From free to fee: shifting business models in the digital television industry

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Abstract

Industry architecture and business models in the broadcasting industry are radically transforming by digitisation and convergence. While these technology-driven processes lower entry barriers for new competitors in today's media ecosystem, incumbents are deploying strategies for preserving market power and reinventing bottlenecks. This paper emphasises one of most obvious strategies deployed in the broadcasting industry, i.e. the development of conditional access systems for premium content. Results from a large-scale user survey demonstrate the increasing importance of conditional access business models in the broadcasting industry that contrasts with the rising emergence of open access platforms in other content industries. Finally, the implications of these conditional access strategies for public broadcasters, which should strive for open access and universality, are discussed.

After analogue television sets have become ubiquitous in the living room for several decades, policy initiatives and technological advances have led to the worldwide roll-out of digital television delivery systems, representing a shift that is fundamentally transforming television viewing practices and (re)production businesses. Consequently, this ongoing digitisation creates blurring boundaries between previously distinct access networks and technologies (in media, telecoms and computing), and profoundly affects industry architectures and business models applied within today's converged media ecosystem (e.g. Chan-Olmsted & Kang, 2003). Digitisation has facilitated a shift away from the classical vertical layer model, in which every content service had its corresponding infrastructure and transportation protocol

(content-specific distribution), into the converged layer model mapping the common horizontal activities that combine the value chains of all information technology industries involved (content-independent distribution). Since the direct linkage between 'medium' and 'type of information' is broken, content delivery has deeply changed (Küng, Kröll, Ripken & Walker, 1999). In this digital ecosystem, audiovisual content is distributed by several transmission networks and spread over a variety of television platforms (cable, satellite, internet-based, terrestrial, mobile etc.) allowing media companies to make their branded content available as widely as possible.

Historically, telecom companies used to create monopolies and bottlenecks in distribution networks as market power was largely derived from controlling stakes over this stage. Nowadays, traditional scarcity is assumed to change into an era of plenty characterised by abundance of information and consumer choice (Anderson, 2006). Digitisation and convergence create a window of opportunity for new entrants to invest in the field of broadcasting and lower barriers for users to produce, distribute and classify information themselves (Chalaby & Segell, 1999; Slot, 2007). However, as established players in the broadcasting industry have fear of losing their historical dominance over production and especially distribution modalities, more critical voices argue that these incumbents will deploy strategies for preserving market power, creating scarcity and reinventing bottlenecks such as the development of technical standards and strict copyrights management (Küng, Picard & Towse, 2008; Mansell, 1999, 2004).

This paper will analyse the impact of digitisation on industry architectures and will emphasise one of the most obvious market strategies currently deployed in digital broadcasting, i.e. the development of conditional access systems for premium content. This strategy contrasts with

the rising emergence of open access platforms in the media industry. Results from a large-scale survey (N = 1260) demonstrate the increasing importance of conditional access business models in the digital broadcasting industry that contrasts with the rising success of open access platform in other content industries. Finally, the implications of these conditional access strategies for public broadcasters, which should strive for open access and universality, will be discussed.

Industry architecture

Traditionally, the value chain framework has been widely applied for the strategic analysis of all stakeholders in the value creation process within the broadcasting industry as it maps the position these stakeholders occupy in the flow of value-adding activities (Porter, 1985). A media firm acquires a competitive advantage when holding a crucial stake in this chain of activities (creation, production, aggregation, distribution, billing, etc.). In this model, value is created as a sequential chain of stages in which upstream suppliers add value and pass their output downstream until the product or service finally reaches the end-user. This old notion of value creating activities, existing within traditional manufacturing industries and focusing on the end-product, ultimately leads to strategies for controlling or monopolising bottlenecks in the chain (e.g. by vertical integration or by warehousing exclusive rights). Because new information technologies are expected to have a disruptive impact on media ecosystems (see Latzer, 2009), these chained value creation systems have become inappropriate to the competitive reality of the networked economy and require an innovative management perspective that recognises horizontal inter-firm relationships and alliances. Owing to the digitisation of information goods and the current dematerialisation of value chains, stand-alone companies are unable to acquire all competences and to bundle all components required

for the development and production of full-service information goods. Therefore, strategy in today's new economy no longer rests in positioning a series of activities in the chain but in establishing co-operation and bilateral service agreements with third parties (Peppard & Rylander, 2006).

In the digital economy, value is co-created by a series of partnerships and relationships in a value network, in which different stakeholders – suppliers, partners, allies and even consumers – work together and co-produce value. A value network can be understood as a set of relative autonomous business units that are managed independently, but co-operate on the basis of common principles and service level agreements (Malecki & Moriset, 2008; Shapiro & Varian, 1999). Since the company's competitive position is mainly based on its system of relationships, a performing network should be composed of interconnected nodes and complementary partners. Consequently, "the key strategic task is the reconfiguration of roles and relationships among this constellation of actors in order to mobilize the creation of value in new forms" (Norman & Ramírez, 1993: 66). In the value network, companies should specialise and develop expertise in one or a few interconnected nodes by leveraging its distinctive competences. This fragmentation of expertise will ultimately result into a deconstruction of industries with the emergence of strategic alliance partnerships as a means of accessing resources and competences. Hence, a radical restructuring of the industry architecture might take place since value chains are transforming into networks of fluid and interconnected organisations. This myriad of strategic partnerships has profound implications for all the actors involved and requires openness to new innovation research methodologies, delivery platforms, standardisation, finance generation and revenue sharing models (Li & Whalley, 2002).

Digital technology radically affects the organisation of the process of exchanging goods, services and information, foreseeing a major impact on the distribution channels and on the vertical organisation of content industries (including broadcasting). Since digital network infrastructures are considered to play an essential role in carrying content and applications, intermediaries and market platforms have increasingly gained importance in the digital economy (see e.g. Illing & Peitz, 2006). Traditionally, intermediaries aim for matching supply and demand in markets. While this intermediating function between consumers and producers is increasingly being eliminated through digital networks, some sectors have been confronted with the effects of disintermediation (e.g. in music). Consequently, intermediaries should develop new forms of intermediation such as specialisation in information management (info-mediation) or online transactions (cyber-mediation). To ensure its crucial role, intermediaries should exploit knowledge of asymmetric information in two-sided platform markets and create added value services for both sides of the market (Gaudeul & Jullien, 2007).

In the networked media ecosystem, market intermediation increasingly occurs by the establishment of multi-sided platforms. Contrary to the one-sided merchant model, in which intermediaries acquire (digital) goods from sellers and resell them to buyers, the two-sided platform model allows affiliated sellers to sell directly to buyers (Hagiu, 2007). Platform infrastructures can be regarded as structuring elements in the fluid media ecosystem, whose overall performance is derived from the coordination and subsidisation of the (indirect) network externalities between different markets through common platforms. Hence, platform operators should address the celebrated ‘chicken-or-egg problem’ to break the vicious circle that is hindering the platform’s development (Evans & Schmalensee, 2009; Parker & Van Alstyne, 2005; Rochet & Tirole, 2003). While this body of literature takes the existence of indirect network externalities for granted, Hagiu (2007: 118) demonstrates that their presence

depends on the nature of contracts between the intermediary and the sellers. As a result, it is argued that "two-sidedness is not a 0-1 notion: rather, there is continuum of forms of intermediation". The trade-off between intermediaries ultimately depends on the extent of control over buyer-seller interactions: a pure two-sided platform leaves control of strategic variables (pricing, advertising, bundling etc.) to sellers, whereas a pure merchant takes over full control.

In general, a transition from pure one-sided merchants to multi-sided platform-like intermediaries is likely to occur in the content industries. This evolution is causing a shift in the industry architecture and the commercial dynamics of the media ecosystem. By giving away free products more and more, media companies are likely to prefer externality-based business models to lock-in strategies. This shift is most obvious in the music industry, which is seeking new revenue models to compensate the losses caused by declining record sales. Increasingly, music labels are leaving the retail model and are betting on the ad-supported broadcasting model, which should better meet the needs of consumers in the digital age. Under this business model, music represents a free service and revenues are generated from associated products and services (concerts, merchandising etc.) (see e.g. Curien & Moreau, 2009; Priest, 2008). Other content industries such as the newspaper business are experimenting with this business model as well (Bakker, 2004; Bleyen & Van Hove, 2007; van der Wurff, 2005).

Business models for television

In terms of the traditional value chain framework, regularly applied to analyse the structural organisation and prevalent business models within the content industries, television

broadcasters can be regarded as simultaneous content publishers and distributors who acquire the rights over programmes produced in-house or by independent producers, aggregating them in their programming schedules (Cardoso & Cunha, 2005; Zerdick, Picot, Schrape, Lange & Artope, 2000). Thanks to the advent of digital television technologies, digital platform operators have emerged packaging these channels into their platforms and providing enhanced interactivity and enriched customer applications such as electronic programme guides (EPG), video on demand (VoD), games, and information and transitive services. Although value in the television industry is still largely created through a successive flow of activities, this digitisation of production, transmission and reception facilities and the simultaneous reconfiguration of audiovisual markets are likely to drive the business into a new logic of value creation. As viewers are increasingly accessing content through a variety of platforms, the television industry is evolving to a system of file databases, which highlights the need for a profitable and effective management of audiovisual assets (Araújo, Cardoso & Espanha, 2009). Hence, broadcasters should consider audiovisual archives as the main assets for creating and reinventing value, and should therefore exploit these sources of value through new distribution means (Leurdijk, 2007).

Generally, television companies apply two main models for providing access of audiovisual content to their viewers. For a long time, television markets have been acting as two-sided markets in which content was offered for free to the public as it was financed through public funding (public service broadcasters) or advertising and product placement (commercial broadcasters). In such an advertising-supported model, entrants in the broadcasting industry face a vicious circle: television broadcasters need to build a substantial viewer base to attract advertisers, whose spending can be reinvested in content acquisition for audience building (Doyle, 2002). With the growth of multichannel television platforms provided by cable and

satellite television providers since the 1980s, the proliferation of broadcasters and the increasing availability of channels have tightened the competition for limited advertising resources. Consequently, a move has been made towards the provision of subscription-based access and inflating broadcasting rights fees for premium content (Armstrong, 1999). Although pay-television operators have played an important part in the broadcasting industry for a long time, recent advances in digital technology have accelerated the adoption of pay-television services. Studies demonstrate that pay-television is the strongest growing sector in the television business and identify further growth opportunities in the digital market (EAO, 2008; IDATE, 2009; Ofcom, 2007). Digitisation has induced further innovation in the pay-television business enabling alternative means of distribution and the growth of enhanced value-added services such as EPG or VoD.

Digital platforms aim at building market shares by the supply of appealing and exclusive programming packages, for which pricing depends on the marketing strategies used by these operators. In their attempts to convince viewers to go digital, the basic supply offer – satisfying the needs of the broad audience – is expanded with thematic and segmented channels that are only accessible by means of a digital decoder. In addition, platform operators are keen to offer high-quality content – characterised by high rights fees such as live sports and blockbuster movies – on premium and on-demand channels, exclusively accessible for viewers willing to pay a supplementary fee (Imberti Dosi & Prario, 2005). These subscription and pay-per-view channels are considered as key drivers for digital broadcasting, which may stimulate the further expansion of niche channels and on-demand programming (Callanan, 2004). Bardoel and d'Haenens (2008: 354) argue that "thematic channels will change the function of open channels into showrooms for thematic channels and on-demand

platforms" with digital platform operators likely to encrypt all premium content for conditional and paid access.

Contrary to the development of open access models and the rise of the 'freeconomics' in the music and publishing segments (see Anderson, 2009), the advent of digital multichannel platforms has fundamentally altered the way people access television content. Although viewers have always paid for television services, whether by paying the annual licence fee or by standing the often annoying commercial breaks, free-to-air broadcasters have been the leading party in the television industry for decades. Nowadays, the retail model (conditional access) is likely to become the dominant business model. Therefore, digital television platform operators have established walled gardens, which refer to a closed set of integrated customer-care applications. Setting high entry barriers for third party content and service providers enables platform owners to lock-in customers and control their consumption. These systems allow platform owners to monopolise the revenues that are developed within their own environment (Gálik, 2002). A central ingredient in digital pay-television business models is the encryption system, together with the set-top box used by consumers to decode the scrambled signal. Conditional access technology refers to this combination of encryption and decoding systems (Armstrong, 1999). Encryption technologies prevent content from unauthorised access that is controlled by a subscriber management system (SMS) and subscriber authorisation systems (SAS). While the SMS is an administrative system dealing with customer data, the SAS is a technical system that implements processing of the data from the SMS into commands for granting access (Henten & Tadayoni, 2008). In digital television, encryption systems are an integrated feature of the reception equipment by means of software-controlled secured processors such as smart cards (Nolan, 1997). Consequently, the increasing

penetration of digital television systems might drive the adoption of conditional access technologies and pay-television business models.

Empirical findings

This paper section presents the results of a large-scale user survey, which support the assumption that paid-for content services are increasingly becoming an important part of the television industry and that viewers are increasingly willing to pay for exclusive audiovisual content. Market and drivers for digital broadcasting in Flanders[1] are described and a profile of viewers preferring paid-for content is drawn up.

Research method

During the summer of 2009, a panel of 1260 people was randomly surveyed by means of the CASI[2] method. This half-yearly survey[3] aims at mapping both ownership and usage of information and communication technologies in Flanders and profiling the (non-)users of these platforms including subscription-based premium broadcasting content services (De Marez, 2009). Since only the results of the first wave were accessible at the time of writing, this paper provides no longitudinal evolution and disqualifies any comparison in time yet.

The substantial sample size allows for a representative overview of the users and their usage of information and communication technologies in Flanders. The sample can be described as follows. As for gender, 48.7% were male and 51, 3% were female. The average age of all respondents was 46.8 year. Since age and geographical distributions somehow suffer from

skewness, sample data are weighted by official representative quotas. These quotas are defined combining geographical, age and gender-related variables.

Results

Since digital television's introduction in 2005, the different platform operators had reached the milestone of one million connections by the end of 2008. By June 2009, the total amount of digital television households has been estimated at 1.2 million households. According to our survey results, the penetration has slightly grown to 47.3% in Flanders (out of 2.5 million households). As cable is the dominant transmission technology in Flanders, analogue cable viewers are increasingly switching to digital cable services (offered by the same cable company Telenet). Thanks to supplying coverage of live national football matches, the state-owned telecom company Belgacom is challenging cable's quasi-monopoly and now controls one-fifth of the digital television market in Flanders (see Table 1). In addition, digitisation of technology and the analogue switch-off (completed in November 2008) have induced competition from alternative service providers over satellite and terrestrial. Since digital satellite and terrestrial operators are not able to establish two-way connections over their platforms, viewers are deprived from interactive television services and on-demand programming. As there is no tradition of multihoming, the dominant platforms (cable and IPTV) are warehousing broadcasting rights for premium content and pay-television channels so that these alternative platforms have – except for pricing – little sources for leveraging competitive advantage.

Table 1: Market for digital television in Flanders (n = 1216)*

Service platform	Operator	n	%
Analogue cable	Telenet	641	52.7
Digital Cable	Telenet	420	34.0
IPTV	Belgacom	127	10.1
Digital satellite	TV Vlaanderen	42	3.3
Analogue satellite	various	30	2.4
Digital terrestrial		44	3.5

* As some households have access to several platforms, total percentage exceeds 100%

Survey results indicate that the strong growth of digital television services in Flanders is only a recent phenomenon. No less than 39.8% of all digital television viewers switched to digital television during the last year while 26.9% of all digital subscribers decided to step in no longer than two years ago. This recent growth acceleration is caused by a series of factors that is driving the adoption of digital television services (the five most important drivers are summarised in Table 2). The superior image and sound quality is perceived as the most convincing factor for going digital by about one-third of all digital subscribers. This is closely related to the purchase of a high-definition or flat screen television set, which promises a superior viewing experience. Hence, 8.9% of all respondents explicitly state that the purchase of a new television set resulted into subscribing to digital television services. Although cable's dominance has spoilt viewers with the high quality reception of over thirty channels, 22.9% of all digital viewers see the increasing availability of content as the primary driver for the development of digital television. Viewing flexibility (such as time shifting) is considered an important value-adding feature of digital television by 14.3% of all digital viewers. Finally, digital television plays an important part in the so-called multi-play strategies. By bundling

several communication services into one-stop-shop packages (combining telephony, television, internet and mobile), telecom companies aim for increasing user convenience and lowering prices. No less than 69.3% of all digital viewers have signed up for such a bundle of services. In 92.9% of all cases, internet is included, but also subscriptions to fixed telephony (69.9%) and – to a lesser extent – mobile telephony (12.6%) profit from these multi-play strategies (also see Dejonghe & De Marez, 2009).

Table 2: Drivers for digital television in Flanders (n = 559)

Primary drivers for uptake	**n**	**%**
Image and sound quality	165	29.5
Extra content supply	128	22.9
Viewing flexibility	80	14.3
Service bundling	66	11.8
New TV-set (e.g. HDTV)	50	8.9
Others	70	12.5

As mentioned, subscription-based and pay-per-play content is increasingly becoming a source for the creation of value within the broadcasting industry. In Flanders, broadcasters and platform operators have co-financed the development of portals for video on demand services, which act as a strong incentive for viewers to switch to digital services. These portals provide viewers with the opportunity to review and preview their favourite television programmes including archival materials and allow them to browse through an extensive library of recent movies and series. While television programmes and movies are offered for charge, platform owners allow their customers to review news programmes of both public and private broadcasters for free. In addition, viewers can subscribe to on demand libraries and pay-

television channels including major sports (national and European football leagues, NBA basketball etc.) and movie content. Since these revenues are shared between broadcasters and platform owners, video on demand services are increasingly becoming an important aspect of the business model for digital television. According to our survey results, on demand services providing access to free news programmes (53.0%) and movies (40.2%) are the most used services amongst digital television viewers. Whereas 27.4% and 11.1% has paid for reviewing and previewing programmes respectively, 6.8% has subscribed to such a portal having unlimited access to this content. Finally, 12.6% of all digital television viewers have subscribed for watching extra, pay-television channels.

Table 3: Profiles for television users (in %)

	All viewers	**Non-DTV**	**DTV**	**Paid-for content**
	(n = 1216)	(n = 596)	(n = 664)	(n = 254)
Gender				
Male	48.7	44.9	52.8	58.1
Female	51.3	55.1	47.2	41.9
*Age**				
Average	46.9	49.9	43.7	41.4
15-19	7.2	5.8	8.7	8.5
20-29	14.3	12.8	15.8	19.4
30-39	15.6	12.4	18.9	21.4
40-49	18.5	17.1	19.9	20.6
50-59	16.0	17.4	14.6	13.5

60-64	6.9	7.6	6.2	5.0
> 65	21.4	26.8	15.9	11.5
*Income**				
< €1000	8.6	9.2	7.9	7.5
€1000-1500	14.7	19.0	10.1	7.7
€1500-2000	13.3	14.4	12.5	12.6
€2000-2500	10.7	9.1	12.3	15.2
> €2500	23.3	17.8	28.9	34.3
Unknown	29.5	30.8	28.2	23.6
*Marital status**				
Married	29.7	24.2	34.9	23.9
Single	59.3	63.2	55.6	62.7
Other	11.0	12.6	9.5	13.4

* Statistically significant at 0.05 level ($p < 0.005$)

Table 3 provides a better understanding of the socio-demographic profiles of analogue (non-DTV) and digital television (DTV) viewers, and paid-for content users, which indicate distinctive user profiles for these services. Since our survey data already suggest that digital television viewers can be described as male, young, high-earning, well-educated and married, users for paid content are even more likely to meet these criteria. Since the results demonstrate that paid-for content services are likely to be used by more affluent segments of the population, the evolution towards conditional access technologies may have far-reaching social implications, which should be careful dealt with by public broadcasters.

Discussion

In Europe, governments have been stimulating the development of digital broadcasting as a crucial element in the further establishment of the inclusive information society. Furthermore, this process towards digital television services is being pushed both by content providers and network operators that are seeking revenue opportunities in exploiting the digital content market. Padovani (2007) notes that this shift is likely to produce a polarised digital television market. While valuable content is increasingly provided by conditional access platforms, high-quality television content is reserved for the proportion of people willing to pay for this content. This emerging 'pay-per-society' (Lillie, 2005: 44) or 'premium rate culture' (Goggin & Spurgeon, 2007: 755) implies that only the elite can afford full access and control of programme content in the digital broadcasting world.

However, these forces of digitisation and convergence are threatening key public values such as open access and universality, which raises concerns about digital exclusion and which urges the need for redefining a legitimate public service broadcasting (PSB) concept (Bardoel & d'Haenens, 2008; Van den Bulck, 2008). Some argue that universal service principles should be applied to all digital media applications; others contend that limiting universal service in digital media enables service providers to develop sustainable businesses and stimulate new media innovation (Michalis, 2002). In the case of Flanders, PSB plays a meaningful role in the pay-per-view archive content while its cultural channel is locked behind a digital decoder, thus potentially breaching the PSB goals of open and equal access. By returning to culture with the launch of a thematic channel catering to certain minority tastes and interests, the universality requirement is met (Van den Bulck, 2008). Still, this sharply contrasts with the British BBC, which respects the public service values by providing

its digital thematic channels (universality) on free-to-air digital platforms (open access). Moreover, the BBC claims to make all of its archive content freely available to other digital platforms under the copyleft Creative Archive Licence. This initiative is regarded as "a powerful ethical alternative to the pay-per regime of marketisation and a potential basis for a global cultural commons" (Murdock, 2004). However, the emerging commercial approach towards public service values in the digital domain indicates the further need for policy to ensure that socially and culturally valued broadcasting content remains universally, equally and freely available to the citizen-consumer (also see Chalaby & Segell, 1999).

Notes

1. Flanders is the northern region of Belgium, home to the Dutch-speaking community.
2. Computer-Assisted Self Interview (CASI) allows interviewees to use a computer terminal to directly enter their answers.
3. The survey is called *Digimeter* and supported by the independent research institute Interdisciplinary Institute for Broadband Technology (IBBT) and panel manager iLab.o.

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