The outside in: questioning the use of electronic information services in organizations
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Chapter 6

Integrated services and fragmented markets
The study on electronic publishers

In the previous chapters we have argued that electronic information services can facilitate the environmental scanning processes in organizations. We have seen technological developments that look very promising for the usefulness of electronic information services. In the meta-analysis we have seen that especially individual and media characteristics are researched as determinants of the use of electronic information services. In some instances conflicting results were found, particularly concerning the relative importance of quality versus accessibility, and the pros and cons of intermediary use by business librarians, other information professionals or personal assistants. We have also shown that electronic publishers can stimulate the usage of electronic information services throughout the various stages of the information value chain.

In this chapter, we will take a closer look at the actual information value chains, based on 27 interviews with managers of Dutch (commercial and governmental) publishers. Interviews were held to get a rich picture of the perceptions providers have of their clients:

- Who are, according to providers the (potential) users of electronic information services and why?
- What potential values and barriers are important (according to publishers) to stimulate or hamper the use of electronic information services?
- How are these ideas incorporated in the strategic and operational choices publishers make in organizing the information value chain?

To complement this picture we have also studied the marketing communication messages of publishers (brochures and websites), since in these messages providers try to address their potential customers on those issues that will convince them to use their information services. The interviews were held in 1994 and 1995. We studied brochures of the publishers in 1994, 1998 and 2003 to look for changes in product and service portfolio. Press clippings throughout this period were used to keep up-to-date on company profiles and product developments.
Our initial goal of the interviews was to add the insights of the actual practitioners in the field of electronic publishing to our theoretical framework and case study design and the interviews have been used accordingly. In this chapter, however, we want to focus on the difficulties publishers experience in adjusting traditional information value chains to the opportunities that ICT's provide. The interviews show that electronic publishers were struggling to stimulate the use of electronic information services and specifically to reach the end users. In fact, the present information value chain is raising barriers to the use of these services. These barriers are surprisingly structural in nature, because their struggle is not caused by a lack of understanding the technologies but related to fragmented market structures, strategic perspectives and customer relationships.

Despite increases in the online revenues of the major publishers, they are still known as rather conservative in implementing new technologies and finding strong customer bases for their ICT-based products and services. In a recent study Wildvank (2003) concludes that publishers have proven to be very conservative in their innovation strategies:

- Publishers have mainly focused on applying ICT's in distribution (especially the internet), but not in other parts of the information value chain;
- Publishers only invest in proven technologies, the rest is left for niche players;
- Mobile technology is only used by some of the newspaper companies. Academic and professional publishers mainly focus on PDF-files and the internet;
- Most of the publishers use ICT to reduce costs not to create new products;
- Publishers are slow in creating sound revenue models for their ICT-based activities
- The majority of the publishers perceive themselves as trend-followers instead of trendsetters.

These conclusions are confirmed by a recent market study on online publishing (Discript, 2003). 59% of 211 participating publishers are not yet online active and 90% of them will wait at least two years before they will provide online services. However, professional and academic publishers are among the most active ones: 55% of the professional publishers and 59% of publishers with subscription-based services are online. But, although many provide online services, most of the websites do not have a clear revenue model: 93% of the online publishers provide free sites and only a few have a site where users have to pay for their information (14% charge a fixed fee, 9% charge variable fees). Many provide a site in combination with folio products: 35% provide a free site in combination with a folio subscription and almost half of all the most recent sites are directly linked to folio content or brand.
The interviews provide some insights that can explain this relative inertia. We conclude that many providers were and still are in the middle of a difficult transition from a traditional publisher towards an electronic publisher, which has a major impact on the information chains of these publishers and the business models they are able to use. We will discuss the information chains, the attempt to attract end users, the difficulties providers face with intermediate users, the ways they influence technical and financial accessibility and how they try to support organizations in their usage of electronic information services.

6.1. The participants of the information industry

Abell (1980) holds that one can define an industry by who is being satisfied, what is being satisfied and how this is being satisfied. An industry is thus defined by:

1) Customer groups (who)
2) Customer functions or needs (what)
3) Technology (how)

These dimensions can also be used to limit the scope of our research project. For electronic publishing companies to be included in this research project, they needed to apply to the following criteria:

1) Customer groups: the services must be directly targeted to the Dutch business market

2) Customer functions or needs: the content of these services concerns at least one of the environmental segments as outlined by Daft (1992, see page 12) and thus try to satisfy a need for environmental scanning

3) Technology: publishers provide electronic information services, as defined in chapter three. No restrictions in scope are made on the type of technology (such as online or offline, internet or cd-roms, etc.).
The organizations were selected from a comprehensive list of providers (from several branch organizations), taking into account some variation in size of the organizations, types of products and services (online/offline, real-time/retrospective), and types of business content (e.g. legal, financial, company, governmental, management, technical, general news). We have also interviewed representatives from government organizations or from electronic publishers with government-based information (see: Bouwman et al., 1996).

The participating organizations were ABC voor Handel & Industrie (company information), ANP (press agency), Bureau Van Dijk (developer and distributor of cd-rom's with company information), Department of Economic Affairs (business information) Dun & Bradstreet (credit ratings and other company information), Excerpta Informatica (IT literature), Het Financieele Dagblad (general business news), De Informatiebank (marketing data and newspaper articles), NV Databank (Chambers of Commerce), Lexis/Nexis, Delwel (Reach: company information), Reuters (financial information, business news), SDU (government and judicial information), VNU Business Publications (management information), and Kluwer (judicial and business information).

The participating organizations were and are a fairly representative reflection of the Dutch electronic information market catering professional users. Based on several reports (such as the European Commission, 1997; Information Market Observatory, 1994; European Commission, 1996; Ministerie van Economische Zaken, 1998), we conclude that the most important characteristics of the Dutch market are:

1) A few large international electronic publishers like Reed Elsevier (with science, legal and business information), Wolters Kluwer (legal & governmental information) and VNU (marketing information) dominate the Dutch market.

2) Dutch professionals mainly get their hard facts business information from foreign companies like Reuters, Dun & Bradstreet, and Bureau Van Dijk. Dutch providers mainly publish trade magazines.

3) Offline information products (like cd-rom) are more popular in the Netherlands then elsewhere (e.g. Wolters Kluwer and Reach).

4) The Dutch government is active as a provider of electronic information but is not always at the forefront of new developments (e.g. www.overheid.nl).

Among our interviewees, only one organization offers truly financial data (Reuters), over 30% offer company profiles and credit ratings, and the largest group (50%) consists of business/economic information. Four out of fourteen offer legal information. Unfortunately Science Direct (from Elsevier Science) did not participate in our research project, which means providers of STM (Science, 

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1 Delwel is now part of Elsevier Business (as is its cd-rom REACH). De Informatiebank no longer exists: its Dutch Press Database is presently owned by Elsevier's Lexis Nexis (under the name of FactLAN) and its Marketing Database was sold to Nieuwselect BV – a small independent company.
Technology and Medical information) are not well represented. At the time of the interviews, most publishers either provided an offline or an online product. By now, all the participating organizations are online, half publish cd-rom's and 35% offer their services through Intranets and/or Lotus Notes interfaces. Six provide alert services, four provide profile-based alerting and some a combination of both.

6.2. Traditional perspectives in a fragmented market

As we have seen in the meta-analysis (chapter four) which we have conducted about the accessibility of government information, the structure of the publisher's market and the strategic perspectives of publishers can influence the accessibility of the electronic information services and thus indirectly the use of these services. Considering the remarks our respondents made, the Dutch supply-side market is not very-well developed to increase accessibility: many are traditionally or internally oriented, and although several providers work together with external parties, the market is very fragmented from a user's point of view.

From the companies we have interviewed five were originally internal departments within larger organizations (such as an IT-department or an internal library and/or documentation department), serving mostly internal customers. Often, offering external access to their electronic information services is seen as an attractive by-product in which external customers pay for internal costs:

The existence of the database is largely justified by the fact that it is an important tool for our own editorial department and library.... We do not have the structure that the database is a separate profit center.... although we certainly do not loose money with it.

We do not provide information, because we think that people are going to use it. We do it for ourselves, as an archive in which we can search afterwards.

Besides these internal perspectives many were originally paper tigers, traditional publishers whose main revenues are generated with paper books, magazines and/or newspapers. The main strength of these traditional publishers is that they have existing distribution channels and an existing customer base. They also often have long-lasting relationships with information suppliers, such as journalists and authors, whose information they have stored, bundled and categorized. Traditional publishers have also an edge over other content providers because of their experiences "in creating a sense of a shared community of interest, in segmenting audiences, in tailoring content to meet and drive demand, and in building brands" (European Commission, 1996).

We are convinced that online information services will only be successful the upcoming years, that is; generate a lot of traffic, if they are supported in print media. That is a bit of homespun psychology. You cannot see an online service. You can see a magazine lying

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2 Besides 5 originally internal departments and 6 traditional publishers, there were two press agencies who are used to distribute information electronically, and three application-oriented information providers who are rooted in management consultancy and/or credit management.
on a table. And you read a magazine because you like the general atmosphere, the styling, the way you are addressed. You need to transform that feeling to an online service.

Furthermore traditional publishers have also the advantage over other electronic information service providers because of cross-selling opportunities; through traditional media one can attract attention for the electronic media. As one representative of Marketing Data stated:

"Marketing Data is rather unique because it is successful without a paper product behind it. Business results are acceptable, although you won't exactly win a fortune with it."

Even a commercial success like Science Direct from Elsevier generates only 10% of its revenues from online subscriptions. 60% has a combination of folio and online subscriptions (Emerese, 27 September 2002).

The major disadvantage of the traditional perspective of many electronic publishers is their hesitance to aggressively promote the electronic equivalence of their paper information products. Many are afraid of cannibalization and still find it difficult to generate revenues with their online versions. For example, many Dutch newspapers are online but are struggling to make money with it and some are pulling back a little bit. An interviewee is not surprised, not even in 1994:

In the Netherlands, it is very hard to convince publishers to go online. Especially newspapers were very hesitant in the beginning; we'll be sitting next to our competitors and doesn't it hurt our newspaper subscriptions? But, if you look at the Financial Times and FT Profile, then you'll see that all major English newspapers are joined together and nobody makes a problem about it. FT Profile publishes the Financial Times online before the publication on paper.

A representative of SDU sums up the various reasons why traditional publishers are hesitant to go online:

- Publishers do not know how (to structure and index information, develop interfaces, create multimedia)
- Publishers are not ready yet (there is no digital material, they are mainly product-oriented instead of service-oriented, copyright infringements, interactivity)
- Publishers are not used to invest heavily
- The market is not ready yet (penetration of technical infrastructure, de-facto technical standards)
- Uncertainty about which media are best suited (offline, online, internet, etc.)
- Lack of clarity about the new media economics

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3 RCC IVEV was the owner of Marketing Data and the Dutch Press Database (Nederlandse Pers Databank) at the time of the interview (1994). The Press Database has later been sold to a large newspaper corporation (PCM), who owns 4 of the 5 largest national newspapers. Marketing Data was sold to Nieuwsselect BV - a small independent company.
Also, as a consequence of the paper dominance in electronic publishing, electronic information services do not offer new information:

*What we do in fact see, what happens a lot is that the electronic information is basically the same information as it was already available: old wine in new bottles.*

Or, as another publisher puts it when commenting on other publishers:

*Too many publishers are only dealing with transforming paper publications into electronic ones.*

In chapter three we saw that one of the differences between traditional and electronic publishing is the flexibility in which the information value chain can be organized (see figures 3.2 through 3.4). Traditionally, the functions of publisher, printer and distributor were clearly distinctive and often controlled and closed by the publisher. Most electronic publishers we have spoken chose vertical integration: at least eight out of fourteen providers perform the entire information chain themselves. Seven have chosen a limited form of vertical disintegration by incorporating other information sources into their own information service, especially company data (chambers of commerce), news (ANP) or government information (judicial info, statistics). A typical form of coalition formation was the cooperation between the Chambers of Commerce, Bureau van Dijk and Delwel in producing Reach - A cd-rom in which company data from the Chambers is combined with standardized financial information from Delwel and which uses the software from Bureau Van Dijk. Reach was sold by both Delwel as well as Bureau Van Dijk and the Chambers of Commerce. Presently, however, Reach is a fine example of market concentration, because Delwel is taken over by Elsevier Business.

Remarkably there is hardly any hosting service available (vertical disintegration with intermediation). International cases as Lexis/Nexis, FT Profile or Dialog/MAID or internet equivalents as America Online are not followed in the Netherlands. In fact, some were strongly opposed to integrating their services in host services:

*From the start, we have decided to offer this service independently.... So everyone who wants to have [x] full-text has to come to us. We decided this, because we believe electronic publishing to be a very important activity.... We want to be the only one in that territory to provide this kind of information..... We wanted to keep the development of the service in-house, in order to maintain in close contact with the user group and to avoid unnecessary intermediate links that could prune away profits.*

The reasons are clear: this provider wants to be the only one, wants to strategically learn from this activity, wants to stay in close contact with the user group and does not want to give profits to
The consequence of this strategy, however, is that the user experiences a rather opaque and fragmented market supply of services, with numerous autonomous information services to which the user can subscribe:

It is fragmented, and the supply of services is absolutely chaotic. There is hardly any standard. With Lexis/Nexis there is one layout, in the Netherlands every database has its own interface.

Hosting services are needed, according to another provider:

- Some traditional publishers consider becoming electronic publisher. We believe they will have a hard time. Some just put all articles of one newspaper on a cd-rom and you can see they haven't thought about it. Either you focus on current awareness and news value but then you shouldn't use a cd-rom or you focus on archival value, but then our conviction is: one newspaper is not a newspaper. One digital newspaper is not an electronic information service, because people search for information and want to search through various newspapers.

- [With government information]... you need to make some editorial adjustments. You cannot say to the market; you can search through information from various departments. No, you need to say: we have great information about human resource management and we have taken that from various departments and put them together for you.

The opportunities electronic publishing offer in re-organizing the information value chain have not led to independent distribution channels or service organizations who integrate publishing products and services from various sources. Also, there is hardly any convergence with other (information-producing) sectors such as IT, consultancy or even other publishers.

The fragmented view of the market by electronic publishers is also reflected in their narrow definition of competition. All parties consider only companies as their direct competitors who offer exact substitutes in terms of functionality, content, target groups and technology. A provider of online company directories only mentions other online company directory providers in the Netherlands; a press agency mentions other newspapers, a provider of legal information the other provider of such information. At least four or five say they hardly have any competition because they hold a unique position in the market:

[Other providers of business information are not real competitors]... because they offer a different kind of information; with us, you start with the literature, the overview. With other

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4 The publisher we quote has made a major strategic shift since 1994 and now offers its information through various international hosting services.
the entry point is the company. This means that you get a lot of soft, qualitative information from us.

These providers disregard the fact that users often have to choose between various sources of business information and they will consider different services with different functionalities, technologies and types of information as alternatives. Moreover it isn't beneficial for providers themselves: they miss out on many cooperation opportunities and learning effects:

The most important conclusion is that the market is differentiated, that one cannot speak of one market for electronic information services. It is differentiated both in supply as in demand. I do believe for that matter that publishers are not concerned enough about the market as a whole, how the market is structured and I believe that that partly explains why they do not really know who their competitors are or who their potential partners are for cooperation.

6.3. The attempt to attract end users in large organizations

Providers of electronic information services do not only find it difficult to get an overview of the present information industry and the opportunities to change the information value chain, they also have a hard time finding the right individual users within the right organizations for the right reasons. Most providers focus on large organizations within professional services, such as financial institutions, consultancy, accountancy, etc. Within those organizations they mainly serve business libraries and information professionals, although they'd rather reach the end user directly.

Some electronic publishers are remarkably vague about their target groups:

That's quite simple. Because, in fact, we focus on the entire business community. And then, it's true, especially that part that has some financial resources and need information regularly.... Who they are? That's hard to say.

In fact, three providers had similar comments. About nine said they are more task specific than branch specific. That is, they focus on departments throughout the entire business community that deal with credit management (1), marketing & sales (5), procurement (2) and documentation (2). After some insisting, providers came up with some general characteristics of organizations that are more likely to use electronic information services. Almost everybody referred to the size of an organization and contested that big is beautiful. Big is beautiful because large organizations have enough financial resources and diverse information needs:

- They need to have some cash, because otherwise they won't spend money on information.... Secondly, the need to have rather diverse information needs, which
are also very dynamic. So they need to update the information regularly. And naturally, it has to be related to the primary business activities.

Big is also beautiful, because large organizations are more willing to invest in technical infrastructures and information flows:

- We do serve some small companies but generally this system is too difficult for them; an expert system gives too much lumber.
- I do believe that only very few companies in the Netherlands do use these kinds of services in an extraordinary structured fashion. If you are going to do that in an organization, it will have many major implications for the information flows within an organization and for your technical infrastructure.

Although many of the electronic providers we have interviewed, said they preferred end users to librarians, almost everybody asserted that most users were information professionals, such as librarians or other intermediary users such as juniors or assistants. Only two companies said they had predominantly end users among their clientele.

Historically, intermediaries are the most dominant user group of electronic information service, because they administer the subscriptions, have the technical know-how and have the searching skills. One respondent also believes that librarians were the original users because they were cheaper than end users.

An interesting in-between solution between intermediaries and end users is suggested by some providers, who assert that the end user is often not the strategic manager (who might be the final user of the information), but "the assistant of the manager". The end user would be the one who directly uses the information as input for his or her tasks to make a decision; an intermediate user only passes the information on to someone else, which uses it for decision-making. Also, interesting intermediaries are organizations who provide professional services to small- and medium-sized enterprises (SME's):

*If they need information about, for example, macro-economic developments, they often visit their advisor or accountant, who gets the information from us. Much of the transfer of information happens here.*

This makes the users in the professional services industry not only end-users but also intermediate users for their clients.

Some providers favor intermediary, professional users over end users because they are able to search more efficiently and can critically assess the relevance of search results: "In the end, everybody can use these services, but it will take some half an hour, and others only ten minutes". Also, this respondent asserts, "Journalists often want to see the entire article while [librarians] often
only need the headlines. That's simply a matter of experience.". Or, as another provider puts it who not only offers direct access but also the support of professional searchers, reference search is a specific job. But many are not aware of this,

... which means that regularly we see consultants entering our library, who are searching our databases for the whole afternoon. We try to convince them it is much more efficient to call us and let us do the searching, because it will only take us an hour and we will probably come up with a qualitatively better result.

Although these providers argue that intermediaries establish higher productivity in their search strategies and economies of scale, they are clearly an exception to the rule. Most publishers see librarians as the biggest obstacle of widespread use of their services within organizations, because of the large gap between librarians and the ones who actually need the information. There are several reasons for this large gap, according to providers:

1) Librarians have other technological wishes than end users

- We now get stories of information professionals who tell us they want command-based search queries. The end user wants the opposite.

- We always have to deal with two kinds of users - the end user and the librarian - and they both want two completely different ways of searching

2) Librarians have not enough knowledge of the business

The library department within an organization constitutes a major obstacle for the use of the new technology. Take a bank for instance, we see our products being bought by librarians or what have you. But you also see that these people have little understanding of financial analysis. We then often see that our products are then transferred - either through a technical network or a change of subscription - to the specific departments who do the financial analyses... The more specific the information needs, the more we need to get close to the end user

3) Librarians do not sufficiently educate end users

- Traditionally someone had to administer the collection... and I have met a lot of people whom I accuse of believing that the collection existed solely in honor of themselves

- I do believe that several trends will cause traditional information professionals to be by-passed. Information professionals, who have the right prospects, will need to do things differently.... They need to educate users about the available
information services and they need to disseminate the information to the end users in a more active manner

4) Intermediation simply results in a waste of time and of reach

- The information function remains still with the internal intermediary, regrettably - but don't quote me on this one. One would naturally prefer the end user... I have the suspicion that end users can define their information needs much better than all these intermediate links. The more links there are between the actual use of the service and the end user, it gets worse and worse, because you will always get mistranslations. It will also have a negative impact on the topicality. And last but not least, you are not able to give feedback; it rarely happens that a search immediately yields the results an end user expected.

- A central point in the organization often hampers the widespread use of information. If ten persons in an organization have the information needs, then five of them will not take the time or make the effort to visit the library, three of them do not even know the library and maybe the other two occasionally will go there.

5) Libraries are seen as a cost center and not a profit center

- End users immediately see the advantages of an information product; a librarian only sees costs and they are not allowed to spend money

- It is simply a fact of life that during ongoing reorganizations libraries are subject to great pressure

- In contact with clients, we try to avoid the librarian as much as possible, because you cannot argue against budgets. That's a pointless discussion. You need to talk about something else, about the value of it. Therefore, you need to go to the decision makers.

6) Libraries have low status and a bad image.

Information is considered boring, because information belongs to the one in the basement, the librarian, who needs to be kept on a tight rein because every year he starts to pester about his budget

Intermediaries are clearly not the favorite users of the electronic publishers, but it is not easy to get in close contact with the end user. As we have seen, the librarian doesn't help much in this matter. On their own, it is hard for providers to determine who has the right information needs in an organization; you need to know the organizational processes and structure: "I wouldn't know; try to find an entrance". Customer research does not help much because there's such a large non-user
population about whom providers know little; present (intermediary) users do not provide a sound indication of what future (end) users want, because of their different attitudes and needs.

Because different people in the same company probably need a different part of a CD-ROM, one provider regularly tries to "organize a general meeting of ten, twelve departments", but one can imagine this to be cumbersome. Also, end users - who have the information needs, are often not the ones with the power of decision. "It is difficult to convince the one with the power of decision". Regrettably for the electronic publishers, the high, old & mighty are considered a lost generation, because they either don't have the time or the skills to use the information services themselves.

Furthermore, end users are often incapable of defining their information needs. "You can go, of course, to the end user and ask: do you need this information? But often you do get vague answers and that doesn't help you much... Normally what they say they want is often not what they really want." This is especially the case with nice-to-know information:

> With legal and fiscal information it is easy; every lawyer is a user. A lawyer is judged on his awareness of relevant legal information, such as jurisprudence. They need to carefully read the information they get from us in order to be able to give sound legal advice. It is super need-to-know. Nice-to-know is much less committal. Business information is presently often nice-to-know. One does not see the necessity of reading it. General managers are not judged on their information behavior. All those managers are presently running around non-informed and are taking decisions without this kind of information.

### 6.4. Limited priority on increasing accessibility

Although providers clearly state their preference for direct access by end users (over indirect access by intermediaries), they do not know how to find and/or convince these end users. Some solutions may lie in breaking down some of the barriers that exist for end users, such as technical accessibility, or in clearly communicating the benefits of using electronic information service. Providers of electronic information services argue that accessibility is a very important determinant for usage, although they also believe that accessibility will decrease in importance in the near future in favor of information quality and the value usage generates for individual users and organizations. Electronic publishers are mostly concerned with technical accessibility, they downplay the relevance of financial accessibility and mostly neglect to increase cognitive accessibility.

We conclude that electronic providers see some of the barriers for financial, technical and cognitive accessibility but they are hesitant or unable to lower these barriers. Because of this unwillingness or inability, most providers deliberately serve niches with very specific information needs; they thus deliberately create narrow client bases who are willing to overcome these barriers and are relatively insensitive to price. The consequence, however, may be an absence of a critical mass of users, fragmented market supply and confused users (see also Cullen, 1986).
Downplaying the relevance of financial accessibility

The price structure of many electronic information services is often complicated and not transparent. Providers of online services often have a combination of a subscription fee or entrance fee, with additional charges for the amount of time one searches, the amount of information one finds and/or the amount of information one downloads. Large organizations can often negotiate fixed prices with electronic publishers. For example, Lexis/Nexis offers the following different pricing schemes to its customers:

- Transactional: pay-per-view, above a monthly subscription charge,
- Hourly option
- Fixed monthly option; unlimited searching in selected material for one standard monthly price
- Seat option; a single monthly fee based on the number of users in an organization

Providers of cd-rom's are often more or less bound to fixed prices. Often, they are fairly high, assuming regular use.

Although the high and complicated price structures might cause an obstacle for users, electronic publishers downplay these financial barriers:

- *the first want to make people aware of the time they already spend on searching information. This searching can be abolished with our products; they can directly start analyzing.*
- *Regularly I hear users saying they rather go to an academic library and search for information. This costs a lot of money as well, but you don't see it directly. If you go online, you get a bill at the end of the month, and you see you have to pay 250 guilders.*
- *The products are not expensive, it all depends on where you want to spend your money. In the Netherlands they see it as a problem that they have to buy all the information that a cd-rom contains; do I need all this? The Dutch don't look at user friendliness or the value of it. They also don't see that a cd-rom is much cheaper than hiring an analyst who has to request annual reports and subsequently analyze them, while you can do this immediately with the cd-rom. People who work in an international setting, such as the larger financial institutions, do get this.*
The fading relevance of technical accessibility

In chapter 3 we defined technical accessibility as the skills needed to deal with information and communication technologies, which can be influenced by the development of the database, the choice of the distribution means, the provision of user support and in making the database accessible through various ICT's such as telephone, television and personal computer and the integration of external information services within internal networks.

As we have seen in the provider's remarks on intermediate use, technical accessibility is still considered very relevant because publishers have to serve very different client groups: librarians mainly want a command-based search language, while end users want graphical user interfaces with clickable items. We have also seen that end-users are willing to overcome technical barriers in situations of clear need-to-know-information (as is the case with legal and fiscal information) or when the information requires expert knowledge (as is the case with financial analyses). In any other instances, technical accessibility is an important barrier for starting to use electronic information services.

Some publishers do not point to the system as the main obstacle, but blame the user:

*I think the largest obstacle is ignorance, not knowing these services exist, and if they do know, ignorance of how to use it. Moreover, people miss the patience to ask how it works or to read the manual.*

Furthermore, providers believe that the importance of technical accessibility will diminish because of technological improvements in the interface and the database system:

- Look, the user friendliness will be under control in the near future and then the quality of the information will play a bigger role

Two years later, one provider also asserted that the internet has made systems more accessible. Because of the internet, users do not have to worry about the technology. The publisher does not need to create their own software, they are not responsible for the functioning of the software at the client's desktops, they don't need to update new software version, and there are feedback possibilities. In sum, the internet has set the standard and most databases can be retrieved in a similar matter.

Limited efforts to increase cognitive accessibility

The recognition of technical accessibility as a possible barrier is more widespread among publishers than the relevance of cognitive accessibility. Cognitive accessibility is defined in chapter three as the knowledge needed to interpret and use the retrieved information, which can be influenced by the supplier in the design of the user interface, user support and by presenting the information within a meaningful context (e.g. consultative selling and after-sales). Almost all
providers of online information services offered user support in the form of a technical helpdesk (7 providers do), a professional search helpdesk (6) and/or business presentations and workshops (8). Remarkably, hardly any cd-rom provider offers these kinds of helpdesks: apparently, they sell cd-rom's by catalog. In addition, four providers offer customized development of software. Presently, most also provided their services through various platforms (not exclusively online or offline, but all kinds of combinations), and some allowed integration of their services within internal networks.

One provider emphasizes the importance of layout to provide a meaningful context for users. Furthermore, the user has to be supported in interpreting the data and in using various analysis tools. Personal contact with the user is recognized as a means to improve cognitive accessibility:

- Other organizations sell something and then you won't hear a thing from them anymore. One of my clients has said this to me. With us they do hear from us: [XXX] has enormous financial problems, because they think they can sell cd-rom's by the catalogue
- You need to show your face, in order to lower the barrier for users to call us when they have problems
- We need a one-to-one relationship, because the librarian is merely our access point to the organization; we want them to be willing to bring the service into the organization

But, only a few are successful in establishing personal contact. One provider conducted a survey and discovered "that 70% of our customers do not have contact with us.... Half of our database subscribers say they never have contact with us. That is altogether wrong."

6.5. The value of information services

Electronic publishers can support users of information services by putting information into context, by making it more applicable. Electronic publishers do not only provide information but can also explain their users how this information can best be applied, how the use of their services can generate value for the using organizations. This means that electronic publishers do not only provide a database filled with information, but also provide some consultancy on the tasks that can be performed with this data. Other major stated values of the information services are comprehensiveness and selectivity.

Making information applicable

Publishers consider consultative selling by emphasizing the interpretation of the information important:
The role of the publisher changes drastically. Instead of a provider of information, you become a problem-solver; you support users in their jobs. That's why personal contact is always very important; if only to show the possibilities of the system.

Although electronic publishers stress the importance of applications, a lot of them are not very specific in their application possibilities; most of it is not much more than nice-to-know:

- If you go to a prospect with our information as a consultant, and you convincingly show that you are aware of developments in their market and if that is the added value you can provide which makes you win the prospect, then it is worth your money

- Do you know everything about your clients? How many employees they have is relatively easy to assess, but revenue developments is already a bit harder or the amount of take-overs, or the type of product innovations they have introduced. It is not hard information you need to know, but still it can be convenient to know.

Of the electronic publishers we have interviewed, most advertised their information service to be useful for management activities, such as competitor analysis, recruitment, strategic orientation, client information (8 providers mentioned this kind of applications). Others mentioned financial analysis (3), judicial analysis (3), direct marketing (2), procurement (1), trading information (1).

Reach (presently a joint product of Bureau Van Dijk and Elsevier) is a positive example of an application-based information service. Reach doesn't only allow searching for company directory information and annual reports, but Reach also contains additional software with several tools for financial analyses. "Only a few publishers do this. Most cd-rom's in the market provide only standard search software." The cd-rom is not made for one specific application, though: "These products are not related to pre-determined applications, because you can run over 150 selections. The financial analyst will do some financial comparisons while the general manager will use it for an analysis of competitors."

Information services cannot only be put in a meaningful context by providing additional software. Sometimes clear marketing communication can help as well. Dun & Bradstreet offers a good example. In their marketing communication they emphasize that their services should be supportive of the whole transaction cycle of a company. Any corporate transaction (business-to-business), they claim, start with searching for target groups and the identification of potential trading partners:

1. Researching new markets
2. Identifying best prospects
3. Managing ongoing customer relationships (esp. risk management)
4. Maximizing cash flow (undertaking debt collections)
These four different phases are supported with company data about sales, credit ratings, supplier characteristics, payment behavior, competitive analysis, direct mail criteria, etc. Users can search the database themselves to get information about parts of the transaction cycle or can ask for a report made by Dun & Bradstreet based on the information in the database (such as a trading information report, risk report, credit control report, list broking - a selection of prospect addresses).

*With the shift from reports provider to information provider, our database becomes much more an integral part of the decision processes of our clients; we become a kind of consultant, a partner in the primary business process.*

These two examples show providers are working on creating added value for their customers by creating services that are tailor made for specific applications.

**High volumes of information and high selectivity**

Most providers focus on added value in the searching process itself (instead of the value of the acquired information for business processes):

- The searching is quite different than with our paper books. You can make combinations of record fields and you can search on fields on which the book does not sort companies. For example, try to find all companies that export to Italy; with the book you would be busy for a couple of days.

- You can search full-text in our service. You can search for branch code, or from a thesaurus, or general news headings, or a country code.

All providers stress the large amounts of information they provide and the comprehensiveness of their information:

- *Isn’t it beautiful that you can search with seven branch codes in our database?*

- *Comprehensiveness is the most important quality*

Comprehensiveness in itself is not that important; the problem is not that people don’t have enough information, there is plenty information everywhere. The problem is to find the right information. Therefore, publishers mainly emphasize the possibilities for selectivity in their products and services, although sometimes they interpret the need for selectivity negatively, as a limited view of the users:

- *If someone buys our product, they normally only need a small piece of it. That piece is put on the screen and they don’t change it anymore. He could do a lot more with the product, but they don’t because of a lack of training and lack of interest*
Typically people only use 20% of all the functionalities available in our product. We should make those 20% as accessible as possible and focus our efforts on it. We look for how users can have optimal results with minimal efforts. Our starting point was two buttons. We didn't start from what information do we have and how should it all be displayed. No, instead we focused on two buttons: people should only need two buttons to optimize information retrieval. We call this roadside picnicking: when people sit next to the road, they only use a strip of land of a couple of meters. They don't see anything else. The same is true about an information product with a whole bunch of information and functionalities. People are most at ease within a certain bandwidth and they don't want to discover all the other things the product has to offer. They think it's too tiring, or too time-consuming, or too scary.

Some who emphasize selectivity admit they are not quite able to provide it optimally:

- Information is everywhere. There's simply too much (....). This means that we should develop tools for the user to realize a few things within this enormous supply of information. We need to inform them timely when new relevant information is available. But most of all we should provide selections for them. We should in fact cluster and segment user groups and provide each an up-to-date chunk of information.

Electronic publishers suggest several ways to provide selectivity in their information services. Selectivity can be provided in the search software, in value added analysis tools, in additional services (like communication facilities) and in creating search engines that can search in various databases at once. The publisher of the magazine with job vacancies argues that all advertisements look alike: they all want a jack-of-all-trades:

*Companies are therefore interested in a system that can improve the quality of the response to the advertisements. Online services can provide this opportunity. The service does not only provide advertisements, but also company profiles, management potential tests, etc. You can give users all kind of instruments that they can use to more selectively respond to advertisements.*

Another provider suggests not using standard search software, so you can continuously adapt to changing and/or specific user demands:

*We want that every user permanently gives us feedback about our software, in order to be able to adjust it... We don't want to hear that clients stop using our products, because they think that because of changing needs, our software is not suitable anymore. With every new update, there need to be new software features. Our clients are the product managers*
of our products. Our competitors cannot do this: they cannot change the software because they use standard software made by others.

Better selectivity and usability of information services can also be obtained by providing additional services:

In our marketing communication we emphasize that they can get several added value services, such as SDI (Structured Dissemination of Information, based on a search profile) or personal document research.

The additional services can also be provided through integration of information sources and the integration of communication facilities within the information service. The integration can be done at the level of the collection of information sources or at the interface level:

- A cd-rom is a perfect tool to combine twenty to fifty different databases, without the user knowing that there are several different databases. One should be able to look for the company data of a specific company and then push a button to find all recent newspaper clippings of that specific company.

- FT Profile is a good example: they have about 180 databases. That's nice but nobody cares. We have said: what do you really want? You want business information or market information or news. The interface is structured in that way. The user poses a question within a subject area and subsequently gets an answer, which comes from various sources.

Finally, one provider was even thinking about creating an online community to integrate various information source and communication and information facilities:

At the moment, we only provide information services. I know a lot of people want to combine this with e-mail facilities or want to post their own information on a bulletin board... For a number of trade organizations we publish newsletters. But we could also provide for their members an electronic platform that they use to electronically communicate with each other, or with which they can inform each other with news facts. This would mean that we have created a separate net for people in the same trade or with the same jobs.

6.6. Conclusion

The use of electronic information services is not only determined by organizational demand but also by market supply. Electronic publishers can stimulate the use of their services, based on the perceptions they have on the needs and capabilities of users. Our research goal for this part of this dissertation was (a) to add insight of practitioners into our conceptual model and (b) to see how the organization of the information value chain may be of influence on the use of electronic information services.
Concerning the insight of practitioners, we can conclude – based on the interviews with electronic publishers in 1994 and studying their marketing communication in 1994 and 1998 - that publishers limit the scope of organizational characteristics. Size, combined with information-intensive production processes and products is probably the most important variable to explain usage. Related to size are characteristics such as enough financial resources and internal diversity in information needs. Because of environmental and organizational characteristics, the professional services industry is the most interesting industry, according to the electronic publishers.

The value of their services is rather vaguely related to organizational applications and performances - it helps users mostly to get some nice-to-know information that can support tasks in general management and marketing & sales. Only providers of financial information offer clear application-based tools. Electronic publishers focus more on individual effects on search performance - the efficiency and effectiveness of searching, with special attention to the comprehensiveness of the search results, and on how to select within these comprehensive information sources.

In the debate about the preference for either intermediate or direct use (by end users), electronic publishers take a very clear and firm position: they clearly prefer end users, although they mostly have contact with intermediary users. Publishers find it difficult, however, to by-pass business librarians and don't know how to get the end users. Improving accessibility can help to obtain end users as customers. They can use technological tools to increase the accessibility of their services, as we have seen in chapter three. Technology can be used to delegate user tasks to the system, through intelligent agents, search engines and profile-based alerting services. Accessibility can also be improved by the integration of functionalities, databases and user groups. Furthermore, publishers can show in their marketing & sales efforts the value of electronic information services by showing the relevance of environmental scanning, by helping organizations to put the use in specific organizational contexts and by targeting their services to specific users within the organization (as suggested in chapter two).

In the additional meta-analysis on accessibility (see chapter 4) we constructed a list of characteristics or activities of publishers than can influence accessibility. In comparing the statements of representatives of electronic publishers with this checklist, we have to conclude that electronic publishers have acted rather conservatively to improve accessibility (table 6.1). They recognize certain financial, technical and cognitive barriers, but find it difficult or unnecessary to lower these barriers.

Since 1998, most providers have improved technical accessibility, by providing more integration (combining information sources in host services and combining various ICT's in their electronic information services), by designing graphical user interfaces and improved search engines and by creating special segments of information for individual users based on individual profiles. There is a definite trend from hosting (combining various separate database at one access point), to portals (users can search at once through various, integrated databases) to online communities (not only
combining information services but also providing a platform for electronic communication with the electronic providers as well as with other users).

<table>
<thead>
<tr>
<th>Organisational conditions</th>
<th>Budgets</th>
<th>Unclear; little insight in revenues, costs and profits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outsourcing</td>
<td>There is a lot of cooperation between electronic publishers in the first parts of the information chain, but there is hardly any integration in end products or services (and in distribution). This means that the users see a very fragmented and not transparent supply of services.</td>
<td></td>
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<tr>
<td>Intermediary users</td>
<td>Although many want to focus on end users, most only reach intermediaries: publishers admit that this is partly because of the design of their systems and services (too difficult for end users), but they also blame librarians that they don't do enough to educate end users.</td>
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<tr>
<td>Influence user on service development</td>
<td>Very limited: hardly any contact with end users. Most online publishers go to visit companies who have subscriptions once or twice a year, but they mostly meet librarians.</td>
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<tr>
<td>Perception of users</td>
<td>Mostly negative: often publishers have vague ideas about their users or they are explicitly negative (especially about librarians), but they also sometimes think users in general are ignorant, lazy, impatient, cheap, etc.</td>
<td></td>
</tr>
<tr>
<td>Original goals</td>
<td>Many electronic publishers started with their services as a by-product of traditional products or internal services.</td>
<td></td>
</tr>
<tr>
<td>Operational choices in the value chain</td>
<td>Price structure</td>
<td>In general, prices are not very transparent and complex and publishers try in a roundabout way to let users pay for any added value they receive (which basically punishes good use)</td>
</tr>
<tr>
<td></td>
<td>Technical development and maintenance</td>
<td>Technological innovations come slowly: often one is stuck to old-fashioned technical infrastructures and interfaces. Furthermore, in developments, publishers are guided by the wishes of their present users, which are mainly librarians. Librarians have often different wishes and demands than end users (e.g. command-based search queries instead of menu-driven interfaces).</td>
</tr>
<tr>
<td>Use of ICT's</td>
<td>In the beginnings electronic publishers focused on either online or cd-rom products (this was still the case in 1994), later they also provided their services via the internet and for Intranets and Lotus Notes (but publishers certainly were not the first to offer services for these platforms) and publishers are now offering combinations of all kind of ICT's (both online and offline).</td>
<td></td>
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<tr>
<td>Information sources</td>
<td>Electronic publishers stick very closely to their original databases. Editing of information is very limited and often only aimed at standardization.</td>
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</tr>
<tr>
<td>Marketing</td>
<td>Providers limited the scope of their markets to a few users and a few competitors. They are vague about the ways their information can be used in organizations and by whom. They don't define clear target groups (industries and organizations within industries) and don't know how to find target individuals within these organizations.</td>
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</tr>
<tr>
<td>Support</td>
<td>Very limited. Some providers provide technical and search helpdesks to improve technical accessibility. Hardly anything is done to improve cognitive accessibility and to put the information in a meaningful context for users. There is hardly any consultative selling in the electronic business-to-business information industry.</td>
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Table 6.1. Concluding remarks on the efforts of electronic publishers to increase accessibility

In sum, based on the interviews and the marketing communication with electronic publishers there are many problems with the present use and the present users of electronic information services. Furthermore, publishers assume that accessibility is more important than the value of information as a determinant of usage. However, the usage is not only limited because of characteristics of the users, but also by limitations of the electronic publishers: they have only vague ideas about how their information can be put into use (and do not actively advise customers on how to use it) and about the organizational contexts in which electronic information services are used.
Electronic publishers behave in a way that is historically understandable - because they are bounded by organizational traditions (such as being part of traditional publishers who are afraid of cannibalization) and technological limitations (such as old systems). With the traditional information chains there was little attention for accessibility: you don't need to explain people how to read a book. There was even little attention for the end user: traditional publishers are accountable for the volume of sales and not for the amount of users or usage. Finally, in a pre-arranged information chain, it is very convenient to have one point of access where people can pick up the information product - the business library: one point of access diminishes sales & distribution costs. With electronic information value chains distribution costs are becoming close to irrelevant and end users can be served individually. Unfortunately, traditional publishers only knew librarians as their customers and not end users. Thus, although understandable, some of the electronic publishers we have interviewed do not fully profit from the opportunities that information and communication technologies have created.

The interviews show not only the practical relevance of our theoretical framework and the way the market sets priorities within this theoretical framework, but it also shows that not only user characteristics (on individual, organizational and environmental levels) influence usage, but also characteristics of the supply of electronic information services. These characteristics are broader than the media characteristics that were mentioned in chapter four and include characteristics of the whole information value chain as electronic publishers construct them.