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Pricing for Digitized Information Goods: The Case of Austrian Online Newspapers

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Abstract

The paper gives a very brief overview about pricing concepts for digitized information goods. The main part of this analysis is devoted to the explanation of the fact, that despite of the existence of these pricing concepts, the price for almost all web versions of newspapers equals zero. For this purpose we conducted an investigation, focused on expert interviews with the managers of Austrian online newspapers. The results of this study show why the price currently equals zero, how revenues for online newspapers may be achieved, and what the managers think about the theoretical pricing concepts.

Definition of Digitized Information goods

The term "digitized good" is applied to any good which exists in an electronic form, i.e., encoded as a string of bits and bytes (=digitized). What is decisive here is the fact that it not only can exist but does exist as a series of bits, which means it has to be digitized. This also constitutes the major difference to information goods. Information goods contain information, i.e., "descriptions of situations and processes" (Hansen 1996b), irrespective of whether this information is available on paper, papyrus, hewn in stone or on CD-rom. Thus, products ranging from books, databases, (electronic) newspapers, magazines, films, and music are information goods. The characteristic common to all information goods is that they are generally digitizable and can thus - theoretically - be distributed completely via an electronic network, with "completely" here denoting all stages in the transaction process, from initiating a deal to signing a contract up to payment and delivery. (Varian 1995). Information goods contain knowledge, therefore all digital goods are not automatically information goods. It becomes evident from the above mentioned that the sets of information goods and digital goods intersect, and it is this intersection which is relevant for this study. These considerations result in the following definition of digital information goods:

1. A digital good is a good which exists in electronic form, i.e., encoded as a set of bits and bytes, and can thus be transferred via a network structure (e.g., computer programs).
2. An information good is a good which is bought for its content. The good is actually the content, viz. the in-

formation/knowledge which it represents. Examples include fiction books, technical books, encyclopedias, newspapers, magazines, and manuals.

3. A digital information good is a good which combines the qualities a) and b).

Cost and Market Theory Related Considerations

One of the cardinal features of information goods is the fact that the original production is generally very expensive, while the reproduction cost of an information good - once it has been created - converges on zero. Thus, the marginal cost of (re)production is minimal (Varian 1995). The production of a complex movie, for example, costs several hundred million dollars, while the cost of production of the copies for distribution is negligible by comparison (Shapiro and Varian 1998)¹. This is one of the main reasons why the classic cost-based price setting (unit price = unit cost + margin), which can often be found in practice (Hansen 1990), cannot sensibly be applied to information goods (Shapiro and Varian 1998). The more units are produced of an information good, the lower the average cost per unit becomes. Apart from these economies of scale, the cost structure of information goods shows another peculiarity: the biggest share of original production costs and thus fixed costs is accounted for by sunk costs (Varian 1998).

The essential cost characteristics of information goods can be summarized as follows (Shapiro and Varian 1998):

1. The original production of information goods is very cost intensive, while the marginal cost of reproduction (making of copies) is almost negligible.
2. Once the original of an information good has been produced, the largest share of total costs (including reproduction) has already been incurred. A large percentage of these costs (depending on the specific information good) is sunk costs.

¹ It must be noted, however, that using an information good (I1) in the production of another digital information good (I2) as an input factor not belonging to the producer of I2 can - as a result of copyright payments - lead to marginal costs which are significantly higher than zero (Whinston, Stahl, and Choi 1997).

3. There are no "natural" capacity limits to the production of copies, which means that the cost per copy remains the same, irrespective of whether ten copies or one thousand copies are made.

Obviously, the cost characteristics of information goods described above also affect price management. The main impact is that a market for information goods can never be a perfect market in a neoclassical sense, since the price for digital information goods is not zero and is thus higher than the marginal cost (Whinston, Stahl, and Choi 1997). The goods traded in electronic information markets are not homogenous, in particular because variations of already produced goods can easily be created by simple and inexpensive - even automated - copying procedures (Shapiro and Varian 1998).

In order to be able to engage in price discrimination, the supplier's price-demand function simply has to show a monopolistic section, i.e., also the company's individual demand curve, and not only the total demand curve of the market must show a declining slope. Price-demand functions of companies that operate in imperfect markets show a monopolistic section, which means that $dq/dp < 0$ at least for a section of the demand function $q=q(p)$. Measures of price discrimination are taken within this monopolistic section of the price-demand function (Fantapié Altobelli 1992).

Price Discrimination and Bundling

As is known from utility theory, consumers can assign different utility levels, i.e., differing extents of the capacity to satisfy their needs, even to objectively well equivalent goods. Consequently, they are prepared to pay different prices for identical or similar goods. These different utility levels represent different maximum prices (reservation prices) which individual consumers are ready to pay for the product in question. The real demander structure is thus always heterogeneous (Brösse 1997), as are the incomes of the demanders. Therefore, it is well possible that a customer who assigns the same utility to a good as another customer does not buy the good at all - for budgetary reasons - or prefers a cheaper version of the basically identical good over the more expensive one. An example may be the decision between traveling first or second class on a train (Ekelund 1970). If this difference in willingness to pay is exploited, new potentials of increasing profits open themselves to companies. In other words, the consumer surplus - i.e., the profit lost to suppliers as a result of the different levels of willingness to pay on the part of consumers - should be tapped. Ideally, the price which a consumer is prepared to pay can be agreed individually, the prerequisite being that the demand function shows a monopolistic section, i.e. at least partly fulfills the condition $q=q(p)$ with $dq/dp < 0$ mentioned above (Huber 1994).

Another precondition for price discrimination is the segmentation of the market into separate submarkets or market segments (Hüpen and Tycho 1981). This segmentation can - for example - be achieved by (seemingly) different versions of a product. It is not whether the products actually are different or not, but rather if they are perceived as different by the consumers. Thus, the supplier must be in a position to realize several price-quantity combinations simultaneously (Stackelberg 1939). Obviously, suppliers are only interested in price discrimination if it entails an increase in profits. In other words, it must earn more than the cost of its realization (Kortmann 1997). The literature differentiates between price discrimination of the first, second, or third degree (Pigou 1960).

First-degree, or perfect, price discrimination means that each single buyer of a product is charged his/her reservation price (Varian 1995). In (Shapiro and Varian 1998) and (Tacke 1989), a personalization of the price is equated with first-degree price discrimination. If all consumers were actually charged their reservation price, the consumer surplus would be scooped up completely.

Second-degree price discrimination, or non-linear price setting, means that consumers pay different unit prices for different quantities of the same product (Hirschey, Pappas, and Whigham 1993).

The term 'third-degree price discrimination' is used for cases where different consumer groups are charged different prices, with the essential feature here being that these groups show different demand functions with different price elasticities (Varian 1985).

Additionally *bundling* offers also opportunities for suppliers to increase their profits (Bakos and Brynjolfsson 1999a).

The analysis of bundling strategies for digital goods shows that selling digital goods in large bundles instead of individually may nearly eliminate deadweight losses and additionally bundling strategies have the ability to extract more profits from the consumers than selling the goods separately. Bundling has the potential to transform consumer surplus in additional profits for the supplier (Bakos and Brynjolfsson 1999b).

Economic analysis has shown that bundling strategies are particularly attractive if marginal cost of reproduction are zero or very low, what is true for digital goods. The reductions in marginal costs made possible by low-cost digital processing and storage of information will favor bundling strategies, while reductions in transaction and distribution costs made possible by global computer networks will favor unbundling strategies (Bakos and Brynjolfsson 1999a).

Online Newspapers

Digitized information goods are very heterogeneous, i.e. it is not reasonable to use for completely different goods like music, technical information, or online newspapers the same pricing policy. Therefore a special field was chosen for the empirical investigation: online newspapers.

Online newspapers were selected because they are wide spread and common internet services. (Meyer 1999) shows that there are already 5000 online newspapers in the web. The vast majority are US products, Europe holds by approximately 800.

Online newspapers are digitized versions of classical print media. In the traditional print media industry differential pricing (e.g. monthly or yearly subscription rates) and bundling (e.g. if you buy two products from one publisher you get them cheaper as if you buy them separate) are common practices – which is not true for online newspapers.

The online newspaper industry suffers from the web users general unwillingness to pay which is especially true for content. An international study conducted by (Kenney, Gorelik, and Mwangi 2000) verifies this. Hundred online newspapers were analyzed but only one – the Wall Street Journal - charges a fee.

In the field of special interest magazines the use of pricing methods for online versions is more common, e.g. variety.com a magazine for the entertainment industry charges a monthly subscription rate of US \$33. Existing subscribers to one of the print versions receive a specially discounted subscription rate of US \$15.

The Wall Street Journal executes the same strategy for their online version. They charge non-print subscribers US \$59, print subscribers US \$29 per year.

The New York Times executes a different strategy, readers have to register but access is free. Only the archive generates income on the enduser market: The archive allows a search for articles from the last 365 days of The New York Times. Searching is free; but for printing an article or saving it on your computers hard disc you have to purchase this article (text-only) for \$2.50.

Research Questions

The basic question in this context is: “Why are all of the online news papers offered for free?”

This is indeed surprising because their traditional counterparts are not free and traditional news papers can never provide the same convenience enhancing features like online newspapers. So online news papers are creating obviously an additional value for the consumers – which in terms of utility theory should lead to an even

higher price compared to classical newspapers - but in practice no price is charged for them.

For answering the basic question mentioned above, the question was operationalized, i.e. decomposed in five specific research questions:

1. Why should readers use the online newspapers?
2. What are the tasks of online newspapers?
3. How useful are theoretical pricing and bundling concepts for the online newspapers?
4. What will be the major income sources for online newspapers?
5. Are electronic (micro) payment methods necessary if online newspapers should be sold?

Method & Design of the Study

The study focuses on the supply side, i.e. consumers are not included in the samples. The study was completed as explorative qualitative research based on an analysis of the web sites of the online newspapers and expert interviews. The duration of one interview was between 60 and 90 minutes, twenty interviews were executed. The interviewees were managers of Austrian online newspapers.

Therefore two different samples have been used:

1. For the analysis of the web sites of the online newspapers:
All 37 Austrian online newspapers were analyzed.
2. For the expert interviews:

Here the sample size was 20. These twenty interviews corresponds to 24 online newspapers, because of ownership structure some managers are responsible for more than one online newspaper.

The reason for the restriction on the supply side and why expert interviews were selected as method for data collection interviews is, that the responsible managers of online newspapers are the persons who have the greatest insight and knowledge of their sales strategies.

Findings of the Study

The period of analysis started with February 21st and ended with March 16th, 2000. Within this period 37 web versions of Austrian newspapers have been identified. Table 1 gives an overview about the use of internet specific features and compares them with international data taken from (Kenney, Gorelik, and Mwangi 2000).

The comparison shows that Austrian online newspapers have international standard, only the availability of e-mail addresses of reporters (on the papers homepage) is still missing completely.

Tab.1: Comparison of Austrian and international online newspapers (source for international data: (Kenney, Gorelik, and Mwangi 2000)), $n_{(Austria)}= 37$, $n_{(International)}= 100$

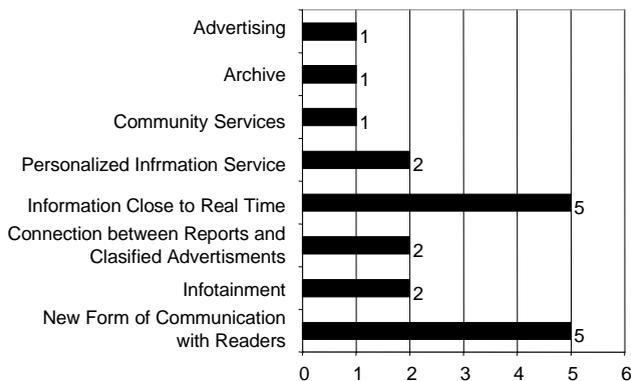
Characteristics	Austria	International
Search engine	38%	23%
News prominently placed on the homepage	81%	83%
Hyperlinks within stories	27%	33%
Some type of hyperlinks	100%	52%
No e-mail address of the reporter of the main story	100%	36%
Chat rooms	38%	12%
Discussion groups	35%	17%
Feedback mechanism	100%	49%
At least one e-mail address displayed on homepage	59%	51%

The most important tasks of online newspapers is a close to real time information and the implementation of new forms of communication with readers/users.

The close to real time character of the information necessary for online newspapers transforms them into something like news agencies.

Figure 1 shows what the managers regard as most important tasks of online newspapers.

Figure 1: Tasks of online newspapers, $n=20$



The necessity of new forms of communication with the readers implies that the style of journalistic work has to change due to interactivity. The journalists have to respond to user requests and have to integrate user platforms for communication, like communities in their work. This development is of course an empowerment of the readers because their articles may become as important or maybe even more important than the work of the journalists.

In figure 1 we see that other aspects are regarded as important tasks, too. Especially interesting is the mention-

ing of infotainment. In Austria, newspapers are traditionally less entertainment oriented. This will probably change in the case of online newspapers.

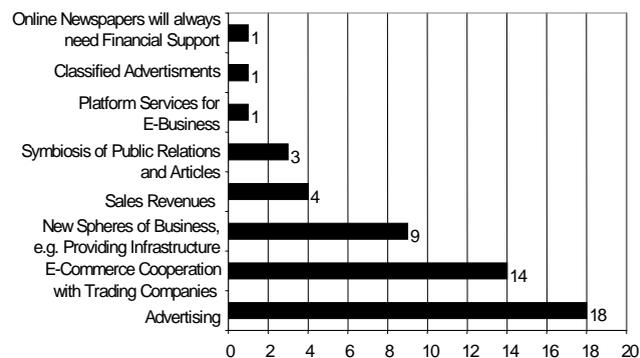
The managers identified several reasons why consumers might use online newspapers the most important are:

1. actuality,
2. feedback mechanisms,
3. archive,
4. more detailed information,
5. use of search mechanisms, and
6. personalization

All these issues should help to make a distinction between online newspapers and their traditional counterparts. The managers generally do not see the online version as substitutes for traditional newspapers but as new products.

Online newspapers should provide new services and a content that is a complement to the content of the paper-based versions. The vast majority of the managers of Austrian online newspapers are planning to create complementary products, whereby the traditional news papers should provide a basic and broad information and the online newspapers have the task to provide in depth information, feedback mechanisms, archives and personalized services. Therefore, the revenue sources of traditional and online newspapers are partly different.

Figure2: Major income source of online newspapers, $n=20$ multiple votes were possible



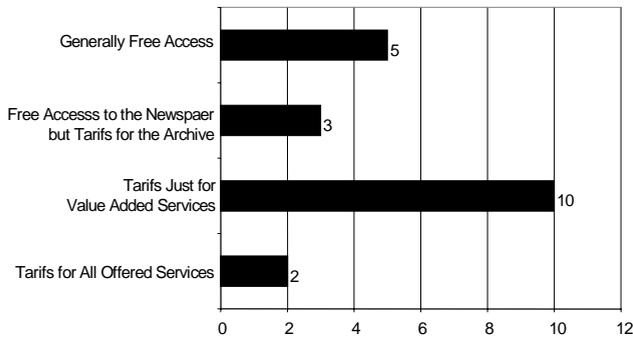
Almost all managers said that advertising is a possible source of revenues but the majority of the managers added that advertising alone will not be sufficient for creating profits. The managers think that without engaging in classical e-commerce activities the income will not be high enough to cover the costs.

This means that online newspapers will have to cooperate with other businesses, such as retailing companies so that the specific knowledge of both companies can be used for mutual benefits.

The managers think that they have to identify new types of business for their online versions, types that have not been interesting for the paper-based versions. The most quoted example was the provision of web shops. The managers think that they have the technological knowledge of implementing and running such an electronic market. They simply need partners (some call them customers) who are willing to sell their products via the web shops of the online newspapers.

Entering "new spheres of business" means that the managers are thinking about using the specific knowledge of their staff in other lines of business. All of the great Austrian online newspapers are thinking about an extension of their provider function. They want to extend from pure content provision to content and infrastructure provision. Some of them have done so already.

Figure 3: Possibility of pricing of services in the enduser market, n=20



Surprisingly selling the online version to the consumers is regarded as less important. Few managers mentioned a generally accepted missing micropayment method but the majority (18 out of 20) think that providing traditional payment methods would have a positive influence on sales and therefore missing suitable electronic payment systems are generally not regarded as reason why online newspapers are given away for free.

The managers believe that the main reason for a price equal to zero is an "unlucky" market development and that there is no logical reason why value generating services are given away for free.

Tab. 2: Usefulness of pricing concepts, n=20

Pricing Method	Useful for Online Newspapers	Not Useful for Online Newspapers
Differential Pricing in General	8	12
Versioning	15	5
Bundling	13	7
Non-linear pricing	14	6
Personalization	18	2

Due to a good market transparency the managers regard differential pricing generally as difficult. The most appropriate concept is for the managers personalization, followed by non-linear pricing (just for the archive), versioning and bundling.

Nevertheless, the managers of Austrian online news papers are optimistic that they can generate some profit with their products in the near future. They believe that the majority of income will be earned by cooperating with other businesses in the electronic commerce area.

Conclusions and Summary

1. Why readers should use online newspapers?

Online newspapers provide more recent information than their traditional counterparts. Additional special value added services create more utility for the users.

2. What are the tasks of online newspapers?

Online newspapers have to provide a new mode of communication, i.e. the traditional mass communication model – which implies a clear distinction between sender and receiver of information – is obsolete. Online newspapers are interactive communication platforms, where the opinion of a "reader" may become as important as the reporters' opinion.

Online newspapers have the ability to serve as databases, therefore providing an archive is a "must have feature". The same is true for personalized information services (including push technologies).

Online newspapers should be more entertainment oriented than their paper based cousins.

3. How useful are theoretical pricing and bundling concepts for the practice?

The managers agreed that personalization (a kind of first degree price discrimination) is the best concept for online newspapers. This means that the users will pay only for personalized, highly specific information.

Group pricing (e.g. different versions of an online news paper) and bundling strategies were found to be minor important because of the possibility of personalization. Therefore it can be concluded that the customers are not willing to pay for different versions/bundles but only for offers perfectly tailored to their personal needs.

Non linear pricing (2nd degree price discrimination) is neither useful for personalized information services nor for access to the classical newspaper content, but it is a suitable method for pricing archive inquiries.

4. What will be the major income sources for online newspapers?

Selling services to consumers – with or without price discrimination – will be only of minor importance in

future. The greatest share of future revenues will be generated in the business to business area.

Surprisingly the managers said, that classical advertising (e.g. banner) will not be the major income source in the business to business field. Online newspapers have to enter new spheres of business. They have to seek cooperation with other companies interested in e-business and provide platforms for online-shoppers or provide electronic markets by themselves.

5. *Are electronic (micro) payment methods necessary if online newspapers should be sold?*

Electronic (micropayment) methods are helpful but not necessary. Contrary the majority of the managers think that providing traditional payment methods (e.g. giro inpayment form, classical account to account money transfer) has a positive influence on sales.

Pricing and bundling strategies do not play an important role within the sales concepts of managers of online newspapers, primarily because the managers believe that the revenue potential in the enduser market is very low and therefore they focus on other income sources.

The managers of Austrian online news papers are convinced that their products will generate profits in the near future, but the majority of the income will be generated in the business to business area of electronic commerce. As selling an information good is not the type of business online newspapers will do in the b2b field differential pricing and bundling will not be employed in this area.

Some earnings will be made in enduser markets too, especially with personalized information services, the archives of the online newspapers and classified advertisements, i.e. price discrimination and bundling will be used here. But as the b2c market is only responsible for a small amount of online newspapers' profits, generally speaking differential pricing and bundling do not play an important role for them.

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