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Can Internet-Based TV Succeed? Towards a Sequential Framework for Market Entry

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Abstract

The advent of the Internet alleviates the access bottleneck to TV distribution channels and softens licensing requirements. This lowers entry barriers to TV markets via the Internet in various forms. This paper takes the German TV sector as an example to analyze the attractiveness of TV markets for new entrants. A sequential framework for entering TV markets is introduced. The skills set of an Internet-based TV provider for such an entry is examined. Technical feasibility, legal aspects, and potential sources of revenue are considered.

Potential above average profits due to the market's oligopolistic structure, as well as an increased contestability thanks to lower market entry barriers render the German TV market attractive for new entrants. In early 2002, Internet-based TV still faced severe technical and legal constraints. The analysis suggests that once these constraints have been overcome, the Internet can be an attractive additional distribution channel for television. While existing revenue sources from the TV sector are expected to be transferable to a certain degree, the value of innovative revenue sources based on online sales cannot yet be determined. This value will depend on the future acceptance of interactivity by the viewer (e.g. Owen 1999).

1. Introduction

Traditional media companies face the fact that their product, e.g. entertainment and information, is affected by digitization and the Internet. The Internet lowers the cost of distributing content, it enables interactivity by providing a back channel, and it eliminates barriers to entry, e. g. those barriers erected through broadcast licensing systems. While access to distribution channels constitutes a severe bottleneck for traditional media companies (Habann 1999), the Internet provides the opportunity to cope with scarce access to distribution channels. Lower entry barriers offer new entrants the chance to establish their pool of customers. Evans and Wurster (1997) describe this phenomenon for the case of newspapers. Vogel (1998, p. 213) states it more generally: "... the Internet has evolved into a low-cost mass communication medium that empowers anyone to instantly publish - anywhere around the world - words, moving pictures, music, computer software, and anything else that can be digitized."

2. Towards a Definition of Broadcasting and Internet-Based TV

Broadcasting can be defined as "... sending out sound and pictures by means of radio waves through space for reception by the general public." (Head and Sterling 1990, p. 4) or as Bittner (1991, p. 14) states, "... broadcast can mean scattered over a wide area." Broadcasting includes radio as well as TV. However, 'pure on demand' services, which are not streamed live, are not classified as broadcasting in this paper. We further exclude approaches like 'Business TV', i.e. communication within a corporation, because they are not directed at the general public.

Based on this definition of broadcasting, the activity of 'broadcasting' audio-visual content via the Internet needs to be defined. There are several definitions for activities which include elements of traditional TV and the Internet. Webcasting is defined as "... sending digital information over the Internet for reception, viewing and or listening by the public, possibly involving some interaction between the sender and the recipient" (Miles 1998, p. 1). This definition of webcasting includes all transmissions of audio as well as visual data via the Internet. In contrast, displaying Internet content on a TV screen is often called 'Internet TV', 'Web-TV' (leads to mix-ups with the company 'WebTV' which belongs to Microsoft), or 'Cyber-TV' (Goldhammer and Zerdick 2000).

—To us, the main criterion determining whether a web-based activity can be described as broadcasting is the existence of live streaming or any related technology-based application. Therefore, the term 'Internet-based TV' is used in this work to describe any transmission of audio-visual broadcasting content which

fulfills the following conditions: (1) directed at the general public, (2) IP-based transmission, and (3) using audio or video streaming.

3. Research Framework and Research Approach

3.1 Towards a Research Framework

To examine the industry and the broader environment faced by Internet-based TV market entrants and to analyze the options for attacking traditional TV markets via Internet-based TV, we developed a sequential framework using the following three key-questions (Figure 1):

- Is the respective TV-market attractive for new entrants?
- Is an Internet-based market entrance feasible considering technical (transmission, diffusion) and legal (media law, copyright) issues?
- What revenue sources might be tapped?

The framework is termed 'sequential' because at every stage an immediate exit will be suggested if the results of the analysis are not satisfactory.

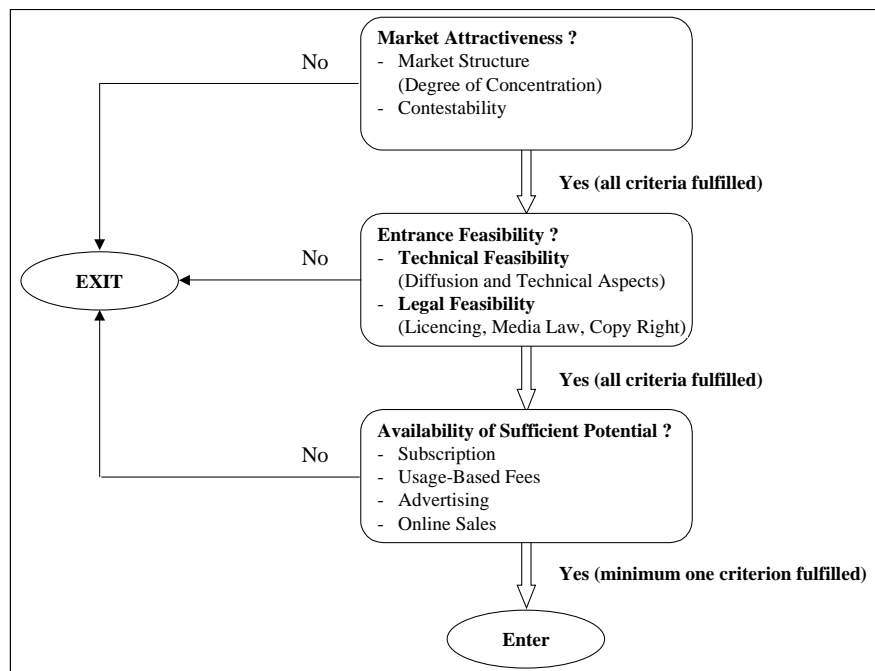


Figure 1: Sequential Framework for Assessing TV Market Entrance

3.2 Research Approach: Framework Application

To test the framework, we applied it to the German TV market, and thus tried to assess the market potential for Internet-based TV in Germany. The results of this analysis, based on secondary data sources, are presented in this paper.

3.3 Data Collection

After selecting Germany as the test market for applying the framework, a market survey based on secondary data was conducted to judge the attractiveness of the German TV market. For industry-wide data-gathering, using secondary data seems appropriate (Emory 1976). The collection of primary data would have been impractical and inefficient. The main source of information was the German 'Commission on Concentration in the Media' (KEK). We also analyzed the data provided by the leading publication for media information in Germany, '*Media Perspektiven*', published monthly by the 'Arbeitsgemeinschaft der ARD-Werbegesellschaften.' Further, specific additional data was gathered from other sources and is referenced individually.

4. Definition and General Characteristics of TV Markets

TV products and services have specific characteristics. TV programs possess some of the attributes of public goods. Marginal costs for additional distribution tend to be almost zero (Spence and Owen 1977). TV programs are experience goods as defined by Nelson (1970). The information paradox (Akerlof 1970) describes the fact that consumers have to experience a good in order to value it. However, after they have experienced the good, they have hardly any incentive to demand the product (Shackle 1952). Due to this information-paradox, in this case better termed 'entertainment-paradox' (Dietl and Franck 2000), providers do not have an incentive to let customers inspect, i.e. experience, the goods before acquiring them. This leads to customer uncertainty. Customers are willing to pay the same price for 'good' programs as for 'bad' ones because, ex-ante, they do not know which programs are 'good' and which are 'bad'. If 'good' programs are not able to overcome this uncertainty, they will be driven out of the market. Consequently, TV markets are always endangered by market failure.

With the exception of Pay-per-view or Pay-per-channel-providers, TV stations usually act in two different markets: (1) the market for audience and (2) the market for advertising. This is the so-called dual-market phenomenon, (see among others Picard 1989). Both markets can be analyzed along the dimensions of 'customer functions', 'customer groups', and 'alternative technologies' (see also Abell 1980). For an application of these functions to TV markets, see also Habann (1999).

The dimension 'customer function' can vary. If TV providers offer Pay-TV, their function is to deliver content (information, entertainment) to the recipients. If they provide commercial Free-TV, their function is to attract attention to commercials as their main customers are advertisers to whom they sell the attention of their recipients (Blumenthal, Geedenough 1998; Picard 1989).

Internet-based TV could serve the same market as traditional broadcasting insofar as customer groups are concerned. Technically speaking, the potential reach of Internet-based TV is broader than the reach of national TV stations. In fact, it is limited only by the access constraints of the web. In contrast, TV broadcasters are nationally available. Practically speaking, only a few viewers in Germany, for instance, are interested in Chinese programs and vice versa. Reasons are language, culture and taste. Therefore, the decision to focus on a geographical target area does not depend on whether traditional or Internet-based TV is deployed. One might then argue that the potential customers of Internet-based TV providers and traditional TV stations are the same.

Traditional TV and Internet-based TV differ in their distribution technology. However, due to convergence on the receiving side, i.e. the customer side, differentiating between transmission modes is losing relevance as a distinctive criterion. We use the term 'traditional TV' when terrestrial, cable, or satellite transmission technology is employed (e.g. Brown, Quaal 1998; Dominick, et al. 2000), and we use the term 'Internet-TV' whenever telecom cables or even wireless networks are used to carry the Internet Protocol. To avoid confusion and reduce complexity, we disregard other entertainment and information substitutes like newspapers and radio stations.

5. The German TV Market

With 36.5 million TV households, Germany is the largest television market in Europe (IDATE 2000; Zeiler 2002). The German market is characterized by a very strong public broadcasting sector. Besides the public stations 'ARD' (including 11 regional stations) and 'ZDF', two other major players exist: The RTL-Group, dominated by CLT-UFA in which Bertelsmann holds a 89% share, and the Kirch-Group (see Table 1).

No other country in the world offers as many national Free-TV programs as Germany (Johns 1998). About 84% of all TV households can receive more than 30 free-to-air programs (Zeidler 2002). However, several entries into the German TV market failed recently. A rather prominent example with little success is the small station, 'TM3', in which Robert Murdoch was involved. For the first two years, this station targeted female audiences. With funds invested by Rupert Murdoch, 'TM3' then repositioned itself by acquiring the exclusive German rights to the soccer Champions League in 1998/1999. In 2000, 'TM3' sold the Champions League rights to RTL and became - again - a niche player.

Despite news reports announcing declining advertising revenues within the past 12 months and the insolvency claim registered by the Kirch Group in April 2002, investment offers from Murdoch and Berlusconi hint at a persisting market attractiveness.

Table 1: Audience and Advertising Shares of German TV Stations

Station / Program	Audience / Station (in %)	Audience / Group (in %)	Advertising / Station (in %)	Advertising / Group (in %)
SAT.1	10,20		20,87	
Pro7	8,10		18,75	
Kabel 1	5,10		4,82	
DSF	1,10		0,03	
Kirch Group		24,50		44,47
RTL	14,80		28,60	
RTL II	4,00		6,24	
Super RTL	2,80		1,97	
VOX	3,10		4,03	
RTL Group		24,70		40,84
ARD	26,80		4,09	
ZDF	13,10		3,80	
Publ. Broadcasting		39,90		7,89
Other (18 Prog.)	n. a.	10,90	n. a.	6,80
Summe		100,00		100,00

Source: AGF/GfK Fernsehforschung 2001; Media Perspektiven 2001; RTL Season Guide 2001; own calculations

In the next three sections, we will analyze the German TV market following the steps described in our research framework.

6. Market Attractiveness of the German TV Market

We analyze the structure of the German TV markets for advertising and audience by considering two characteristics: (1) the market form, e.g. concentration, and (2) contestability, e.g. the impact of low entry barriers. (For the contestability concept, see among others Baumol 1982 and Baumol et al. 1982).

6.1 Concentration in the German TV Market

We illustrate the concentration of the German TV sector by using the Hirschmann-Herfindahl-Index (HHI) for both the audience - and the advertising market. The HHI serves as an appropriate measure for TV markets (Heinrich 1999). It is calculated as follows

$$HHI = \sum_i^n (x_i)^2$$

where X_i represents the market share of each single firm 'i' of n firms in the market.

The range of the HHI is $0 < HHI < 1$, if the market share X_i is expressed in decimal form, or $0 < HHI < 10.000$, if X_i is expressed as an absolute figure. In this paper, the market share is expressed as an absolute number.

The HHI is interpreted by the 'merger-guidelines' of the US Department of Justice. A market with an HHI below 1,000 is considered as 'slightly concentrated' or 'not concentrated at all', a market with an HHI between 1,000-1,800 as 'somewhat concentrated', with an HHI between 1,800-2,700 as 'highly concentrated', and a market with an HHI above 2,700 as 'very highly concentrated' (Bates 1999).

The HHI for the German TV market has been calculated based on the numbers presented in Table 1. Selected HHI resulting from the calculations are shown in Table 2.

Table 2: Hirschmann-Herfindahl-Index(HHI) for the German TV Market

	Audience	Advertising
Single Station / Program	1.339,21	1.718,54
Group	2.921,16	3.753,98

Table 2 reveals the audience market as being 'somewhat concentrated' if single stations are considered (HHI = 1.339,21) or as being 'very highly concentrated' if corporate groups are considered (HHI = 2.921,16). The advertising market is 'highly concentrated' for single stations (HHI = 1.718,54) and 'very highly concentrated' for groups (HHI = 3.753,98).

The assumption underlying the calculation of concentration figures is that high concentrations lead to extraordinary gains. This is supported by the profit margins registered by the two big private German players: 14.1% at Kirch Group and 14.2% at RTL-Group (Media Perspektiven 2001). Nevertheless, the importance of the market form is no longer indisputable. One could doubt whether the correlation between concentration and profits always holds.

6.2 Contestability

Following the theory of contestable markets (Baumol 1982; Baumol et al. 1982), the attractiveness of a market for potential entrants depends more on the entry conditions than on concentration. Potential market entrants may be more attracted by the condition of 'no sunk costs' than by high concentration (Young 2000). Traditionally, broadcasting markets have had strict barriers to entry and little variation in the degree of concentration (Bates 1993; Heinrich 1999). Based on the theory of contestability, new technologies like web-casting could become a threat to traditional broadcasters. Barriers to entry are lowered through reduced 'sunk costs' in comparison to full-fledged broadcasters.

In conclusion, having analyzed the attractiveness of the German TV market based on the two criteria 'market structure' and 'contestability', it can be safely stated that market attractiveness is high, even if the market structures seems to put an extra burden on new entrants. Due to the positive answer to question '1' of the framework, we now proceed to its second layer.

7 Feasibility of Internet-Based Entries

7.1 Diffusion and Technical Aspects

Diffusion describes the process by which an innovation is communicated and adapted over time among the members of a social system (Rogers 1995). The diffusion of Internet-based TV is partially hindered by technical restrictions.

The number of online households is important for Internet-based TV providers because they determine the so-called 'technical reach'. As of January 2001, 34.8% of all Germans older than 14 years of age were connected to the Internet (e.g. www.digi-tv.de). Even though Internet user share is growing, some 'offliners' do not plan to get access to the Internet (Grajczyk, Mende 2000). Furthermore, the number of households connected via broadband Internet access is still much lower. In 2001, approximately 2,1 million people in Germany used broadband cable (primarily DSL) (see *Regulierungsbehoerde fuer Telekommunikation und Post 2002*; www.emarketer.com, however, speaks about only 1,0% of the German population). Obviously, broadband technology is still in its infancy in Germany. Bandwidth must undergo significant improvement to make Internet-based TV a viable alternative to traditional TV. Nevertheless, online access and bandwidth will increase and thus improve the chances of Internet-based TV.

Another technical issue is the standardization of media players. The reception of audio-visual content via the Internet is dependent on such players which enable consumers to view streamed video. So far, there is no accepted player standard. However there are quasi-standards, and growing efforts to achieve compatibility are

under way. Nonetheless, in some cases, the best-known software programs to run TV on the web (Realplayer, Quicktime, Windows Mediaplayer) still do not share the same file formats. This leads to higher workloads for program providers. They have to encode their content for different players. Each format requires its own pool of servers and its own transmission system (Careless 2000). Also, consumers have trouble with additional hard-drive space and the necessity to update their different media players regularly. This lack of standardization is an obstacle to the diffusion of Internet-based TV.

Thirdly, the computer is a barely adequate device for watching TV (Dvorak 2000). The display is limited compared to a TV screen. Further, the transmission procedure is comparatively unreliable. But the quality of transmission is improving rapidly. Streaming software is capable of transmitting 30 frames per second compared to only 8 in 1998 (Bhandari et al. 2000, Steinmetz 2002). As the standard in Germany for analogue TV (PAL) is 25 frames per second (Himmelstein, Liviscach 2000), 30 frames would be sufficient for displaying content in the accustomed quality.

Finally, the diffusion of Internet-based TV is limited by access costs. If the access is expensive, the viewers' willingness to pay for the content is relatively low (Dewan et al. 1998; Thielmann, Dowling 1999). The costs for Internet access in Germany declined by 31% in 2001. Heavy users saved almost 42.3 % from 2000 to 2001 due to the rising popularity of flat rates (Federal Statistics Office Germany, 2001). Declining access costs certainly improve the opportunity for Internet-based TV offers.

7.2. Legal Issues

While the legal situation of Internet-based TV providers is confusing and unstable, traditional TV stations face tighter constraints than Internet-based TV providers. Traditional broadcasters have to accept licensing restrictions, whereas Internet-TV providers are confronted with contradictory regulations in the area of media law (Goldhammer, Zerdick 2000). The main regulatory basis for TV via the Internet in Germany is the 'Mediendienste-Staatsvertrag (MDStV)', which is mainly designed for online services directed at the general public. Internet-TV providers neither need a registration nor a license (§ 4 MDStV). But there is uncertainty regarding future jurisdiction.

An important legal consideration for Internet-based TV is the issue of copyrights (for technical solutions on the Internet see - among others - Clarke, Nees 2000). Most traditional broadcasting rights are sold either regionally or nationally. A worldwide license, which would be necessary for Internet-based TV, is connected with prohibitively high costs. This builds a strong barrier for online transmission of movies and similar content.

Another facet of copyrights can be illustrated by the case of 'iCraveTV'. The Canadian station, 'iCraveTV', broadcasted 17 Canadian and American TV programs

via the Internet (Standeford 2000). They did so by receiving the programs and transmitting them to the Internet without any authorization from the TV stations. After copying the analogue signals of the TV stations and transforming them into digitized signals, 'iCraveTV' barely faced any further marginal costs. Industry giants, especially content providers like Twentieth Century Fox, Disney, ABC and Time Warner successfully took legal action to stop 'iCraveTV'. 'iCraveTV' had to face a court-ordered shutdown of its website (Cave 2000).

Therefore, copying TV programs from third parties into the Internet does not seem to be a viable solution for Internet-based TV. Hence, entering TV markets via Internet-based TV seems feasible at the moment only if entrants are prepared to invest in the rights to content.

8 Revenue Sources of Internet-Based TV

Even when the technical restrictions are overcome and the legal situation is clarified, important questions about revenues have to be answered. Here, we focus on the analysis of the uncertainty problem concerning product quality as described earlier.

Business models for online content can be based on (1) subscription, (2) usage-based fees, (3) advertising and (4) online sales (Alison et al. 1998; Loebbecke 1998; Loebbecke et al. 1998; see also Zerdick et al. 1999; Weill and Vitale 2001). This means that, with the exception of online sales for TV stations, the business models of Internet-based TV providers are similar to those used by traditional broadcasters. In the following, the four different revenue streams are discussed and their benefits and drawbacks are elaborated (see in Table 3).

Table 3: Evaluation of Revenue Sources

Evaluation Revenue Source	Benefits	Drawbacks
Subscription	Bundling	High reputation required
Usage-Based Fees	High marginal payment disposition; reduced uncertainty for customers due to exit options	Efficient micropayment systems required; only applicable to 'premium content'
Advertising	Problems of uncertainty solved	Lowest possible amount of individual payment disposition
Online Sales	Overcoming other -, esp. time, restrictions	Acceptance of interactive elements by TV audience not clear

8.1 Subscription

The marginal payment disposition for additional entertainment and information services in Germany is limited because of the rich offer of Free-TV stations (Stark and Schenk 1999). This weakens the prospects of subscription-based business models. Subscriptions raise the risk the consumer bears, because they confront consumers with a longer-term obligation compared to free or fee-based offers. The risks, embedded in the 'experience good characteristic', i.e. the uncertainty about the product quality, can be reduced by brand names or with guarantees (Akerlof 1970). This requires Internet-based TV to have gained a certain reputation before a subscription-based business model becomes a valid strategy.

Further, subscription represents a way of bundling the content offered (Shapiro and Varian 1999). Bundling describes the aggregation of separate goods into a bundle of goods. From a provider's point of view, it increases profits by smoothing the demand curve and thus shifts parts of the consumer rent to the producer. The benefits of bundling increase as the number of goods in the bundle increases. Bundling is especially attractive if marginal costs are low and the customers' valuation of the goods in the bundle are independent (Bakos and Brynjolfsson 1999; Bakos and Brynjolfsson 2000). Both conditions are fulfilled in the case of Internet-based TV. Hence bundling will generally increase the willingness to pay, thereby enhancing revenues (Shapiro and Varian 1999).

8.2 Usage-Based Fees

Similar to Pay-per-view models in traditional TV, usage-based fees for single bits of content help to reduce the uncertainty described above by segmenting transactions (Dietl and Franck 2000). In contrast to subscription-based business models, the viewer has multiple 'exit options'. Fee-based business models could be appropriate for providers offering 'premium content' for two reasons: Firstly, although handling charges for small payments outweigh the costs of the service (Pagani 2000), this is expected to change with the installation of efficient micropayment-systems based on e-cash or similar technologies (Turban et al. 2002). Secondly, they can capture the marginal payment disposition of viewers for premium content better than advertising-based models (Rawolle and Hess 2000).

8.3 Advertising

In spite of recent market downturns, advertising has been the most important private revenue base in the German TV sector (TV advertising volume in 2001 for all stations in Germany: approximately € 7,5 billion). As of early 2002, only one traditional broadcaster in Germany, the Kirch-Group with its channel Premiere World, offers Pay-TV. Advertising business models rely on the concept of the dual

market (viewers and advertisers) as described earlier. However, the current online share of advertising budgets is comparatively low in Germany. It accounts for about 1,2% of the country's total advertising turnover (A.C. Nielsen 2001).

Internet-based TV can offer a variety of different advertising formats. It remains to be seen how the standard TV spot and Internet advertising will merge and evolve. Advertising might also be based on such concepts as 'content sponsorship', i.e. the soap opera, which goes back to the early days of radio (Hanson 2000). In the Internet era, more customized approaches and new advertising concepts gain importance (Turban et al. 2002; Pramataris et al. 2000; Lekakos et al. 2001). In the United Kingdom, two large providers (Cable&Wireless, Sky) are experimenting with interactive advertising via TV (Pagani 2000). However, any predictions about the development of more personalized TV advertising thanks to Internet's potential for interactivity are speculative at this stage (see also Brown-Kenyon et al. 2000).

8.4 Online Sales

Subscription, usage and advertising-based revenue sources, all suffer from customer time constraints. Consumers are willing to spend a defined amount of time and money on media consumption. Although this amount may rise, it is limited. Such limitations could be overcome by expanding the economic activity of TV providers to online sales. Due to the interactivity provided by web-based solutions, additional business models like online sales triggered by broadcasting elements might be implemented (Alison et al. 1998). In spite of the success of TV shopping channels (Gruninger-Hermann 1999), it is not clear yet whether recipients will take advantage of TV offers for transactions (e.g. Lee and Lee 1999; Margolis 1996).

TV causes rather passive media usage (Levy and Windahl 1984; McQuail 1972). This view is supported by Zimmer (2000), who predicts that active usage will gain importance only slowly. In the area of traditional TV, tele-shopping enjoys rising popularity (Gruninger-Hermann 1999). This might offer insights into the potential acceptance of online sales via Internet-based TV. However, the development of interactive features in the TV sector is at an early stage. Hence, any predictions about the future value of online sales solutions are problematic.

8.5 Overall Assessment of Revenue Sources

In conclusion: There is no reason why the traditional sources of revenue should fail in the case of Internet-based TV since the underlying business models are comparable. However, the economic relevance of the advertising model that drives traditional TV broadcasters needs to be watched carefully. Currently, the advertising income of traditional TV stations is much higher than the advertising income attributable to Internet-based TV or even to all web content. Valuing

innovative revenue sources like online sales or customized advertising generated by growing interactivity in any detailed manner does not seem possible at this stage.

9. Conclusion and Critical Assessment

Our analysis shows that the German TV market could be attractive for potential entrants via the web. This conclusion is deducted from the above average profits which are based on the high market concentration. This first conclusion is also supported by the profit margins of the two largest private TV players in the German market. The advent of the Internet lowered entry barriers into TV markets and will probably also lead to lower concentration figures. Decreased sunk costs trigger higher contestability.

Nevertheless, the diffusion of Internet-based TV is hindered by technical restrictions such as the unsatisfactory quality of the transmitted pictures caused by bandwidth limitations (and the correlated access costs) as well as by the absence of a common standard media player. As far as legal restrictions are concerned, the issue of copyrights and the general instability with regard to regulations are the most powerful barriers towards a further spread of Internet-based TV.

While this paper predicts that technical issues will be solved in the future, estimates about the legal situation are still ambiguous. Although the Internet may well become an efficient channel for the transmission of TV, the viewer numbers will most likely remain way below those of traditional TV.

Internet-based TV is likely to tap the same revenue sources, such as advertising, as traditional TV stations. Innovative sources based on interactivity are at an early stage and thus cannot be evaluated properly. Their success will primarily depend on the acceptance by customers of interactive functions in the TV environment.

In summary, at least in Germany, all necessary conditions for a successful entry of Internet-based TV into the traditional TV sector seem to be fulfilled or could be fulfilled in the short to mid-term.

Critically assessing the research framework developed, it has proven to be applicable and helpful for evaluating a total market, but also for consulting individual stations in their strategic decision to enter the Internet-based TV market. It is clear that the model lacks specific and detailed checkpoints which remain to be investigated in order to precisely assess market potential and market impacts. As a result, the validity of some of the statements made can and should certainly be questioned. Nevertheless, as long as the market and the literature are lacking any more in-depth approach which would be tested for validity, we feel that a proxy such as the one presented here not only provides important insights after a phase of exploratory research, but could also lead to further statistically relevant results that could ultimately be taken into account in political decision-making processes.

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