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## **Electronic Publishing: Investigating a New Reference Frontier**

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### **Abstract**

*Online publishing has become a means of publication in its own right, with its own strengths and weaknesses, and its own necessary logic. Some content, such as reference information, seems to be ideal for online publication, however, companies are still seeking for promising and sustainable business models. Based on the case of a traditional medium-sized reference publisher, whose business model heavily relies on advertising-based income, issues regarding the move towards the business of electronically offering reference information are discussed. The paper concludes with an outlook to the 'new reference frontier'.*

### **1. Introduction**

Over the last few years it has become clear that online publishing is not just paper available in digital format. It is rather a means publication in its own right, with its own strengths and weaknesses, and its own necessary logic. Some content seems to be ideal for online publication (reference works, resource bases, highly interconnected information), while other is not. Obviously, companies are just discovering the potential of the new medium (see also Gerdy 1996). Selling directory information via the Internet is a special form of electronic commerce. A crucial characteristic of this is that its full commercial cycle - offer, negotiation, order, delivery, payment - can be conducted via a network such as the Internet (Loebbecke, 1999).

The following case study of Krak, a Danish directory publisher, analyzes the situation and the business implications of a traditional, medium-sized company at the verge of entering the new era of electronic publishing. The situation of directory publishers is peculiar in the sense that their traditional business model heavily relies on advertising-based income.

## 2. Krak – A Danish Directory Publisher

### *Company Overview*

Krak's core business since 1770 has been *business information*, starting with basic trade information and as of now enriched with more detailed information such as names of board-members and directors, key-figures, and accounts. Another important product line are city and country maps from all over Denmark including a complete street-name index.

### *Company History*

In 1770, the first directory in Denmark was published by Hans Holck, an entrepreneur of the 18th century. It covered a comprehensive list of the inhabitants of Copenhagen as well as statistics on citizens and taxes. When the former became a major success, Holck decided for an annual publication and managed it subsequently until he died in 1783. After his death, small printing companies took over and continued the publishing in the following years. They concentrated on printing and publishing - simply to make money - and neglected the editorial task. Hence the quality of the annual publication continuously decreased over the years.

In 1862, Thorvald *Krak* took over the publication business. He understood the necessity of good editing and gave the book a major quality-lift. The improved quality allowed it to compete successfully in a market in which over time also several other directories have been offered. However, all these competing directories only covered the area of Copenhagen.

In 1902, Thorvald Krak handed the business over to his son Ove *Krak*. Soon after Ove Krak realized a potential for expansion and focused the business on selling advertisements, an activity which his father had only started on a rather small scale. Ove Krak realized the necessity to extend the coverage beyond Copenhagen and to reach the entire country of Denmark if sales of advertisement should flourish. Furthermore, in order to strengthen the effort, he decided to employ personnel specialized in sales.

Ove Krak died in 1923. According to his last will, the company was transformed into a foundation with his wife Else Krak becoming the first chairperson. The

foundation continued publishing the original directory as well as other products that had been developed over time. Any surplus from the foundation's business activities was donated in order to contribute to the prospering of Danish business life. The rules for taking advantage of the donation funds as documented in 1923 are still valid and respected.

In 1987, a decision was taken to split the foundation into a Foundation named 'Kraks Fond' and the publishing house 'Kraks Forlag AS' (Krak Publishing House), a limited company, 100% owned by Kraks Fond. Since then Kraks Fond has been turned into a holding company, while all actual business operations run by the Publishing House.

### ***Krak's Product Lines***

Today the publishing house makes publications in a wide range of areas. City maps are an important part of the publishing business as almost every Dane associates Krak with this task.

Over the years the original business directory - *Kraks Vejviser* - has grown tremendously. Consisting of 60.000 business-to-business companies and being published in Danish, it is today - despite heavy competition - by far the largest of its kind in Denmark. For the 30.000 largest enterprises, it offers profound information about board members, managers, and three years of economic key figures. The publication still accounts for about 50% of Krak's total turnover.<sup>1</sup> Its CD-ROM version '*Krak Direct*' extends the coverage to more than 400.000 Danish enterprises including retailers, a number so big that on paper, eight volumes would have to be printed. The CD-ROM can connect directly to the Internet version (see below) and thus provides access to the related maps. Serving as a high-quality, professional marketing tool, it also allows for printing labels and address lists.

Krak's *Export Directory of Denmark* is produced in cooperation with the Danish Chamber of Commerce and the Confederation of Danish Industry. It contains information about 5.500 Danish export companies, and is published in five different languages. In 1998, about 23.000 copies were distributed to embassies, sector associations, etc.. A distribution of about 17.000 is foreseen for 1999. In October 1999, the current Export Directory will be replaced by a new book titled 'Export Directory of Denmark: Danish Exporters 2000' resulting from an amalgation

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<sup>1</sup> Currently, the Business Directory consists of eight volumes: two cover 'who lives where in Copenhagen', and thus are a direct continuation of the original piece printed in 1770. One volume briefly lists all 400.000 officially registered companies in Denmark. Another three volumes provide more detailed information on 60.000 business-to-business companies. Yet another volume offers sophisticated information on 30.000 companies including board member names, etc. The last volume covers the public sector. This volume is one of the mostly used books in Danish libraries. Only the volumes covering the public sector, and the one providing detailed information on 30.000 companies are sold; the others are given away for free.

between the Danish Foreign Ministry's 'Danish Exporters' and 'Krak's Export Directory of Denmark'. The idea is to strengthen the global marketing of Danish export enterprises. The ministry will be in charge of finding addresses of the relevant enterprises for the book.

Furthermore, suppliers are listed in *sector-oriented catalogs* available for the metal-industry, construction, graphics and marketing, Data/IT, textiles, and transportation. Those catalogues, often considered to be the 'bible' of a given sector are spin-offs of the business directory as they contain exactly the same information, just compiled in a different format. A new advanced directory of the machine industry (*VFM*) listing suppliers, products and trade marks is partially competing with the more traditional catalogue for the metal sector.

The *Foundation Directory*, available on CD-ROM and in print, lists all about 10.000 foundations existing in Denmark. Krak also offers information about the 10.000 largest *farms and forest units* in print and on CD-ROM. Furthermore, the company provides a *coupon catalog* for business customers providing them with the opportunity to advertise for their products. Krak's *Blue Book* ('*Who is who*') reviews bibliographies of 8.200 successful Danish people. For tourists, Krak offers *city-guides* in English, Japanese, and Scandinavian languages. Finally, Krak markets and distributes approximately 400 different *videotapes* sponsored by various companies. The tapes can be ordered free of charge for school courses and seminars.

From the above product lines, maps, Krak Direct (the CD-ROM version of the business directory), the foundation directory, the farms and forests directory, as well as Krak's Blue Book are sold; the other products are mainly given away for free following a business model based on selling advertisements placed in the reference guides.

### ***Business Model***

In the business year 1997/98, Krak's turnover amounted to DKK 98 million<sup>2</sup> with a deficit of DKK 1,7 million, the first ever to be reported in the company's history. For 1998/99, Krak's turnover is anticipated to reach DKK 120 million leading to break-even.

Krak's business model is built around a database which is then exploited into the various different product lines mentioned in the previous section. Beyond this content base, Krak lists four main success factors that have led them to their outstanding position in the Danish market:

- i) the company's tradition,
- ii) their brand name / reputation,

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<sup>2</sup> 1 Euro is about DKK 7.5

- iii) their sales force, and
- iv) the quality of their information.

As of 1999, the content of their database consists of both 'self-gathered' and bought data. Of the 60.000 data sets documented in the printed version of the business directory, only about 10% are bought from the outside. Yet, out of the 400.000 sets represented in the online version, almost 80% are acquired externally and then improved internally by Krak. This differentiation is crucial when it comes to developing a sustainable business model for being a specialized publisher on the Web. Beyond 'tradition', 'brand name', 'sales force', and 'information quality' for the printed products, 'content creation' has been a core matter. It seems that on the Web 'content packaging' and 'content placement' gain in terms of relative importance.

### ***Move Towards the Internet***

In June 1995, Krak published first editions of their directories on CD-ROM, and in August 1995 Krak established its Export Directory and the Business Directory (Krak's Vejviser) on the Internet. Hence they became the first directory publisher in Scandinavia with directory information on the Web.

Initially, Krak maintained the Internet site by only updating the content once a month. Furthermore, they outsourced the web design and database design, and Krak's sales force sold 'Internet ads' to be placed in special sub-domains under Krak's home page.

Originally, all information was provided free of charge. The concept for their electronic products, the subject matter and the initial plan for its presentation have been market driven. Via their notable sales force, Krak has benefited from the possibility of immediate feedback from the field on existing and proposed products.

In 1996/97, Krak decided to test the possibility of selling information electronically. It became a year of 'learning by experience' with the new medium.

In January 1997, Krak established a 'B2B webhotel' hosting web sites, in order to generate business by selling static web-sites and domain names and by producing web-sites in-house.

In order to meet the rising demand and to give the customers the best possible service, Krak decided in the fall of 1997 to establish a separate Internet section. In January 1998, the section (see Figure 1) was fully up and running.

Creating a new unit implied a dramatic change in Krak's organizational structure. The number of employees had to be increased by nearly 50% in the course of a few months (135 to 190). The company's new attitude required the development of advanced competencies in order to be able to handle the variety of problems connected with selling and running web-related services.

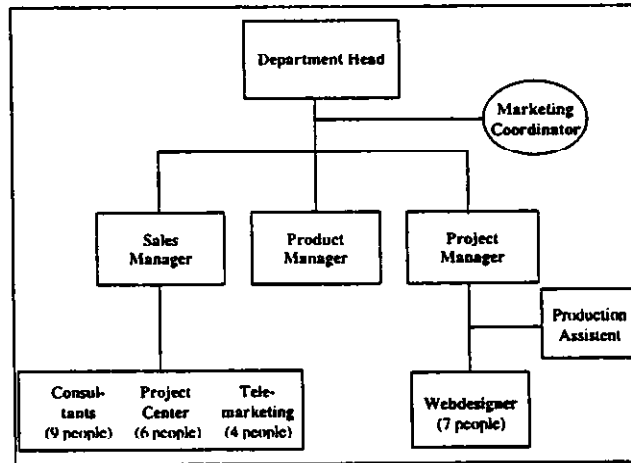


Figure 1: Organisation of Krak's Internet section (Source: Krak)

Twenty-five percent of Krak's total turnover is generated in the context of the new media (CD-ROM and Internet). About 35% of that amount result from selling information goods either packaged on CD-ROM or paper-based with all transactions processed directly over the Web. Of the remaining 65% of Krak's new media related turnover, 30% stem from selling ads on the Web, and 70% result from designing and maintaining home pages for business customers (see Figure 2).

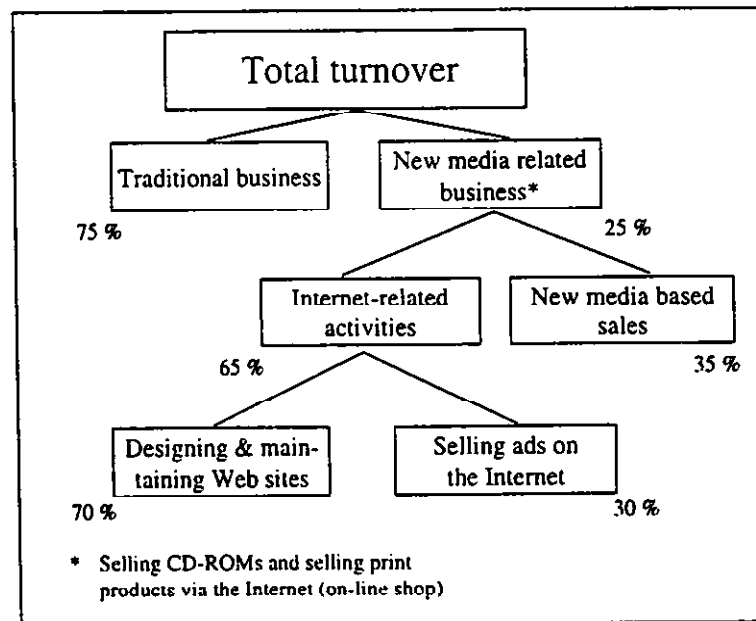


Figure 2: Krak's Turnover Structure (Source: Krak)

Important business areas of Krak's Internet section include Internet-related activities such as (1) in-house production of web-sites, (2) in-house development of Internet services under the domain 'www.krak.dk', (3) in-house development of customer database solutions, and (4) in-house development of on-line shops. Of those, the business focus of the newly established section currently lies in developing dynamic and integrated web-sites.

How can this change of business focus from selling content and ads to selling web-site design and maintenance be explained? The business concept of traditional directory publishing has always been to sell advertising space in the publications. When the directories were put on the Internet, some of the ads had to be prepared for the Web, i.e. they were to be made 'web-site compatible'. In the beginning of Krak's web era, 100% of the ads placed on their web-sites also appeared in their paper versions (as of 1999, this figure has come down to about 80%). Soon after, Krak's customers realized that once their ads appear on the Web, they should also be linked to professional company home pages, and they began to ask Krak for design suggestions and actual programming and maintenance.

The turnover that is generated from selling ads on the Internet, is based on three main pillars:

- a) Selling banner ads and thus offering marketing for business customers. The price for having a banner is either a fixed price per year or DKK 0,15 per page klick (page impression).
- b) Selling links, i.e. having those companies pay DKK 1.000 per year that want to use Krak maps on their sites.
- c) Representing companies on maps at the price of DKK 40.000 per company per year.

Krak's Internet section is also in charge of offering several of Krak's products, namely maps, the business directory, the export directory, and the coupon catalog, directly on the Web. Currently the company makes a turnover of about DKK 1 million turnover from selling their traditional printed products over the Web (on-line shop). Payment possibilities are available with Giro, Visa and Diners Club cards. Other credit cards are expected to be available soon. The approach of direct selling saves Krak the commission usually to be paid to bookstores and other retailing outlets. So far, this turnover has not led to decreasing sales in traditional outlets; on the contrary, actual sales via traditional channels have increased slightly since they have also been sold via the on-line storefront.

This additional distribution channel for their information services has several implications for the company. First of all, the yearly information update had to be changed into an almost instant one. New figures are incorporated and visible on the Web once per month far as maps are concerned. Directories are even updated once per week. Needless to point out that this requires a significantly higher level of manpower. Also, this almost constant updating puts additional pressure on those about 20 employees who are involved in maintaining the core database, but are not in the Internet section.

**Current Status**

So far, the company has been successful with its timing and managing the challenge - it is today one of the leading companies in its field in Denmark and runs - together with a business-to-business service - the best map service on the Web in Denmark. In December 1998, Krak's Internet unit was one of the three largest Internet service providers in Denmark. The company's web-services have been expanded on the basis of a well-planned strategy and according to schedule.

Looking at Krak's web trends, it is quite clear that the company has experienced a significant success with their Internet-based activities (see Figures 3, 4, and 5). For instance, in 1998, page impressions have more than tripled from about 320.000 to 1.4 million between week 26 and week 52. (An impression is defined as a click leading to a new page.) Similarly, the number of user sessions<sup>3</sup> has increased from 40.000 to 154.000 during the same time period. Even more interesting and business-wise more relevant is the length of user-sessions. With an average of about 10 minutes and thirty seconds, Krak has one of the largest figures in Denmark in that respect. This is important as the length of user sessions is a clear indicator for prices of advertisements. Furthermore, in January 1999, the number of page impressions and user sessions surpassed the respective forecasts by nearly 100%.

It is also interesting to note the significant drop in page impressions and user session around Christmas. This seems to clearly indicate that the users of Krak's information goods are business customers (who are off work during Christmas days).

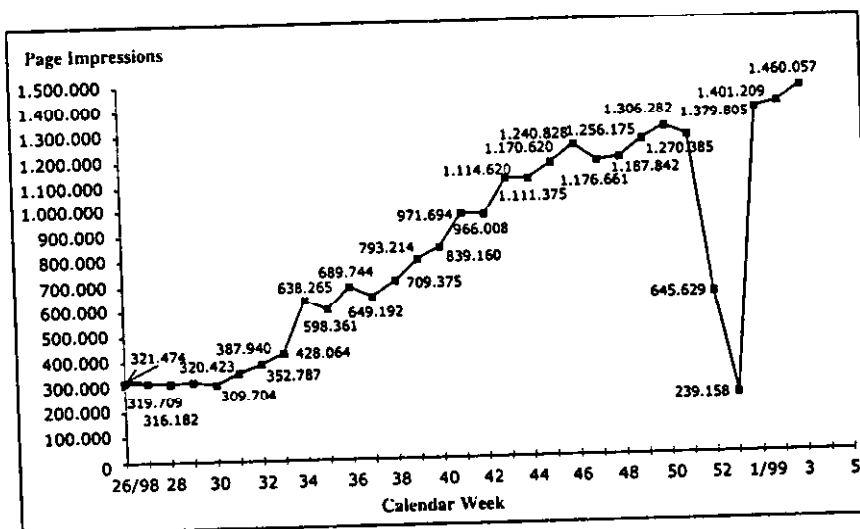


Figure 3: Number of page impressions (www.krak.dk)

<sup>3</sup> User sessions mean log-ins within 30 minutes, i.e. new log-ins after more than 30 minutes of the first one are counted as a second session.



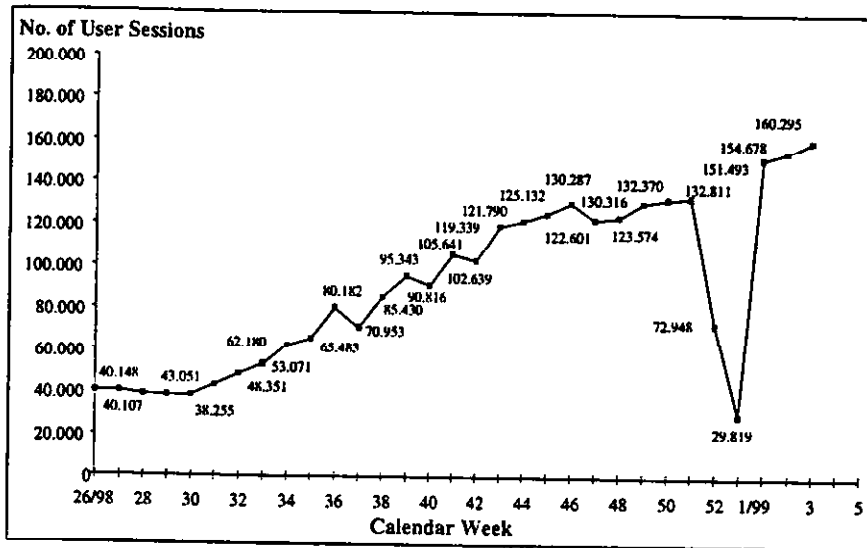


Figure 4: Number of user sessions (www.krak.dk)

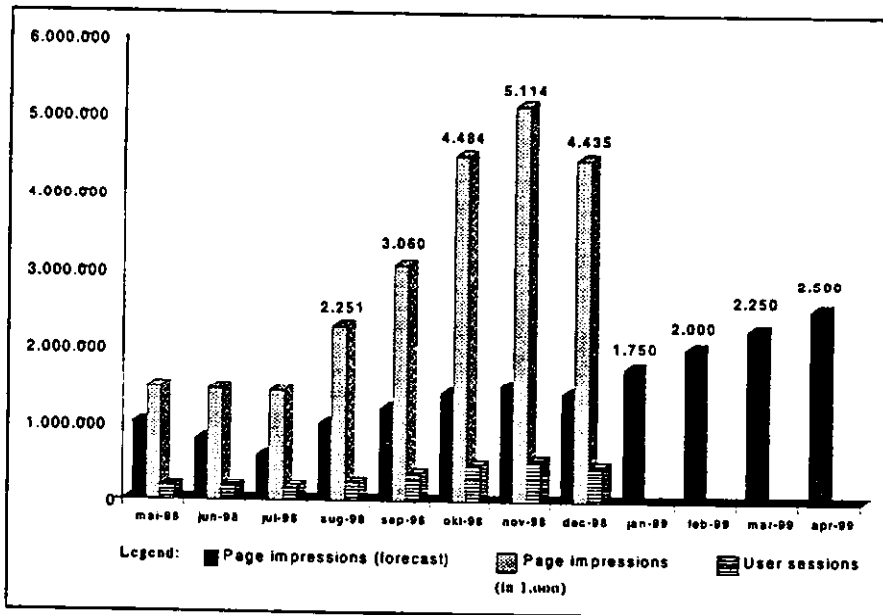


Figure 5: Forecasts, page impressions, and user sessions (www.krak.dk)

As the company's products are mainly given away for free (with the income generated from selling advertisements) the move to the Internet business has been considered easy for Krak, compared to other content providers on their move to the Internet. to the situation of other content providers. It is interesting to note,

however, that printed versions and CD-ROMs of city maps are sold in significant numbers in the bookstores, kiosks, etc., while they are at the same time available for free on the web.

### ***Future Plans***

One of the most pressing initiatives for the near future is to get one of their new products established in the market. Krak has developed a search engine which is integrated into their URL. While Krak is convinced of the positive effect of such a search engine, they face a problem of making people aware of the search engine. Yet, once acquainted to the engine, people consider it to be easier than traditional searching. However, Krak realizes the need for a major marketing campaign. The original business concept was to finance such a marketing campaign and the follow-up maintenance of the search service charging for listed search words and banner ads. Nevertheless, Krak has over time recognized that the first approach to financing the search engine has not been successful due to an insufficient number of listings.

Altogether, in order to generate business, Krak wants to be up front with regards to Internet business and will therefore continuously try to find new ways of doing business on the Internet.

A first possibility tested was finding new business partners. As of mid 1998, Krak has gone ahead with the Danish Private Radio for the Internet broadcasting.

### **3. Discussion Issues**

One crucial differentiation between directory publishers and various other book publishers has to be kept in mind though: In most instances also the printed products are given away for free based on a business model that generates income from selling advertising space. Hence, the shift to the Internet could be considered to be comparatively minor. The currently most widely observed phenomenon of content provision on the Web is free access to all kinds of content which may hopefully be recovered by sufficient advertising income (Choi, Stahl, Whinston, 1997).

In the following paragraphs five major discussion issues are listed which are relevant for directory publishers facing their move towards the Internet:

- Timing of Electronic Publishing activities
- Gaining the critical mass
- Managing in-house cannibalization
- Focussing Value-added: Content Creation versus Access Provision
- Pricing

### **Timing of Electronic Publishing Activities**

There are two basic options for the timing of entry into EP activities: (1) to be an innovator and early adopter which would suggest to become active on the Internet as soon as possible, or (2) to wait and learn from the first experiences made by other companies before designing one's own strategy (for a slightly more differentiated list of alternatives see for example Kalakota and Whinston, 1997).

Most authors suggest going on the Internet as early as possible, even if in the first phase it is mainly for learning purposes. Not entering electronic publishing is considered to endanger publishers' survival in the long run, robbing them of expansion and growth potential. As entry barriers are quickly rising, late entry may make it more difficult to establish a sufficient customer base. Following this line of argument, early investment in electronic publishing should allow publishers to gain and develop a certain degree of know-how and to slowly build up a customer base. Generally speaking, this would then make them more attractive for the still most important source of revenue - namely - advertising (Loebbecke, Powell 1999)

Two main reasons encouraged Krak to go ahead with their Internet activities rather early. First of all, they wanted to take advantage of the marketing possibility to be the 'First Publisher in Scandinavia' to be on the Web. Secondly, they were convinced that the earlier they start, the more experience would have been gained before potential competitors joined them on the Web. Thirdly, Krak anticipated the emerging market boom of the Internet, "time was up to become more active and to strengthen one's efforts".

However, other Krak sections - as to be expected - have not been too keen on in-house competition, cannibalizing their traditionally successful paper-based business. Furthermore, Krak experiences the problem that some of their competitors try to make up for their own delay regarding electronic publishing by 'buying' people from Krak. Hence, Krak not only has to pay to train their people in a truly innovative segment, but also to run the risk of 'loosing' their best people after training to their competitors who buy 'ready-made' expertise.

### **Gaining the Critical Mass**

After having decided to enter into offering content electronically, the next issue is to get the ball rolling, i.e. reaching a critical mass (see also Hagel, Armstrong, 1996). Reference publishers will offer their content electronically when there are lots of companies who want to read or use it (so that selling advertising becomes a solid business); and companies will access on-line directories when they contain a lot of high-quality information.

This kind of 'chicken and egg' problem is known in economics as 'network externalities'. According to this concept, a good (for instance an electronic directory) exhibits network externalities if an individual's appreciation for the product depends on how many other people use it. Telephones, faxes, and e-mail all

have network externalities. Electronic directories exhibit an indirect form of network externalities. The users' value depends on how many data sets are listed, and the number of data sets partially depends on how many users there are (see also Varian, 1998, Parker, Benson, 1988).

### ***Managing In-House Cannibalization***

Once the critical mass for the electronic products has been reached, companies have to deal with in-house cannibalization. For instance, Krak has created electronic products – on CD-ROM and Internet-based - by converting published multi-volume sets that have already had a long life in print. Clearly they are concerned about cannibalizing print sales with their electronic products, even though there is evidence that many directory publishers world-wide duplicate content in different formats.

Also outside the sector of directory publishing, several publishers put up on the Internet the full text of nearly all their books in HTML or in page images, not charging anything, and seeing no drop in sales - in fact, the sales go up ('selling more by giving it all away' approach). That has, for instance, been experience at the National Academy Press.

The risk of print-sales cannibalization fades when we note that print and electronic products do not necessarily correspond one to one. Offering electronic directories can be used to supply innovative content, especially differently packaged, more targeted information. It combines communication with content leading to higher quality and thus added value to customers. Furthermore, customers will be much more in control of how much and what kind of directory information they want to obtain. Indeed, it can be expected that when complementing print products by electronic ones, customers will request additional value such as availability (newest information, access to data from any location), presentation (multi-media such as video clips, sound, etc.), interactivity (user-friendly downloading, search functions, etc.), and innovative content (Figure 6).

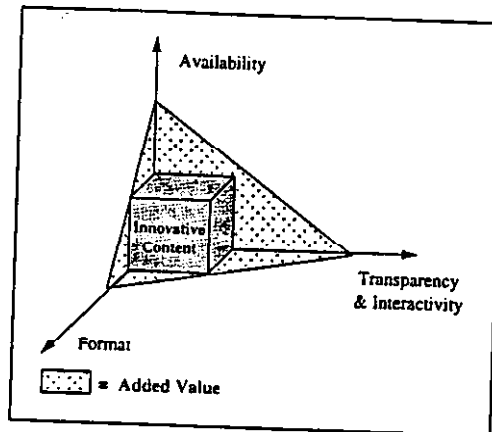


Figure 6: Dimensions of added value in electronically offered information (see also Loebbecke, Powell, 1999)

When converting a print reference product to an electronic reference product, there are enormous opportunities when considering the content of the books as a database and each data set as an entry in that database. Smaller databases can be combined to create larger ones in which entries and groups of entries are linked to each other in useful ways ('relational database'). What can we add to such a new electronic database to make it more useful? A large database can be unwieldy. How will the user approach the content? Will every search give 300+ results, and if so, what is the user supposed to do next?

The print product's usefulness has to be adapted and enhanced in electronic form. The context of a large information database is one way to meet that demand (European Commission, 1996). It is important when targeting print content for conversion<sup>4</sup> to make sure that the combined database is not only needed in the marketplace but also has the potential, with enhancements, to become a cohesive, stand-alone product (Miller, 1998; Wang, 1998).

One should also reflect on the most appropriate technology for electronic directories. It is not only important to know what kind of equipment the customers aimed at are using, or what competition a product will face. Although some people argue that CD-ROM technology will soon be superseded by Web-based products, there could be a swing back to CD-ROMs. Companies recognize the technological limits of the Web in manipulating large databases (speed is certainly a problem), and realize that with some products they have paid for access, not content. It seems likely that CD-ROMs will continue to sell, especially in combination with Web-based services (Miller, 1998).

<sup>4</sup> 'Conversion', as used in this context, is taking a print product and turning it into a digital file, which can in turn be manipulated to become part of a CD-ROM database or a new print product. 'Development' would then be taking those digital files and creating a new product, usually electronic.

### ***Focussing Value Adding Activities: Content Creation versus Access Provision***

When electronic directories become stand-alone products independent of the printed counterparts, an increasingly relevant issue for developing a sustainable business with directory publishing is whether to focus one's added value on 'content creation' or on 'access provision'.

In addition to the three 'company tradition', 'brand name' and 'sales force' (see above), it clearly has been 'content creation', and not the pure packaging or the sales channel that has made the difference for Krak's success over centuries. However, in the era of the Internet, when information is publicly available on the Web, how easily can it be copied? In addition to the issues inherent in trading physical goods on the Web, trading information electronically on the net raises concerns such as version control, authentication of the product, control over intellectual property rights (IPR). Altogether, in electronic directory publishing it seems likely that 'access provision' may dominate in terms of relative importance over 'content creation'.

### ***Pricing***

Finally, conventional pricing and transaction mechanisms are barely suitable for capturing the economic value of electronically traded (Goldfinger, 1997, Coase, 1974). The price a product is sold for normally consists of three elements: production costs, co-ordination costs, and profit margin (Benjamin, Wigand, 1995). Co-ordination costs include the transaction (or governance) costs of all the information processing necessary to co-ordinate the work of people and machines that perform the primary processes (Malone, Yates, Benjamin, 1987). With variable production costs near zero, drastically reduced transactions costs due to information and communication technology usage, and questionable profit margins in current business models, new concepts have to be put in place for analyzing prices of electronic information.

Traditionally, the price of a book depends heavily on its printing quality and the number of pages, while the price for an 'excellent' book is almost the same as for a poor one. Electronic trading information allows for unbundling: content can be priced separately from its physical support (e.g. books) allowing for price discrimination based on the estimated value of the content. The unbundling, however, also raises problems. Administration becomes more complex and cross-subsidies between profitable and non-profitable, but nonetheless desirable content to offer, diminish.

Having the possibility of pricing on the basis of content quality, the question regarding what price to set arises. Production costs cannot be used as a guideline for pricing since there is no link between input and output. Mass consumption does not require mass production.

Companies just start to investigate the range of possible cost-recovery and economic sustainability (see also Clarke, 1997). In the end, models will become rather complex and will have to take into account the trajectories 'organizational mission', 'frangibility' and 'reusability' of content, the desires of the audience, etc, each with its own set of imperatives (Jensen, 1998).

#### 4. Outlook to the Reference Frontier

While offering content on-line has become extremely popular in the Internet era, only few companies are already prepared to take advantage of their vast content archives and participate in electronic trading in this supposedly very valuable resource/good. In the near future, new market structures will emerge as a consequence of the Internet (or whatever succeeds it) and of the subsequent feasibility of commercially providing electronic content.

The field of directory and reference publishing provides enormous opportunities for originality and creativity. Although competition is growing all the time and the field is populated with more publishers and products than ever, new products may still be invented.

The endless possibilities of electronic formats have opened the reference frontier anew. In acknowledging these new possibilities it is very important not to lose sight of market needs and of the importance of the editorial function, things that have brought success in the past. Technology will continue to change and, unlike bound volumes, the electronic formats produced nowadays will look archaic in years. The challenge is to create content for the future inspired by the current technology (Miller, 1998).

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