for managing and transmitting design documents across various Ford Centers around the world. Installing such systems quickly meant a move away from the company's traditionally heavy use of in-house developed mainframe systems to more agile packaged client-server software and platforms. This move was met with strong resistance from the company's IS department and led to the reassignment of CIO responsibilities to the company's chief of reengineering in early 1996.

To support the coordination of design activities worldwide, Ford installed Metaphase, a product document management system (PDM) from Structural Dynamics Resource Corporation. The new system features include:

- The PDM organizes the storage and access of design documents generated by the company's existing Computer Assisted Design (CAD) applications, as well as information on specifications and availability of various components of those designs.
- The documents are viewed and marked-up using Netscape browser software running on networked personal computers and workstations worldwide.
- Expert systems provide design guidelines and advisories that help designers stay within the limits of Ford's manufacturing infrastructure and parts inventory.

The PDM/browser system essentially forms a Product Information System for the corporate intranet through which product development teams worldwide can coordinate changes and exchange information pertinent to the cars they may be designing.

Moreover, the system also serves as an extranet, providing product design information to major suppliers developing vehicle sub-systems for the company.

From Ford's perspective, the benefits and opportunities were large in scale:



- Creation of a collaborative and cooperative work environment
- Facilitate virtual workplaces regardless of geographic proximity

Ford's Product Information System has reduced the wear and tear on design team members, eliminating much of the travel that had been required to coordinate design efforts. More significantly, it has allowed Ford to capitalize on the expertise that in the past were concentrated on specific development centers and in different corners of the world. For example, the European Center specializes on Vehicle Ride and Handling attributes while the North American Center has expertise on aerodynamics, thermodynamics and control. With the Product Information System, designers from these centers can apply their expertise to the design of vehicles at any Ford center -- without costly and inconvenient travel. Furthermore, the Product Information System supports fully the goals of Ford 2000 by facilitating the customization of design to local specifications. Local designers can access the documents specifying the design of common components and mark them up according to requirements specific to their markets. In addition, through the use of a "white board," collaboration between these diverse constituencies can even be done during project meetings.

The results from this major rethinking of Ford's product design process are starting to appear. Most dramatically, product development times are inching closer to 24 months instead of 37 months. The new European Ford Fiesta, although only partly benefiting from the Ford 2000 effort, has won praises for its engine performance and ride. With continued experience with and improvements to its Ford 2000 systems, the company aims to launch a new or revamped version of a vehicle every six weeks, on average. Key to achieving this will be further improvements to the company's product information systems. Ultimately, the goal is to form a complete product information environment based on process-based computer aided design. This system will bring information both to manufacturers and designers at the right time, the right place and the right format. By supporting complete integration of manufacturing and design processes globally, the company is on a track to produce high quality, realistic yet customized vehicles in a low-cost, efficient and rapid manner.