A baker's dozen of CD-ROM myths

Abstract: *Database producers should take a hard look at the compact disc market before introducing information products based on optical storage technology. CD-ROM is an engineering innovation in search of an application. Among the barriers to successful textual products are hardware problems, inadequate retrieval software and incidental costs that affect the economic viability of such products. Publishers have failed to exploit the unique properties of CD technology. For textual applications, niche mark-ets may exist, but marketing techniques must be geared to a new market. The special librarian will be a key player in the purchase decision. Budgetary allocations for CD information products will be weighed against the use of online and print media. The potential for cannibalizing existing database products should be a real concern.*

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ARTICLES

Introduction

For good reasons, the information industry has responded to optical storage technology like teenagers swooning before the 3-D image of Michael Jackson's Captain EO.

The online textual information business has lost some of its steam. Timesharing systems began failing in mid-1985. InnerLine, which offered bank-related information online, closed its doors last fall. Rumors about the financial strength of Medis and BRS circulate at trade shows. Burroughs Corporation sold to Pergamon the once-mighty Systems Development Corporation, which has steadily lost market share to Dialog Information Services.

In 1986, more than 100 databases ceased production. New databases have disappointed their creators. The last big textual database winner was 1984's Investext, the full-text file of stockbrokers' and analysts' reports on companies and industries. One database producer revealed off-the-record that none of his firm's new databases has broken the $250,000 royalty barrier.

The US newsletter *IDP Reports* periodically reports the number of 'valid' passwords issued by about two dozen online vendors. The rate of increase slowed in 1986. Dow Jones News/Retrieval now looks at usage not passwords as one yardstick of success. End-users, the magical source of millions in new revenue for textual database publishers, have embraced transactional, financial files while keeping reference databases at arm's length. Essential files are booming; the dowdier half of the information industry learns patience. According to Martha Williams, President of Information Market Indicators, data for 1985 show that the textual database business hovers in the $300 million range with 60% of the monies flowing to two or three firms.

These and dozens of other examples underline what some information specialists have known all along. The easy promises and rosy predictions about the information industry have always had a dusting of faerie powder. On the threshold of 1987, individuals with an undergraduate engineering degree, a Master of Business Administration diploma from Harvard and a desire to strike it rich have a new technological hobby horse to ride. Burning pits for a polycarbonate disc offers a way to put databases on a desk and cash in an entrepreneur's bank account.

CD-ROM means more than text on a disc. The CD-I (compact disc interactive) can combine words, still and a sound track. Scientists are struggling with erasable optical storage to allow a CD to work like today's PC floppy disk. When a CD can replace the floppy, the change will be revolutionary. Progress has been steady and may actually slow down as the companies backing research wrestle with technical standards. The 1986 crop of CD products looks stable. Like a town built upon a glacier, this apparent stability reassures — until the ice falls into the sea.

It is against this background that I wish to offer what may be the first compendium of compact disc and optical technology myths. The question each database publisher must ask is, "Even though I can create a CD product, should I?" Much scientific-technical and marketing-fantastical literature exists to help companies answer this question. What follows is a baker's dozen of the mythology surrounding the use of compact discs for information delivery.

I. CD-ROMs give database producers control over the distribution, pricing and users of their information products.

Control! Nothing soothes the savage soul of the textual database publisher quite like the idea of breaking free of online vendors.

Distribution of a CD product is not a problem. Stamps, cartons, twine and a Federal Express account are within reach. Though, I have always had nightmares about distribution because it requires inventory, space, management controls, truck drivers and other tasks associated with
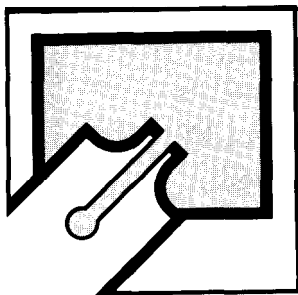
durable goods. The record and encyclopedia industries have distribution channels in place; some textual database publishers do.

Pricing, of course, is easy. Figure out ⌐ how much it costs to make several hundred CDs; add in suitable percentages for marketing and profit; divide by the number of discs you will sell and *voilà,* the price. Simple.

What about hardware, software, product development, packaging and such? Irrelevant.

The CD marketer will have customer names and addresses. The buyer of the CD product may well be a large online user of the information, since CD economics may attract someone who wants to trim high online costs.

In sum, myth I rings tunefully, but the joyous sounds may screen some unpleasantness.

It. The optical technology meets users' needs for large amounts of data accessible through a desktop personal computer.

Does anyone need vast amounts of textual data on a CD? I surmise that only a handful of people require within arm's reach the Thesaurus Linguae Graecae, the Excerpta Medica or the Electronic Encyclopedia. In fact, the word *need* is not the proper one at all.

The CD offers several significant benefits which outweigh the problems presented by the CD-ROM offerings of textual information. For instance, if I worked in Campinas, Brazil, and wished to search Disclosure's database of 10,000 public companies, the CD-ROM product Compact Disclosure would be a way to overcome the telephone, logging on and expensive online analysis of the Disclosure information. Similarly, if I were an understaffed documentalist, a CD-ROM application of Engineering Information's technical files lets an engineer use the CD to locate information without the variable online cost sapping a budget. CDs offer an attractive alternative to a records manager who wants to archive technical documentation about a nuclear power plant's quality control program. Other. specific applications of the CD technology exist. I know one person who uses the various CD-ROM products he has gathered as high-tech coasters for his guests' drinks.

Benjamin Franklin's observation — "Everything one has a right to do is not best to be done" — applies to the majority of the prototype and real CD products on the market at this time.

III. CD-ROMs offer a new, comparatively inexpensive publishing medium whose economics justify applying the technology to information now available in print or online.

Link, the American consultancy, reported in August that Arlen Raedeke, Vice President of Reference Technology, said that the cost to a publisher to create one CD-ROM product is $15,000 to $20,000 plus an additional $15 to $20 for each disc replicated. If anything, this number may be at the higher end of costs; a publisher can participate in a variety of low-cost trials like Group L's for as little as $5,000. CDs are attractive publishing media, particularly for large amounts of relatively stable information.

What this myth omits, however, are the economics of CDs' less visible costs. Among those which come to mind are the cost of retrieving outdated discs, keeping the distribution channel healthy, hardware and software maintenance, the cost of making each updated disc, the shoring up of online vendor relations when big online customers migrate to CDs, marketing and data processing.

When these 'incidental' costs are added to the significant cost of creating and making CD products, the financial barriers to profitable sales rise sharply. CD evangelists pooh-pooh these costs because they produce cognitive dissonance.

IV. CD-ROM technology is a stable, although not fully mature, technology

CD-ROM technology is an engineering innovation in search of an application. In a sense, CD technology is moving at a pace slow enough to permit products to be marketed which will endure in spite of inevitable breakthroughs in Worm technology (write once, read mostly compact discs). Today's CD technologies and manufacturing resources make a number of applications viable.

Brokers and investment bankers can have on a weekly CD, Lotus l-2-3 and financial information about public companies from as many as eight different databases. The CD gives an historical file of financial data going back two decades. Accountants may see the permanence of a CD-ROM record as insurance against twiddling with the figures. Government agencies may be able to distribute CD-ROM copies of forms, technical manuals, codices and regulations.

In some skeptics there remains, however, a

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nagging concern that some CD products may be the equivalent of the eight-track audio tape or videotex.

V. Hardware is important, but it is not a barrier to a CD-ROM product

Data, software and hardware form a Holy Trinity for the CD-ROM product developer. Hardware would seem to be the least troublesome of potential CD product problems, particularly with such established firms as Philips, Sony and Hitachi making the CD players. Hardware is not a roadblock — up to a point.

What myth V obscures is that various components — personal computers, CD players, printers — must work as an integrated unit. Database publishers have three ways to provide hardware on which their CD product operates. a) Let the customer get his/her own equipment. The problem is that CD marketers will have to help the customer make the product work on the equipment the customer cobbles together. b) The CD product comes with a compatible player. Technical support is necessary, but the staff helping the customer has fewer variables with which to contend. c) The database publisher provides all of the necessary equipment to the purchaser, but some technical support is still necessary.

Once the hardware is in place, the failure of a printer linked to the CD creates minor, yet annoying problems. The data provided may take a backseat to working out troublesome hardware problems. In spite of High Sierra, the **ad hoc** CD group named after the hotel in which the participants met, very little is standardized in the methodology of error detection and correction let alone getting the various pieces to work initially and consistently in the customer's office. Anyone who has experienced the joy of getting a PC operational can appreciate the potential for hours of entertainment attendant on patching a CD player, drivers and data into an IBM PC compatible system.

VI. The software is available to allow query and retrieval of the CD-ROM product, and it works

Retrieval software is available. Is it available for a particular database's CD-ROM application? Well, ah . . . pretty much.

BRS, Datext, Disclosure and dozens of other firms offer software which can make data on a CD-ROM accessible. One obvious problem the customer must overcome is that each software package works differently. Menus overcome the difficulties of retrieval with a command-driven system, but if not done well, can drive the user mad with the lock-step approach. More subtle, however, is the implication that software A can make database B accessible.

CD-ROM product developers are reluctant to come face-to-face with the problem of configuring a product that is appropriate for a specific CD application. The CD technology is not congruent with online information retrieval, nor is it quite like a book, microfilm, papyrus or any other information medium. Consequently, readily available, generic software is not likely to fit highly-specific CD-ROM applications. When the 'fit' is not automatic, significant effort and money are required to design a product and make it work. Questions I have asked myself include: "Of the seventy-five CD-ROM products on the market now, what percentage takes full advantage of the technology?" "What percentage uses the CD technology to give a library more shelf space?" "How many stockbrokers want to have twenty years of financial data next to their Rolodex file?"

In a sense, what is on the market now represents obvious and somewhat trivial applications of CD technology from the engineers' and product developers' point of view. No one has come to grips with what the market wants. When that happens, 'off-the-shelf' software is likely to be less and less satisfactory until a half dozen or so CD winners have defined retrieval protocols, response time and some sort of standardization.

VII. The time it takes to get a product to market has dropped from twelve to eighteen months to as little as six to ten months

The pivot upon which this myth turns is the word **time.** The mastering and pressing processes can probably be reduced to an overnight service. One US company has offered a rapid data-into-disc deal, cutting the six months to three.

The time eater is answering important questions about the CD product itself, which should but does not always precede manufacturing CDs. If one were to mount a no-frills product development program, the time to create a CD could easily extend to two or more years. Among the issues to address in product planning and development are:

What does our market want?

How does this market want the product presented?

What is our CD product?

How will we combine data, software and hardware?

How does a small, critical group of users like the product?

What changes do they want?

Which ones are critical to the product's success?

How should the product be presented to the market?

The final questions are among the most difficult to answer: What's our plan if a) the technology of CDs changes, b) the product doesn't sell and c) we cannot sell enough to recover our investment or offset the loss in online revenue?

When these answers are in hand and it is time to press CDs, information disc short runs will fit around the big audio industry pressing jobs. It is difficult to visualize an information CD bestseller which demands 250,000 discs to satisfy the cravings of rockoholics.

VIII. The cost of making a CD product is reasonable and dropping. Updating costs have been greatly exaggerated

In the United States, the costs for creating a one-disc CD product have been in the $15,000 to $20,000 range. Add to this price a charge of $15 to $20 per disc for replication. The total does indeed seem quite reasonable.

If one were to update a CD product three times each year, the mathematics are straightforward: four discs at $15,000 each plus 200 replications four times at $15 for a total is $72,000. Thus, in order to recover the initial investment, the CD purveyor breaks even if he or she sells 200 products at an annual subscription cost of $1,080. A skeptic may ask, "Does this figure represent all of the costs?"

Here's a partial list of the CD costs which are not included in this rough figure.

Market research
Retrieval software
Prototype product design and test
Final product design
Data layout on disc
Mastering
Hardware (configuring, test, delivering, servicing, etc.)
CD Packaging

Documentation
Training
Customer service
Distribution and recovery of discs
Marketing

One could, of course, extend the list. The point is that *cost* like time must be defined.

A quick review of the prices for various CD products reported in **Database** and **Online** this year reveals a low of $199 for the Grolier encyclopedia to more than $50,000 for the complete Datext offering. When the information industry produces its first top forty 'monster data hits', we'll have a yardstick against which to measure our prices. Most audio CDs cost about $16. Perhaps the 10X and 3125X multiplier is the correct formula? Maybe not.

IX. CDs will capture a unique market niche without cannibalizing online *or print* revenues

Let's think about this myth. The purchaser of an information product presumably needs an answer. The value of the information hinges upon the person's ability to pay, the price and the pain the answer helps lessen.

Most CD products look like online products, act like online products and answer questions like online products. The big difference is that CDs aren't online at all which means the customer doesn't have to pay connect time.

Who understands this argument? Not the corporate planner requiring information about different companies and industries. Not the investment banker who wants a public company's five-year financials. The special librarian will understand.

Even if the special librarian is not the primary customer, this professional may be involved in the purchase decision because CDs are information, and information is the domain of the librarian. No matter what the product plan says, the special librarian may be able to approve or kill buying a CD product. The recommendation is likely to be based on such criteria as: a) Does the CD save online dollars equal to or greater than present online expenditures for comparable information? b) Does the product help increase staff efficiency? c) Will the product yield more shelf space? Or d) Does the CD offer some other benefit or combination of benefits particular to that organization?

My instinct is that the special librarian will play a not insignificant role in CD acquisitions and that role will be greatly influenced by the

evaluation of a CD application compared with the product online. My personal view is that CD products must be more than their online counterparts or substantially different in a significant way; otherwise the CD missionaries will be invited to dinner.

X. CDs offer the customer unlimited access to the information on the disc for a single price or an annual subscription fee

Online users are aware of what Bettie Steiger, President of IIAA, calls the 'taxi-meter syndrome'. The meter runs during an online search, and these costs are variable. The CD product eliminates this uncertainty that a long trip or an unscrupulous taxi driver will result in a big bill. The CD's slogan is similar to a no-limit salad bar, "One price — all you can eat". Data and food have little in common.

The CD products available today allow one person to sit at a terminal and search the information stored on the compact disc. IAC offers a configuration of InfoTrac that allows four searching stations. The myth implies unlimited searching with powerful retrieval software. The software may be more sophisticated than that offered by online vendors, but the access is limited to one person per CD installation.

When several individuals want to use the CD, a queue forms. If the line becomes too long and the users unruly, the alternative available is buying another CD. Thus, the CD works when simultaneous access to the data is not required. When simultaneous searching is necessary, online has a short-term advantage. Local area networks and systems which can accommodate multiple users are available, and the CD sale shares a number of similarities with the tape leases of the 1970s.

The CD gurus will resolve the one CD – one user problem, but in the meantime, the CD may introduce customers to electronic information retrieval and send them to the online systems — systems which have multiple files and permit hundreds of simultaneous users. Convenience has a price.

Xl. CD technology allows for the distribution of extremely large databases, using multiple discs if necessary

Imagine having access to all of Biosis, Chemical Abstracts, Promt or Medlars in a high school library, four-year colleges, or in countries with inadequate telecommunications, or on *your* desk.

I'm not sure how patient I would be sorting, loading and searching a large number of CDs for the information I need. It strikes me that a DialIndex would tell me what Dialog databases are appropriate to my search, and I would be better served by doing searches requiring multiple Files online because of the retrieval capabilities and the file updating.

Most online databases are updated monthly, even weekly or daily for some databases. At this time, only Lotus Development Corporation's One Source CD product is updated weekly; for other CD products the updating cycle is monthly, quarterly or annually.

Myth XI implies that putting individual databases on one set of compact discs is a benefit. Complete databases on CDs updated on a regular cycle raises a number of issues for database producers. What is a database worth to a customer? For a large consumer of online information, a single database — for example, Promt — may be very valuable. To a new customer, Promt may be of little value. How should a database publisher handle the 'gray' market created when discs are updated with new information? Since CDs are small, in public library settings the possibility of theft exists. Do CD marketers have a generous replacement policy or a restrictive one?

In theory, multiple discs promise increased convenience to the customer. Frequent updating and multiple discs equal greater product costs to the CD producer. The winners in multiple disc CD products are the companies which master and manufacture CDs. When faced with thirty-five or forty silver platters stacked next to a PC and CD player, they do look alike.

XII. Marketing CD-ROM information products is essentially the same as marketing any other information product

The medium is the message. CD-ROM information products are different because the medium is different. Any similarities which the marketer perceives are superficial, or those which have been engineered into the CD product to make it look like a more familiar information product. for example, microfiche, a Dialog or BRS simulation, a graphic representation of a journal's page, etc. Today's CD products replicate another delivery medium; they do not exploit the unique properties of the CD technology.

Most database publishers recognize that a printed version differs significantly from the on-line version of the information. CD producers have not yet grasped the fundamental differences inherent in the CD medium. From the customer's point of view, the delivery vehicle creates an application of information to a particular need. Thus, capabilities and applications are more important than similarities to a familiar product.

Companies marketing a CD-ROM product have used print, subscription, or online marketing techniques. Marketing an information product in a new medium requires more than the features-advantages-benefits approach used by online vendor, automobile, aluminum siding and insurance salespeople.

The CD product must be explained. The job of providing education, differentiation and features-advantages-benefits is difficult and costly. Selling CDs to a new market incurs significantly greater marketing costs than selling it to a market which is looking for a way to cut online costs. The irony is that CDs may sell best to the people to whom the CD marketer doesn't want to sell.

XIII. The CD is an ideal application for the textual database publisher

There's little doubt in my mind that the CD is a winner. The challenge of CD technology applied to textual databases is that a market has **not** said, "Give me a CD or give me death!"

In the short term, highly specialized information for specific markets can be configured into a CD product and sold with reasonable success. Disclosure's experience with the financial data about 10,000 public companies offers strong evidence that certain applications will work. Governments can put documentation on CDs and ship it to various locations.

Blending words, sounds and images opens exciting new horizons for education of children and adults. Over the longer term, combining text and graphics allows the submarine maintenance person to increase his or her chances of making a necessary repair more efficiently.

A more accurate version of this myth is, "The CD may have an application for certain types of databases in specific market niches."

Seeing through the myths

These myths have a practical application. Keep these thirteen statements in your files.

When a CD marketer or a colleague proposes a CD product, review the list. When one of these myths is offered as fact, award one point to that myth. Tally your score, according to this scale.

14 points. Green light. Move forward. Your partner has his or her feet on the ground.

5-8 points. Yellow light. Proceed with caution. Facts are needed to back up the CD assumptions.

9-13 points. Red light. Stop. The CD technology has blinded you to reality. Reassess.

The CD-ROM proponent who scores lowest on this test is the individual who understands the opportunities and the complexities of the compact disc applications.

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As Vice President of Marketing for Data Courier, Stephen Arnold is responsible for the firm's new product development, and training, communications, customer. service and sales programmes. Data Courier, a subsidiary of the Courier-Journal and Louisville Times Company, specialises in database publishing. Arnold joined the firm in 1981 with experience in business consulting, corporate communications, marketing and higher education. Previously, from 1977-1980, he was Director of Marketing Communications for the Technology Group at Booz, Allen and Hamilton in Washington, D.C. His responsibilities included media relations, sales and marketing support in computer technology, transportation, mechanical engineering, environment, energy and government.