Users, end-users, and end-user searchers of online information: a historical overview

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Abstract

Discusses the changing relationships between information professionals – vendors, database producers, searchers – and end-users, during the last three decades. Most of the time, the industry was quite vague as to who exactly the end-users were, and consequently several different definitions were used to describe the target audience of online information systems. The needs and capabilities of the end-user were measured conveniently through the reactions of libraries´ and information centres´ personnel who were not always the most suitable sources. The concept of the ¨end-user¨ is examined from the beginning of the online industry in the 1970s through the menu driven systems of the 1980s and the role of the compact disk in the late 1980s and early 1990s.

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Introduction

Among all the actors of the traditional information industry from the 1970s to the 1990s, the least clearly defined was the "end-user". There were universally accepted definitions of the database producer, the vendor or host or the information supplier, and the information professional. Although a great deal was said and written about the one entity for whose benefit the whole show was run – the user, end-user, or end-user searcher – it was by no means clear what, or more precisely who, was referred to by the term.

Numerous definitions of the term end-user searcher can be found in the literature, some quite simple like that of Buntrock and Valicenti (1985): "processors of information who use information sources directly", or of Arnold (1984): "persons who actually ask the information questions". Larsen and Villumsen (1986) also add to the definition the criterion of self-search, accepting as end-users "persons consuming information carrying out their professions: research and development, analysts, decision makers". Here, it is clear, the first incongruity arises: is the end-user the one who uses the system and the product – the end-user searcher – or, for our purposes, is the end-user anybody who uses the product – namely, the information? In her article "Views on end-user searching" in *JASIS*, Ojala (1986) considers IBM's and the SNA network's definitions of an end-user. Both relate to use of the system, which in their case is also the product. Starting with their definitions, Ojala (1986, p. 197) is more precise in her own definition and accurately calls an end-user searcher "a person accessing online databases and performing search operations for the purpose of finding information to be used by that same person rather than another".

On the other hand, when we drop "searcher" from the phrase we find in *Webster's* the broadest definition of an end-user: "the ultimate consumer of a finished product" (*Merriam Webster's Collegiate Dictionary*, 2000). In our case, the product in question is information; our era is known as the "information age" and we are often called the "information society". Thus, all members of society are – or at least should

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be – information consumers. By definition, then, every member of society is a potential end-user of information.

The origin of the confusion lies at the very inception of online information retrieval. The first systems were designed for the direct use of the information consumers. Among much other evidence, the most convincing proof of this is Summit and Firschein's (1974, p. 298) remark in *ARIST*: "Perhaps the most ironic consequence of having LEADERMAR [Lehigh Automatic Device for Efficient Retrieval from the Lehigh University] used by those for whom it was not designed (namely information specialists rather than end-users) is that we found it necessary to implement an explicit Boolean capability". Because the user was intended to be the consumer, there was no need to distinguish between users and user-searchers. It took three decades and some huge leaps of computing and telecommunications technology until consumers of information became the searchers and the difference between end-users and end-user searchers ceased to exist. Ironically, this occurred in an era that the professional searchers refer to as "The end of online as we knew it" (Ojala, 1999).

The fact that "end-users" now means end-user searchers both outside and inside the information-professional community is well reflected in a newspaper interview. Suzanne Feldmann is interviewed by Margot Williams (1998), in the *Detroit News*, on Web sources of information. Feldmann uses the term "end-user" during the interview, meaning in her professional jargon "end-user searcher" and Williams helpfully inserts in parentheses the proper meaning of the phrase: "the professionals' term for everybody else".

For Williams the journalist, and for Feldmann the information broker as well, both terms were clearly referred to, and "end-user" was just short for "end-user searcher". Since the Web has become dominant, virtually everybody fulfils the criteria even of the narrowest definition. Within the information-professional community, in the late 1970s and 1980s, even the broadest definition covered only an exclusive audience. When Bourne (1980) defined end-users in *JASIS*, he did not include "everybody", not even under the broader "end-user" term. He lists, as potential information users, faculty, students, and university personnel, but he does not mention anybody outside the research community. In 1980 information was still a product, which only professionals consumed. No one outside of academe, industry involved in R&D projects, or other research-oriented organisations – market- and consumer-oriented research included, however – was recognised as such.

When it is mentioned that at the nascent stage online information retrieval systems were designed for end-users, it should be clear that this limited population was meant as a target audience, not only as users of the system but also as the exclusive users of the contents (information) as well. This conservative approach was maintained for at least a couple of decades. It played an important role in the history of the online industry, and in how it related to the vast population of end-users appearing as searchers at the end of those two decades.

After the first end-user community was abandoned as the target for executing online queries in the contemporary online environment, and the intermediary took over, the industry adapted to the situation. The market consisted of libraries and information centres; the buyers were information professionals. The traditional online vendors saw their potential customers entirely through the eyes and connections of the intermediary, who traditionally served the research community.

In the professional information science literature, even as late as the late 1980s and early 1990s, it was a well-established belief that end-users' information seeking was directly connected to their professional duties. End-users (meaning end-user searchers) were defined as a group of professionals who frequently needed updated information so as to perform their job properly (Van Barkel, 1989).

Even Ojala, in a prescient article in 1986, declared that "end users are likely to be educated people . . . end user searchers are likely to be professional/technical/managerial people or students" (Ojala, 1986, p. 198). Interestingly, she acknowledges that – in 1986 – some end-users are already "home end-users" and are probably seeking a different kind of information than the "office end-users". In 1986 this was more than a novelty; it was almost a revolutionary statement, if we consider one of the key

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sentences in the conclusion of Mischo and Lee's (1987) review in *ARIST*. They state:

> End-user searching activities can be grouped into two categories: 1) training professional users to search in the work environment; and 2) establishing end-user search centers in primarily academic libraries.

This after stating in the introduction that "end users are the information consumers, the patrons of libraries and information centers (Mischo and Lee, 1987 p. 227).

Professionals as end-users

The online information systems clearly did not fulfill the initial hopes, and masses of professionals, researchers, scientists, teachers, physicians, engineers, and so on did not become end-user searchers as expected in the nascent stage. Still, throughout the decades there always existed a considerable group of professionals who retrieved information for their own use from the traditional, mainstream online services. These were the end-user searchers who qualified as such even according to the most conservative definition of the industry and intermediaries.

During the mid-1980s, when terminals and even microcomputers with modems began to be available for professionals in their working environment, numerous surveys were done on end-user behaviour, needs, and the degree of their satisfaction with the search results (Hains, 1982; Ojala, 1985; Teague *et al.*, 1985; Mischo and Lee, 1987).

It seems that most of the inquiries about special groups of professionals focused on chemists, medical doctors, lawyers, and business executives. Here we find articles about end-user education, behaviour, success, and needs, not only in the established resources of the information profession but in the periodicals of the disciplines as well: chemistry, medicine, or law. These are the sectors with the most urgent information needs, and, at least in the case of the latter two, with the ability to pay for the acquired information (or to recover costs from clients).

The hosts, the library, and end-user searchers

The most straightforward of all is the history of chemists as end-user searchers. Chemical Abstracts Service (CAS) began to offer its special Academic Program in 1984 (a 90 percent discount on the online costs for chemistry department researchers, teachers, and students), and in parallel began to train end-user chemists in three different "segments of the market" (Ostrum and Toder, 1985):

(1) large chemical companies, employing an information professional;
(2) small companies without an information professional;
(3) academic departments of chemistry.

Recognising the different needs of the three kinds of patrons of chemical information, CAS decided to offer special low-cost learning files for chemists in addition to the detailed training courses.

Luckily for the CAS, chemists cannot do without the Chemical Abstracts (CA) files, which are unique in their comprehensive coverage of chemical information. The printed equivalent was well known to chemists; they were used for doing onerous searches in the hundreds of heavy volumes and tens of different indices. Most chemistry departments in the universities used to teach chemical literature searches as part of the curricula. As a result chemists are familiar with indexing, not to mention the natural inclination of laboratory-trained professionals to carry out their investigations themselves. If we add to all this that chemistry is a language unto itself, a fact that makes it difficult for chemists to
clearly explain their information needs to non-chemist intermediaries, then it is no surprise that chemists are mostly willing end-user searchers of the CA and other chemical files. The follow-up of the survey by Ostrum and Toder (1985) showed that more than half of the trainees became users. Some of the trained chemists would even do searches for their colleagues – a pattern familiar from the traditional mode of information handling and flow in a research environment, where the information "gatekeepers" were always a recognised factor. Chemists in academe or in industrial companies are an easily reached audience, with clearly defined needs and a strong background, a win-win situation. Haines (1982) of Eastman Kodak, Buntrock (Buntrock and Valicenti, 1985) of Amoco, and Hawkin (1986), among others, describe

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successful programmes of training chemists as end-user searchers, emphasising the fact that they only trained willing candidates who did not need any inducement to learn.

A great number of surveys and studies investigate end-user needs, habits, and behaviour, calculate the pros and cons, and evaluate the chances of the end-user searcher to succeed. It is hard to find even one that takes into account the end-user's great advantage: his thorough familiarity with his profession's jargon, which might, at least partially, make up for his lack of knowledge of the indexing system and thesaurus. This command of the "secrets" of a profession is especially valuable in those occupations that have developed their own languages. Not surprisingly, chemistry, law, and medicine are those where end-users succeed most.

Information providers and the end-user searcher

Although the rapid rate of growth of the online industry in the mid-1980s promised prosperity in the near future (not to mention survival), the business world already recognised the approaching threat. By the mid-1980s it was quite obvious that the online market as it was at that time (i.e. used by libraries and information professionals) was beginning to saturate, and that for further expansion the end-user had to be reached directly. For the database producers and the hosts, finding potential end-users and persuading them to become actual users began to be crucial.

The industry's representatives spoke at international meetings (Ormerod, 1985, p. 381), and they called the end-user community "the sector where the money is made". Everybody recognised the end-user as the hope of the future; the only problem was that the real potential end-user searcher was not so easy to find and contact (in the early 1980s ASLIB would send out a questionnaire to online users, but it clearly did not reach real end-users; the mailing list was built from subscribers to professional journals). Kolleger (1988, p. 34) asserts that online growth has reached saturation because the industry has failed to reach the end-users, "the customers we had initially tried to serve, but the lack of infrastructure available to reach them made libraries a more attractive market".

In the latter half of 1985 (the first issue is July/August 1985), a new periodical appears with the title *Database End-User*. In 1986, after 12 issues, it disappears – another indication of the industry's failure to locate the audience defined in the title.

Business people are not known to easily give up a potentially prosperous market, so there must be an additional reason for not seeking out the end-user outside the library. Integrating end-user searchers into the clientele would have compelled the database producers/hosts to support tens of thousands of customers instead of hundreds (institutions and libraries). It would have meant dealing with – training, helping, charging – tens or hundreds of small-revenue-promising password holders, instead of any one large customer. As long as the industry still prospered, low-volume users were not yet a cost-effective target.

Most of the plentiful surveys and articles on end-user searchers during the 1980s focused on the library, and were part of projects launched by professional librarians/searchers. One of the rare articles about self-made end-user searchers appeared in *Online* in 1986 (Kupferberg, 1986). The author identified six such persons: a psychologist in Brooklyn who enjoyed using BRS and doing a search that usually took five hours in ten minutes; an educator in Queens who used ERIC; an administrative assistant at Cornell University Medical School who used Medline; a chemist in a Connecticut chemical company who used DIALOG regularly; and two labour lawyers who used LEXIS. These six people did their own online information retrieval, not as part of a library program but on their own initiative (although one of the lawyers was the author's husband). They were, in other words, freewheeling, unsupervised searchers, an early sample resembling the modern end-user. In interviews these six professionals said that they performed their own searches routinely, usually from a very limited number of databases, for their job interests, though sometimes some of them actually "play[ed] with information" and searched additional databases. The author finds that the psychologist and the chemist mainly value the time that is saved. The lawyers even add that they locate pieces of information that could not possibly be reached without online search. Not surprisingly, the only person in the small sample who is less than enthusiastic about

end-users searching for themselves (in this case, chemists) is the information specialist of the chemical company.

DIALOG's Knowledge Index and BRS's After Dark

Both DIALOG and BRS – the giant vendors of the 1980s – saw the writing on the wall and tried to cater to the emerging new market. They were aware of the great number of PC and Mac owners mainly in the USA and Canada, but rapidly extending all over the world during the first half of the decade.

DIALOG/Knowledge Index and BRS/After Dark were announced at the National Online Meeting in Atlanta in 1982 as easy-to-use and inexpensive subsets of the parent systems. Both DIALOG and BRS were aware of the fact that the new user community was out there in a different world; accordingly, they launched their advertising campaigns in popular computing magazines. Journals such as *BYTE*, *PC Magazine* and *The Director* published both advertisements and articles on both systems, and even *Business Week* (1983) devoted an article to BRS/After Dark. Although DIALOG and BRS had apparently identified a new market in the audience for these publications, the question arose as to whether they were able to provide the product needed by these journals' patrons.

One of the problems, left unsolved even after both systems developed and offered menus to users, guiding them through database clusters classed by subject categories, was the undeniable fact that information is not so easily obtained from structured databases but is, rather, hidden in them. To be able to dig out relevant and sufficient information, one has to be familiar with rather more than just the name – informative as it may be – of a database. Users, when choosing from the menu a seemingly appropriate database, under the right subject category and with the proper name, still could not find the relevant information. One of the complaints was that a seemingly medical question got answered not in Medline but in the chemical engineering file (Ojala, 1983).

In addition, the traditional online industry was slow to acknowledge the fact that end-users, even the professional ones, require a different end product. There were attempts to add a document-delivery feature to the host systems, such as the "order" command of DIALOG, or later even the acquisition of UnCover, but these with their deposit-based charging mainly eased the procedure of obtaining full-text documents for the intermediary. End-users were not satisfied with references and abstracts; they needed the real product, the full text. If the information seeker had to go after the full text (the primary source of the information), a graph, or a picture, in ways unfamiliar to him/her, investing a great deal of time and often more money in the process, the whole endeavour of self-search would prove unsatisfactory.

Another well-known fact, observed in libraries and demonstrated by a great number of surveys and studies (King and Tenopir, 1988), is that the library patron, even if now called the end-user, enjoys browsing much more than asking questions, and usually profits from it. In the conventional online systems browsing was a prohibitively expensive pastime, and even in the much cheaper end-user-oriented subsets, charging was mainly by connect time, so that lurking in the system was penalised. Compared to the costs of the same databases at regular hours and in the main systems, both Knowledge Index and BRS/AfterDark were truly inexpensive ($6-$15/hour including telecommunication); but since this fee was paid from a private budget (after working hours), searchers still preferred to end a search and leave the system as quickly as possible.

Ease of use

Even more can be said on the issue of "ease of use". Conveniently enough, the surveys evaluating this attribute were done in libraries. The librarian conducting the survey usually judged ease of use as satisfactory – even "very easy to use, at least from a librarian's point of view!" (Janke, 1983). What was the relevance of a trained librarian's point of view in the end-user context? Or did this mean, again, that "end-user" referred to the librarian or knowledge worker (a new expression coined in the mid-1980s)? Even more surprising is another remark (Ojala, 1983) praising the great online help, which was so good that the author herself (a veteran and prominent professional online searcher)

learned how to use the system from it even before she received the manual!

Indeed, a survey conducted in a library (the fact that the end-users were doing the searches is mentioned as a noteworthy situation in the experiment) found that 86.4 percent of all users preferred to run their searches "with a librarian present to assist" (Janke, 1983). This decisive result did not lead the author to conclude that a true end-user-oriented system ought to do better than that.

In the "Offline" column of *Database*, Dolan (1984) gives an evaluation of After Dark and offers help with it to the end-user. The subset of the BRS databases intended for the end-user searcher is thoroughly analysed. The column writer appreciates the end-user searcher's difficulty in choosing the proper source for the information needed. The help she gives there might have been useful for an inexperienced information professional – willing and able to invest time and effort to study it – but would not have been suitable for an end-user-searcher. The elaborate tables are too complicated and confusing; a casual searcher could not be expected to read, understand, and apply them before building a search strategy and executing it.

The intermediary and the end-user searcher

It is hard not to sense a covert satisfaction among the librarians conducting the surveys at the purportedly proven fact that the intermediary is needed. These surveys, they believe, demonstrate that even when end-users perform the searches in systems specially designed for them, they prefer to ask the librarian to "hold their hand". The terminology used in several of the articles, such as "online search self-service", may indicate what contemporary librarians and information professionals regarded as end-user systems. Are not self-service shopping centres still shopping centres; is not the shopping still done in its proper place and with thorough guidance by the shop assistants?

In compliance with the prevailing atmosphere, an emerging new group of end-users from outside of the research community – the PC and Mac users – were not immediately recognised by the traditional information providers as the most promising group of end-users. Hosts and database producers recognised the need to enlarge their user community. They saw the opportunity to do so in the wide availability of the microcomputer in the mid-1980s, but looked for a new population of users, conveniently, within the professional groups, since they had connections with these communities through the libraries and the intermediaries. Both BRS/After Dark and DIALOG Knowledge Index at the beginning of the decade, and DIALOG Business Connection and DIALOG Medical Connection, the two menu-driven systems released toward the end of the decade (1986-1989), just before the advent of the Web, are clear indications of this attitude. The hosts and database producers turned to the user communities, the professionals, reported in the literature as the most eager to become end-user searchers (Arnold, 1982; Dolan, 1984), even though by now they already had some full-text databases, with magazine and newspaper contents, that would interest a new class of end-user searchers.

This class of end-user searchers came from a completely different world. They were computer literate and interested first of all in the computer – the machine itself, its new capabilities and particularly the new opportunities of telecommunication. They were not information-hungry researchers who regarded the computer mainly as an instrument, an auxiliary to other goals. They loved the computer itself, fascinated by the capacities of the new "toy" and eager to extend its limits. As a completely new, just-emerging community, they wanted to contact others with the same interests.

In addition to computing professionals, mainly young, who loved their job enough to do it for fun almost the same as for work, there was a great public of amateurs. These were the spiritual ancestors of the Web generation of the 1990s: the young people roaming the Net who in the 1990s were referred to – by hopeful but somewhat impatient information providers of a new kind – as the audience "with more time than money".

For both of those populations, information seeking was just a sideline. Even if they were seeking some sort of information, it was entirely different both in content and in form from the information the professional

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end-users consumed. No bibliography or abstracts would suffice here; even the kind of full text that was introduced to the information market in the early to mid-1980s could only partly satisfy them. These users were outsiders to the already established community of online information consumers. The traditional industry did not turn to them, and they did not wait to be recognised.

In hindsight it is easy to see that this was a lost opportunity for the traditional information providers. The new generation of information users could have provided an enormous laboratory for experimenting with new ways and means of information use and flow. The traditional online information industry, in contrast, was not flexible enough to experiment at this stage; it was already a well-established, adult industry looking for immediate profits. The computing industry, however – a much more versatile one, remaining youthful and energetic much longer – quickly and aptly appreciated the opportunity. The two great networks, The Source and CompuServe, were the first to acknowledge the existence of the new audience and to offer their services to them with a quite different approach to information distribution (France's Minitel reached out to them as well, in a different way though). The Source and CompuServe differed in several respects from the traditional information providers. They referred to themselves differently as well, preferring to be called networks, while still offering a variety of databases. Both of them chose the kinds of database that would attract users outside of working hours. The Source offered Carrier Network, Dial-A-Date, Airline Itineraries, and Cineman Movie Reviews; CompuServe offered Electronic Gourmet, Fifth Avenue Shopper, Hollywood Hotline, and Music Information Service. In both cases these were only additions to their main and most attractive product – a network of personal communication.

Neither of these networks gets an appropriate reception in the professional online literature. They are well covered, however, in the computing community's journals. The first volume of *PC Magazine* devotes at least three different articles to these networks, balancing the articles very carefully so as not to look partial to either of them (Derfler, 1983; Magid, 1983).

The menu-driven systems of the late 1980s

Toward the end of the decade, while end-users in the chemical information field were quite successfully dealt with by CAS and the end-user seeking legal information could manage quite well with Lexis and/or Westlaw – both user-friendly and mostly full-text systems – new menu-driven systems were offered to the business and medical communities. For the former, MAID's Profound and Dow Jones's QUICKSEARCH – menu-driven systems for business and company information – were joined by DIALOG's Business Connection and later by Data Star's D_S Focus (compared to the others, it was only DIALOG and Data Star that had enough business-oriented databases to make it worthwhile for the user). For the latter community, DIALOG added DIALOG Medical Connections (DMS), BRS offered BRS/Colleague, NLM offered Grateful Med. All of these menu-driven systems were released during 1988-1990. All applied, in principle, quite similar solutions. The law professional was not similarly provided for, not only because both LEXIS and WESTLAW were already user-friendly systems with mostly full-text records, but also because none of the other hosts had enough legal databases to be worthwhile for the profession. This excludes the category of patent databases; but even if Derwent, Claims, or INPADOC can be regarded as important legal information sources, patent information retrieval is much too complicated to fit into a simple, easy, contemporary interface.

Clearly, both DIALOG and BRS have learned a good deal since Knowledge Index and After Dark. By the end of the decade the medical interfaces were much more user-friendly, the menus clear-cut. The problem of database choice was almost solved, and both in BRS/colleague and DMC there was a way to shortcut the menu (or to stack menu commands so as to avoid repetitions of a dull menu for a more frequent user). All point to the fact that both hosts understood user behaviour and tried to eliminate confusion and annoyance. There was online help in search formulation (DIALOG offered a supplement of excellent documentation; BRS did not bother); moreover, MedBase and Grateful Med directed the user to the Medical

Subject Headings (MESH), analysed subject headings, and suggested corrections to the user.

These menu-driven systems, mushrooming in the late 1980s and very beginning of the 1990s, would very soon look old-fashioned and outdated. None of them proved able to compete with the new hype of the 1990s, when the most popular buzzword became "Web-based", with hypertext and world-wide connectivity, surpassing all earlier systems.

The longest-surviving menu-driven online system, among those originating in the 1980s, is EasyNet. EasyNet was not designed exclusively for end-user searchers. It was intended to conquer some of the not-too-experienced professional users (e.g. reference librarians (Still, 1991), or those who were not able or willing to manage a complicated accounting procedure with several different online hosts. In parallel, Telebase (EasyNet's owner) enabled end-users connected to an institution that subscribed to EasyNet, to set up a satellite account with a credit card and use the service from anywhere (EasyNet is still alive at http://www.easynet.com, accessed in January 2001). In addition to its longevity, it has another virtue: the professionals and the other kinds of end-users have come closest to each other via EasyNet. As a menu-driven gateway with a unique charging system and a human help service (there was a 24-hour/day human answer whenever a user entered SOS), it had a certain appeal to the end-user. As a system born in the mid-1980s, its creators already had a reasonable understanding of the potential users and their interests. The result was that all kinds of information consumers used EasyNet. Interestingly, EasyNet's first big commercial break came when its owner, Telebase, established a connection with CompuServ (Schoenbrun, 1993), the latter acting as one of EasyNet's distributors. Through CompuServ, the new users coming from the computing community encountered the databases and hosts designed for and catering to the professionals. Even if a very slight percentage of CompuServ password-holders occasionally turned to EasyNet, for a traditional gateway this meant a substantial growth in the number of users and in income. By the 1990s, the great masses of end-users were CompuServe members, not the "professionals" as traditionally defined.

Although CD-ROM-based databases were not proper online systems, the compact disc's role in the end-user context cannot be overlooked. For the end-user, networked compact discs felt and acted just like online systems, with the one great difference (in addition to the no-charge situation) that they were accessible only in the working environment. In the more fortunate cases – campus- or organisation-wide local networks – they could be reached from the users' desktops, without the guiding hand of the information professional. This introduced digital information to a large new audience, it was available outside the library walls, and it brought home the concept of a digital and nearly ubiquitous library.

By the beginning of the last decade of the millennium there was already a wealth of digital information sources, as well as the technology to store, retrieve, and transmit it, and a large community of potential users ready to exploit it all. They needed only a universal network and a unified, easy-to-use interface to go ahead and create a new information community, embracing everyone who was interested in taking part.

Conclusion

The online industry, which was born in the late 1960s and by the 1970s was widespread, mainly in the Western world, prepared the climate for the Web generation. The traditional online community of three decades did a great deal to introduce networked, online digital information to library patrons. It played an important role in preparing a population to accept and use electronic information. Although this constituted a great contribution toward a universal information society, it remained, at best, within the established circles of traditional library patrons.

At the inception of the online revolution, needs were the dictating force. The industry was born out of an acute problem of the research and library community. As the computing and telecommunications technology (IT) matured, the roles changed. Now a vigorous, attractive, and fashionable technology promoted its product to an eager consumer society. Ultimately, it was the computing industry, mainly the rapid development of interconnected networks, and finally the Net and the Web that turned digital information into a commodity used by

just about everybody and turned just about everybody into end-user searchers.

As to the question if professional searches came to an end with the end-user era, the answer is a definite no. The fact that we all can drive a car does not mean that we do not often enjoy the services of a professional driver. We do so when we have to reach an unknown address, or there is a rough road or very long way before us, or we simply prefer to go over our papers before an important meeting while a professional driver competently takes us there. It is just the same with online searches. When very precise or comprehensive searches are needed (such as a patent search for example), when the requested information is not easy to find, when the information source is expensive or passwords are needed to search it, the skills of a professional searcher are still appreciated and needed. Accordingly the traditional online vendors such as DIALOG or STN still offer their databases with the "classic" command languages for information professionals.

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