Content-on-Demand:
Business Models for the Media Industry

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Abstract

This working paper analyses in detail the idea of Content-on-Demand and develops business model patterns. These patterns outline the future economic outlook and provide the media industry with a framework to implement concrete and leading-edge business models. Furthermore, important subclasses of Content-on-Demand are explained and the emerging patterns are applied to the already established subclass Print-on-Demand. The article also provides an initial estimate of the market impact of Content-on-Demand.

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1 Introduction

Content-on-Demand (CoD) is often used as a catch phrase for a new way of producing and distributing content, which is close to customer's needs; but up to now it has not been analyzed academically. Probably, the most popular example for CoD is Napster, whose impact shocked the music Industry. By 2001, about 29 % of all American adults and about 53% of Americans age 12 to 17 downloaded music files over the Internet, mostly free of charge (Fox/Wrenn 2001, p. 112). The purpose of Napster was to create a (free) exchange market, but it also gave the consumer the option to receive only what she needed, rather than purchasing an entire CD. In fact, many consumers are not interested in an entire CD, but only a in few favorite songs. Other, fee-based approaches are found in the film and broadcasting industry. Pay per view gives customers the choice of watching movies anytime – in the future even on a cell phone. New technology even allows the print industry to offer their products on demand, available at any time at any place, and sometimes with individualized content.

The goal of this working paper is to analyze CoD in depth using an economic approach and to provide the media industry with a decision-making framework for new business areas. The analysis is performed deductively, and it develops a detailed framework. Even though some examples for CoD exist and some literature is available (see Watermann 2002, pp. 4-5), an inductive method could run the risk of missing critical future concepts. Currently available analyses cover only a part of the options that CoD gives us. Furthermore, it is almost impossible to predict new trends in technology. Therefore, the framework is constructed using a strategic approach, which makes it relatively independent of technological developments. Nevertheless, some cases provide support for the developed framework. The fourth part of the paper makes an attempt to discuss the market impact of CoD.

2 Content at a Glance

Even though content is a very broadly used term, it is essential in helping us understand the subsequent usage of the term. The term content might be confounded with the related term media product. Media companies distribute media products (e.g. TV programs, newspapers, online-offerings) based on a specific medium. While media products are carried on a physical medium (e.g. paper), its value is usually linked to their intangible part. The immaterial aspect of media products has a dual character (e.g. Picard 1989, p. 18): Information as well as advertising distributed along with this information. Information can be used in the narrow

sense of the word for business and education. It also includes entertainment. From the consumer perspective information is primarily of value; we even refer to media products as information goods (Shapiro/Varian 1999, p. 3). We will thus assume that media content is primarily information, which is edited and published in some way. While advertising can also be of value to the consumer, it is typically not requested or even desired, and frequently seen as a necessary evil. In fact, some recent technologies, such as TiVo, a digital video recorder, are even designed to eliminate advertising from recorded television programs.

Content usually does not provide us with one single type of information; it offers a compilation of different independent information units, which in turn, are bundled. For instance, a newspaper consists of various articles, and these articles consist of many units of text and images. The smallest logical unit can be called an information element (Rawolle 2002, p. 15). Information elements are typically based on a media type, which determines its nature as it determines the very nature of the content. Looking at the traditional media types, we can divide them in the categories text, picture, audio and video. These media types are associated with a passive role when we consume content. In recent years, interactive content has been added as a new category, which incorporates a number of possibilities of new media (Mundorf/Laird 2002). Interactive content has many characteristics and it is constantly evolving. A key characteristic is that the consumer plays not only the role of a content receiver, the content interacts with consumers and prompts them to become active, in contrast to non-interactive content. Finally, interactive media integrate the four traditional types, and allow the combination of different types of content and into multimedia content. Figure 1 illustrates the different content types.

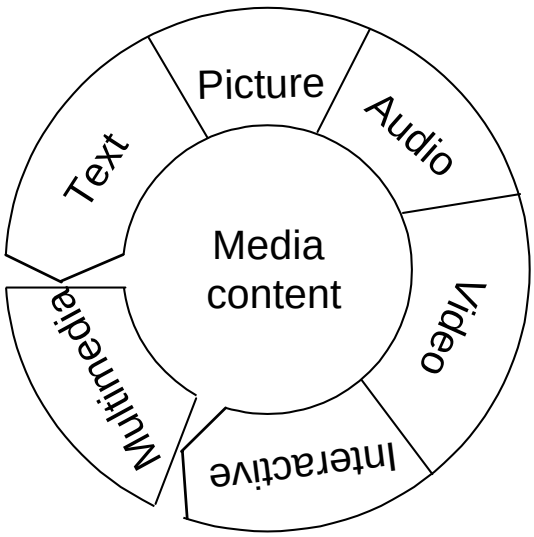

Fig. 1: media content: Different types of

Up to now the distribution of content has been linked to mass production, due to the economics of media content. Production and distribution costs create two separate economic challenges. The production of the content is independent of the number of receivers and involves high fixed costs for the first copy (Zerdick et al. 2001, p. 162). In contrast, additional copies are relatively cheap. For this reason, media companies use mass production, which allows them to take advantage of the decline of unit cost: every (identical) copy allows to spread the first-copy-cost while variable costs are low, which reduces the costs per unit (Owen 1975, pp. 15-17). Furthermore, especially for print content (books, newspapers, magazines) set-up costs for equipment are substantial and lead to the production of copies based on market estimates.

The disadvantage of this mode of distribution is that the product is not always close to market needs. For instance, many newspapers and books are destroyed unread and TV-shows cannot be received by people who work or travel. Customers have to buy content that is selected and bundled by an editor and may not match their needs. The idea of CoD is an attempt to align content production and distribution more closely with market needs. Up to now, the idea was not realizable due to technological shortcomings. But times have changed; today all content can be digitized (Tapscot 1996, p. 48-50). The usage of digitized content allows targeting of production and distribution close to customers' needs. Consequently, CoD can be understood as a method of distributing content according to market needs. Market needs manifest themselves in specific levels of demand and in business models to satisfy this demand. These models are discussed below.

3 Business Models for Content-on-Demand

Business model has become a very widely used term, especially in the field of e-commerce (Timmers 1999, p. 4). To understand the term, we need to identify what the input goods are and from whom they are acquired. Subsequently the product architecture has to be clarified, including who the customers are and how the product will be sold. Second, an internal view allows us to understand which goods and serviced are required to produce and to distribute the product.

3.1 Business Model Patterns

The goal to develop business models, which have to be highly independent of technological changes, requires us to start with an established media vehicle. Our starting point is the media value chain, consisting of three steps of value generation. First, content is created, e.g. by an author or a production company, second particular content bundles are selected and configured according to editorial and media requirements, third the packaged content in its final form is bound to the medium and distributed to the consumer (Schumann/Hess 2002, p. 1).

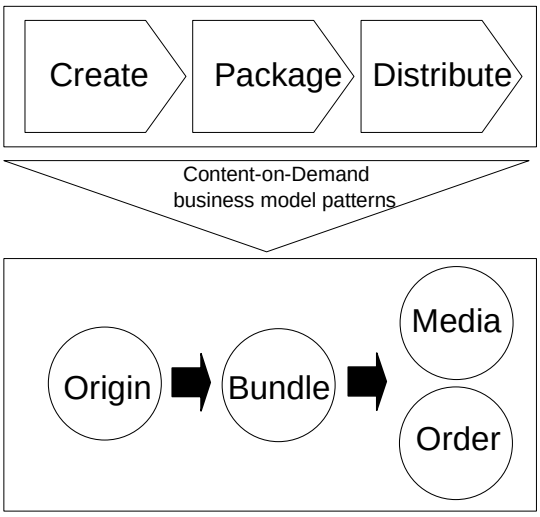

Fig. 2: Content-on-Demand business model patterns

As we can see in figure 2, based on the media chain we can distinguish four CoD business model patterns. These patterns are arranged according to the value chain and represent a theoretical, general view of possible business models.

Origin: Origin is the first on-Demand pattern of the value chain. Content origination depends on human beings, who create the content. The content can be used subsequently within a media company or be sold as pure content to another media company. Independent or associated authors, editors, photographers etc. usually create content. On-demand creation means that not only does the impulse for the creation come from the customer; the content also has to be originated according to the customers' needs. Up to now, end-consumers are not the customers of this value step, because it is too expensive. In this context, we understand CoD as a method to create text- and picture-based content for the Internet or company intranets.

Bundle: Packing particular content into an entire bundle is a core competency of media companies. Input good content units are purchased on the content market or are taken from within the media company. At this value step we see the change from a content-based to a product-based view. The content has to be conveniently packaged to sell it to a customer. For instance, different newspaper articles are selected, merged with pictures and ads; they are then positioned on a specific page. The starting point for on-Demand business at this value step is in the selection of content. In non on-Demand business the media company plays the role of the selector, the customer only decides whether to buy the entire content or not. Moving to on demand business means that the customers select the content units out of an offered compilation. Customized configuration of the content product, e.g. the typeface, can extend the business model.

Media: The third value step deals with the distribution of content. In this step content is bound and copied on a medium in order to sell it. The selection of the content usually is the decision of the media company. In on-Demand business customers can choose their medium. They are the ones who decide not only what content they want they also decide in what medium they wants their content. For physical media products this includes the possible disposition over the quality. Nevertheless, also differences in quality between HTML-, PDF- and e-book-structures can be identified, and as we will see below, be the basis for different pricing strategies.

Order: The product in itself is one part of the distribution; another is the way of distributing it. A good example for traditional business is book distribution. Books are copied based on market estimations and sold at bookstores. Thereby, the demand of the customer is directly not included. In the business model ‘Order’ copies are order-based. Furthermore consumers should decide where and when they want to buy their products. On-Demand distribution allows delivering and purchasing actual content to any place and at any time. For this business model online media are of great importance. Any content offered via online media more or less inherently includes this business model. However, online media are not required for this or the other CoD business models as we will see below.

The discussion of the four business model patterns above was application-oriented Nevertheless we also have to point out the possible revenue models for CoD. We have two sources of revenue: sales and advertising. From the sales perspective content can be offered transaction-based where revenue is generated by point-of-sale purchase. CoD allows pricing based on the volume. For instance, kilobytes, but also paper pages, can be the basis for

calculating content. Furthermore, content price could be calculated depending on the time, e.g. the length of a movie or a song length. A further revenue model is subscription. A subscriber can have unrestricted access, but also the subscription can be restricted in context of the mentioned non-subscription modes. For instance, only a specific amount of transactions (purchases) could be allowed, e.g. particular music or video files. The user could be charged extra for exceeding the limit. These payment models can also be applied to advertising where they stand in contrast to the traditional revenue model of advertising. Advertising rates usually are charged before publishing or broadcasting the content and based solely on estimated sales figures. On-Demand distribution allows switching to charge advertising per transaction. Even a subscription model restricted to a specific amount of transactions is possible. Figure 3 summarizes the different revenue methods.

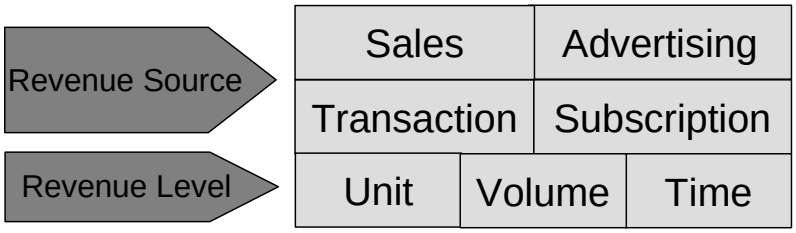

Fig. 3: Key components of on-demand revenue methods

Apart from this general revenue model, we have to consider that the pattern 'Bundle' is a kind of product versioning and allows price differentiation (Shapiro/Varian 1999, p. 5). One question is, if an entire content bundle should be cheaper than some of the particular units. The question of content pricing is not trivial, because adding of supplementary content does almost cause no additional costs. The complicated character is also be demonstrated by sophisticated microeconomic approaches (Bakos/Brynjolfsson 1999). Furthermore, consumers can be offered a discount if they accept advertising.

From the contractor's perspective advertising also can be bundled in dependence of the consumers' selection or the personal data or habits the contractors have. Targeted advertising is highly effective and online media allow its effective implementation (Bakos 2001, p. 2). Because of their higher impact they allow contractors significant higher ad-earnings. We have to consider that packaging content to an individual bundle allows targeted advertising, For this reason, we have to consider that the bundle model has two sides: a content side and advertising side. But like a coin both sides are connected with each other and have an interface. This interface contains targeted advertising, which depends of the customized content bundle, like we see in figure 4.

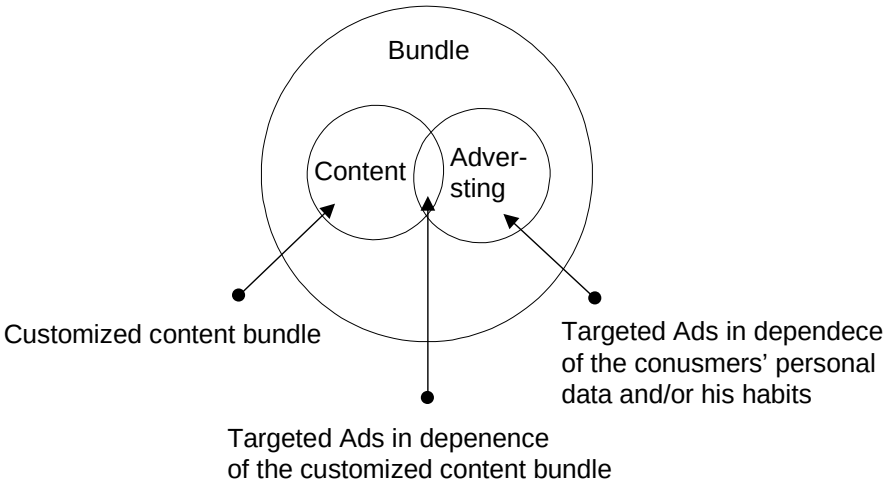

Fig. 4: The two sides of the business model pattern 'Bundle'

Finally, the four identified business model patterns are not necessarily to be separate. A combination is possible and gives even more value to the business, because consumers have more possibilities to express their demand. Also, we can claim that advertising can be better placed, because more of the customers' habits are known this way (also Watermann 2002, p. 10).

3.2 Specific CoD Subclasses

CoD is an umbrella term for different forms of on-demand distribution, which meet the model pattern identified above. However, the development of specific forms still requires closer scrutiny. In our investigation we were able to identify Print-on-Demand, Video-on-Demand, Music-on-Demand, Games-on-Demand and Lecture-on-Demand as the conceptual subclasses of CoD which are currently most visible. Thereby, these subclasses are also affiliated with the above-mentioned media types.

Text and pictures are the integral components of print-products. This leads us to the oldest CoD application for the media industry: Printing-on-Demand (PoD). PoD is a technique that is based on digital print technology and allows economical printing of individual copies of books, newspapers or magazines. In contrast to the traditional edition-based print concept, PoD allows focusing the distribution of print products close to market needs. A key difference to traditional print products is the print machine. A traditional printing machine uses pressure plates. PoD uses Direct Digital Print (DDP) machines, which don't need pressure plates and work similarly to a laser printer. This reduces fixed production costs to near zero and allows producing (to print and to bind) single copy editions of a print product. In contrast, variable costs of PoD are clearly higher than those of traditional printing. This makes the technique

only suitable for up to 500 to 1,500 copies, as shown in empirical investigations (Tzouvaras/Hess 2001, p. 39). Actually, of all CoD subclasses PoD currently has the greatest market impact. CAPV, a consultancy, predicts that the share of PoD on the US print market will grow in the next four years from about 20% today up to over 40% (Corr 2002).

Since the development of the mp3 format and Napster Music-on-Demand is probably the best-known type of Content-on-Demand. The term Music-on-Demand embraces the distribution of music via online media. Up to now, music labels packaged the music and distributed it to the mass market on a compact disc (CD) or a music cassette (MC). Although packaging by the customer is not offered, especially in this business we have to consider the request not always to purchase a whole bundle. Usually, a CD packages 12-16 songs, but it includes only one or two top hits, which lead the consumer to buy the CD and to pay for the whole bundle (Buhse 2001, p. 384). The problem is that selling music separately or allowing customers to select particular songs could reduce the revenues of the music industry. Thereby, because of the lack of the embracing medium online distribution drives the consumer more to a song than an album view.

As far as the distribution medium, we can assume that in the future on-demand music will be not only accessible via the PC, but also through mobile devices. Based on these distribution channels music will be available at any place and at any time. However, Music-on-Demand already has an established technology, and music labels don't encourage this development. However, consumers are getting used to free Internet music and the simplicity of copying and distributing music-files by private users is an essential problem. Nevertheless, 60% of the U.S. households are interested in subscribing to music services, which allows them to have a full access over the purchased files (Bartlet 2002).

During the 1990s, cable and telecommunications suppliers initiated a series of interactive TV trials throughout the U.S., the best-known being the Time Warner Orlando trial. Because of the phenomenal success of home video and its popularity with most consumers, and because of the easy availability of thousands of feature films, trials focused primarily on Video-on-Demand (VoD). Typically, VoD permits the viewer to choose a movie (also called Movie-on-Demand) or a newscast (also called News-on-Demand) and view it instantaneously on the TV set (or an other device) at home. Usually viewers have the option of interrupting the video and resuming viewing at a later time. In contrast, in traditional TV the TV-station packages the program and broadcasts continuously. VoD allows the consumer to individualize a TV-schedule (Wirtz 2001, p. 248). Anecdotal evidence suggests that participants in the Orlando

trial enjoyed watching regular television programs they missed during the week, as well as newscasts tailored to individual preferences (Providence Journal, 11 May 1997, p. A17). Based on the model 'Order' we can expect that some consumers would pay to watch TV-shows before they are broadcast in free-TV, e.g. soap operas. Furthermore as the 'Bundle' pattern mentions, we can consider different prices for videos, whether they include commercials or not

Although VoD is thought to be TV-based, because of the huge technical and networking requirements at the moment the Internet is the most popular medium for the first VoD applications, especially short news shows. Nevertheless, on cable TV we already see Near-Video-on-Demand (NVoD). Near Video on Demand (NVoD. NVoD permits a dozen or so currently popular movies to start in 15- or 30-minute intervals. Twelve 2-hour movies starting every 30 minutes requires 48 channels of NVoD. NVoD obviously can be implemented using the current tree-and-branch structure of existing cable TV systems. Limited upstream messaging is available in the more advanced digital systems. Compression technologies permit hundreds of cable channel numbers on digital systems, but most analogue cable systems are still limited to around 60 channels. The opportunity of NvoD is that it needs noticeable less broadcasting channels. Because of the order-based delivering the revenue models are similar to the idea of pay-per-view transaction-based. In the future also mobile devices could be a source for revues from VoD. Current predication say that the first VoD application will leave the elaboration stage in this year, with a growing in penetration to 40% in the US households in four years (Lee 2002).

From an economic perspective the most promising application for interactive content seems to be Games on Demand. In this context Games on Demand is a mode of distributing game content online. At a low technical level the player plays can download a game and be offline afterwards or on a higher level he can be all the time online. Thereby, online media allow involving other, real players in the game. Especially, this network idea seems to become very popular and allow new kind of games and additional revenues. For instance, new game consoles, like Microsoft's X-Box, have already network connectivity. The success of network-multiplayer games clearly will depend on the player network, which creates network externalities (Zerdick et al. 2001, p. 156-159).

On the distribution side Games-on-Demand is completely different from regular games, which are distributed on physical storage media. Games-on-Demand are likely to be based on a participation model which includes special propriety game zones as well as the Internet and

mobile networks and probably Interactive TV. Especially the last ones allow the highest independence and could get to a key for the telecommunications and game industry. Mobile applications have the advantage already to include payment opportunities for smaller charges. However, also subscriptions are realizable for the earning model. If the same content can be distributed via different media remains to be seen in the future. The attempt seems valuable, because consumer can play 'his' or 'her' game where and when he requests and generates revenue. This revenue can be even higher then normal games, because the revenue model bases on participation and not purchasing. However, in the short term the (economic) success of Games-on-Demand depends also on online data capacities.

Probably, Lectures-on-Demand (LoD) is the application, which takes most advantage of multimedia technologies. Usually lectures include a specific topic and are conducted at particular time and place. In contrast, LoD gives the student the most control. Multimedia supports this concept. Teachers usually educate supported by books and slides. A combination of text and picture as well as video, audio and interactive content can substitute normal lectures. Students can choose their lecture more individually, close to their need for edutainment. Furthermore, students get also independent of time and place. Virtual universities or distance learning are often used synonymous for the term LoD. Nevertheless, LoD are offered more and more by traditional universities. Especially distance learning and public education could become import fields.

3.3 PoD as an Example

Because PoD is already a fairly established technology, we will apply the business model patterns above (see figure 2) to it, in order to demonstrate their appropriateness. We will also include some concrete cases.

At the first value step PoD enables authors to decide for themselves what they want to publish. Up to now, publishing houses made the decision if a manuscript will be published or not. Now, because of the reduced fixed costs, the economic cost is very low and can be taken on by the author himself, who can publish his book as self-publisher. Further revenues can be acquired by offering some personalized content creations, for instance dedications. An example for this kind of business model is Xlibris, which allows authors to publish their books by themselves by providing PoD and distribution both through the Xlibris online-shop and by booksellers.

On the second value step books can be individually bundled. The consumer can be included in the selection process via the Internet or through vending units. Publishers can give the customer the option to select out of a sample of chapters the requested content bundles. An example could be travel guides where the consumer can choose chapters (culture, sightseeing, shopping) or even countries she wants within one book on the Internet or even at the point of sale the. Based on this selection targeted ads could be placed. E.g., if a hotel is mentioned, an ad for this hotel could have more impact. A first example of customized books in Germany is Meyer Individualbuch (www.individualbuch.de), which offers the consumers to customize books for special occasions by making dedications or selecting lyrics via Internet. A major problem for such a customization is the copyright. Especially trade book publishers often do not have the rights to repackage books. Furthermore, they don't have the rights to include any kind of advertising, which makes it difficult to realize targeted ads. In contrast, textbook publishers often own the content with all rights to use it. An example in practice in the US is AnthlogyPro. AnthologyPro offers lectures to print in a short run length customized textbooks. Thereby, the lecturers determine which content they want to have included and AnthologyPro has to obtain the content and the right. Afterwards, the customized textbooks are also available for the students to be ordered on AnthlogyPro's online shop.

Digital data processing supports the model 'Order' from many perspectives. First of all, as we already mentioned, no editions are necessary anymore. A book is produced when it is ordered, similar to just-in-time producing. This also implicates that a book is always available, out-of-print is not imaginable any more. Older books can also be made available by digitizing them with scanners, which extend the blacklist, a lot of costs. Furthermore, the digital database makes it fast to realize a book production. A normal PDF-file is sufficient and can easily be produced out of a text processing system. That allows also to fit current data or changes, e.g. events, new laws or specifications, into the book. PoD also solves time problems in the face of transportation. Why ship a book, if it is possible to email a PDF-file, which is printed on a DDP machine near at the place of demand? This even can be at the point of sale, because DDP machines are relatively compact.

In this area, an example of the changes of PoD we can find in newspaper publishing. PEPC, an acronym for Publishers Electronic Printing Concept, offers newspapers on-demand. The company was founded in 1999. The business model of PEPC is that newspaper readers away from their home can receive their actual hometown newspaper on any place in the world. Therefore, PEPC developed small vending units (called 'Presspoint'), including a printer, in

cooperation with IBM. Currently, the printer can print duplex black and white and bind up to 20 pages. Since Spring 2001 PEPC has been installing these vending units in hotels all over the world where customers can buy an issue of the requested newspaper for about $3, paying with their credit card (Kroker/Donker 2001). When the vending unit is printing, at the control screen shows commercial videos (advertising). The control center in The Hague transfers the publishers' files (PDF) to the vending units. Satellite transmission of the offered newspapers allows a worldwide coverage, even on cruise vessel. Also the commercial videos are transferred and updated by satellite transmission. Currently, about seventy vending units are installed. Thereby, three are installed even on cruise vessels. Furthermore, PECP offers eighty international and national newspapers (e.g. Washington Post, US Today, the German Sueddeutsche Zeitung).

For additional revenues, newspapers could be offered on the Internet in advance, before the current newspaper is printed and distributed to the vendors. Also, books aren't the same, they are distinguished by size, paper and binding quality. Furthermore, because of the digital base of the book, it is easily possible to distribute print-products indifferent ways, e.g. as PDF-file, HTML-file, e-book, on mobile phones or on PDAs. For instance, the New York Times provides different possibilities to purchase news. Furthermore, especially the use of the XML makes it possible to deliver from one content data base different formats.

4 Market Impact of Content-on-Demand

The discussion of the business model triggers with the question what the impact of these models for the media market is. To demonstrate the impact we take the customer perspective and elaborate the impact for media companies as contractors. Therefore, we have to differentiate customers in consumers (recipients) and advertisers. Figure 5 summarizes the impact for the media market.

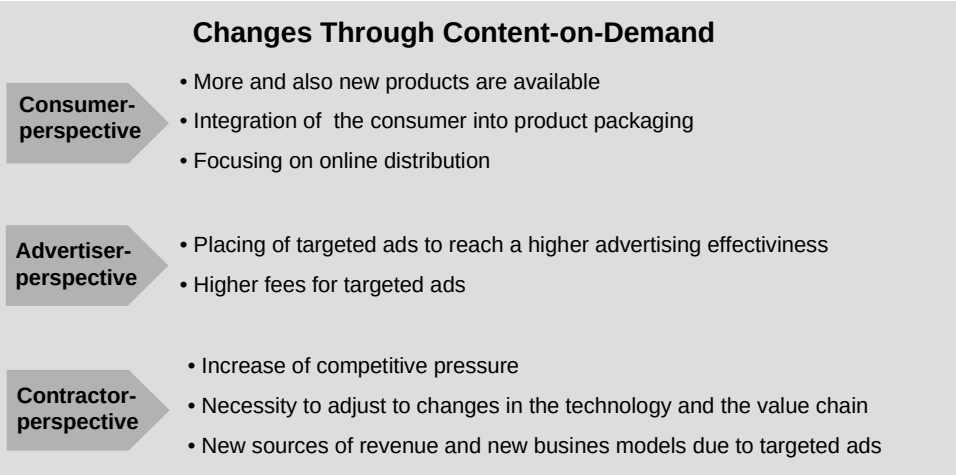

Fig. 5: Changes through Content-on-Demand in the media market

From the consumers' perspective with the offer of CoD the number of available products increases incredibly and the consumer has a bigger selection. Usually products are only offered during a certain time period. For instance, movies on TV are only broadcast at a certain time or books are sometimes out of print and not offered anymore. Digital storage and distribution by order allows media products to be offered at any time. Furthermore, products are not necessarily offered locally, but can be accessed easily from all over the world, as we see in the book and newspaper industry. Furthermore, now the consumer can be included in the packaging process. With the new technologies the consumer can even package products (books, music, TV-schedules) which traditionally the contractor packages. Finally, CoD forces the consumer to use online distribution, which is in this context often necessary. Especially new concepts like Games-on-Demand require online media.

From the advertisers perspective CoD is a two-edged short. On the one hand CoD allows advertisers to place targeted ads. This is thought to increase the impact of the ads. On the other hand product contractors likely will request higher fees for this type of advertising. However, it is very difficult to predict their impact, yet. Targeted ads in mass media products are completely new for the media market.

The possibility to offer products in a longer timeframe increases the influence of the consumer and simultaneously the competitive situation for the contractors, because at the same time more products fight for the restricted time and money of the consumer. Thereby, not only more products are offered, but also new products, which in part could substitute traditional products. To integrate the consumer in the second value step is completely new for the media industry. For instance, games and lectures are offered in a completely new way. Furthermore, the importance of physical retail and rental stores is reduced, because the

contractors may or even must choose online trade channels. For instance, in the long-term VoD will even replace rental stores. However, the technological issue forces the contractors to adjust their information systems. Besides the technology driven distribution issues, also the new possibilities of advertising will soon be a major discussion topic in the industry, as to how it can be used to generate revenue. Applications come along with new possibilities, which could change traditional business models. For instance, first theoretical models demonstrate that targeted ads could become a main source of revenue for the music industry, although up to now we don't find ads in this sector (Fox/Wrenn 2001).

5 Outlook

CoD and its current as well as future subclasses will be an important topic in the media industry. Because of its multifaceted starting points for concrete business models surely it will be an interesting development. Nevertheless, exactly this makes it difficult to predict its success. Up to now, CoD is an early stage technique, which is just about to 'take off'. Technology may not be the primary concern but the development of comprehensive business models. However, with the given outgoing, the four business models pattern, concrete business models can be developed or elaborated.

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