



Research article

Strategic management implications of a consumer value perspective on Mobile TV

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Abstract

Understanding of consumer experienced value in mobile services continues to be a strategic issue in the information systems literature. This is no different with Mobile TV that has become feasible with the convergence of telecommunication infrastructures, computer technology, and media content services. Mobile TV offerings are defined as real-time broadcast transmissions of content to mobile devices. We review mobile services literatures on consumer value creation and identify a gap in our understanding of how supplier firm's consumer-focused strategies may aid in consumption processes and thereby increase payments from consumers. We apply the perspective of consumer benefits experienced (CBE) to provide insight into how supplier firms may be able to increase consumer value. Value increases with greater consumer service-specific knowledge, and leveraging and complementing this knowledge across different offerings. Increased service-specific knowledge can also reduce demands on the consumer that can create important switching costs while increasing consumer-experienced value. This paper contributes to innovation research on mobile services.

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Introduction

Mobile TV represents a trend of an increasing convergence of telecommunication infrastructures, computer technology, and media content services – a development that facilitates mobile services beyond simple voice and data connections (Edquist, 2003; Lyytinen and Yoo, 2004; Bruner and Kumar, 2005; Tilson and Lyytinen, 2006). We define Mobile TV narrowly as real-time broadcast transmission of content to mobile devices and we acknowledge that others define Mobile TV more broadly as 'any video played on a mobile device' (Bria *et al.*, 2007: 1). Mobile TV represents an important technology that can surface and deny long-held assumptions that may constrain our views of potential and realized consumer experienced value and how firm resources contribute to value. The research question that this paper addresses is how firms can increase the value experienced by consumers in the consumption process so that they, in return, are willing to increase payments. By value, we refer to what in strategic management literature is 'use' value. 'Use' value refers to

the subjective and individual specific valuation of consumption benefits by a consumer (Bowman and Ambrosini, 2000). This 'use' value may or may not correspond to exchange value, or the amount the consumer pays, representing the revenue to the supply side. For example, as the consumer's income increases, the difference between 'use' value and exchange value would decrease (Priem, 2007). In the rest of the paper, we refer to 'use' value as value.

One of the long-held assumptions in the prevailing models of technological uncertainty, complexity, and acceptance (Davis, 1989; Rogers, 1995) is that user knowledge and experience with the technology increase user-experienced value. This is because knowledge and experience with the service is assumed to decrease the uncertainty of user benefits. However, for many mobile services beyond voice calling and messaging, user demand has remained limited with low growth rates (Constantiou *et al.*, 2006). The introduction of new mobile services initially experiences enthusiastic experimentation, but the



usage and the willingness to pay drop as the novelty of services wears out and new services fail to be integrated into daily habits (Constantiou *et al.*, 2005; Akersson, 2007). Initial usage patterns do not reliably predict what people value and are willing to pay (Tilson and Lyytinen, 2006). Jarvenpaa and Lang (2005) describe mobile services as paradoxical, which reflects a post-modernist consumer society in which consumers are confronted by multiple and conflicting consequences from the consumption of products and services that provide them with useful benefits but also cause stress and anxiety (Holahan and Moos, 1987), and hence may lead to conflicting effects, possibly even limiting technology adoption (Rennecker and Godwin, 2005). At some times, consumers reject the usefulness and enjoyment because of a fear of being overwhelmed by the technology (Mick and Fournier, 1998). Such conflicting emotional responses can create uncertainty of value, use, and – in the consumer segment – demand.

Much uncertainty also exists about consumer demand of Mobile TV (Carlsson and Walden, 2007). A number of Mobile TV pilots carried out in different countries (e.g., Spain, Finland and the United Kingdom) suggest high initial interest from consumers and the willingness to pay a realistic price for Mobile TV (Tadayoni *et al.*, 2008). Mobile TV may aid user demand through mass media content distribution (Chorianopoulos, 2008) or by meeting the immediate and habitual needs such as watching 6 p.m. TV news 'here and now' (Karrberg and Liebenau, 2007). But there is uncertainty whether the initial experienced value from Mobile TV will translate to benefits that will induce continued use and consumer payments. Massive resources are currently being invested in technological development of Mobile TV (Jumisko-Pyykko, 2008) and consumers-experienced benefits are essential to the success of the firms in the industry. In this paper, we examine consumer centric strategies that firms can use to aid consumers in their benefit experiences with Mobile TV.

The remainder of the paper is organized as follows: after a short background on technical considerations of Mobile TV, we review the conceptual backgrounds of value, value-driven business models, customer centric value creation, and innovation models in the mobile services literature and the strategic management literature. After a brief overview of the research approach, we present the case of 3Italia Mobile TV services. We then apply Priem's (2007) consumer benefit experienced (CBE) perspective, a customer value centric view, to analyze 3Italia's Mobile TV strategies. We conclude with implications to theory and practice.

Mobile TV: some technical considerations

Mobile TV has become feasible as television signals are receivable on a mobile handheld device. Despite regulatory hurdles concerning standards, frequencies, and licenses (e.g., Freshfields Bruckhaus Deringer, 2006; Shin, 2006; German Commission on Concentration in the Media, 2007), an increasing number of new providers offer Mobile TV services (e.g., Frost & Sullivan, 2006; Juniper Research, 2007).

Mobile TV mainly builds on (1) Digital Video Broadcasting Handheld (DVB-H), (2) Digital Video Broadcasting Terrestrial (DVB-T), or (3) Digital Multimedia Broadcasting (DMB) as infrastructure technology.

DVB-H broadcasts signals at frequencies below 3 GHz using a hybrid architecture involving satellites for global transmission and complementary terrestrial stations for cell coverage (Dor, 2007). It extends general DVB specifications to the requirements and constraints of handheld devices (Antocicco, 2006) and it involves time slicing technology to save handheld device power (Lewis, 2006).

DVB-T, the terrestrial digital TV technology, only recently has become available for mobile devices. For a long time, it was not capable of broadcasting to mobile phones as signal reception wore out batteries too quickly. However, advanced DVB-T technology, combined with free-to-air DVB-T signals receivable in various parts of Europe, means a viable alternative for broadcasting Mobile TV.

DMB, advanced from audio-specific digital audio broadcasting, broadcasts signals between 174 and 216 MHz using both satellites and terrestrial stations. It is capable of transmitting audio, video, and plain data. DMB signals can be received on various fixed, portable, and mobile devices (Ryu, 2005). DMB has been rolled out nationwide in South Korea.

In the remainder of this paper, we limit ourselves to consider DVB-H Mobile TV offerings. User subscriptions of DVB-H-based Mobile TV are estimated to increase globally from 11 million in 2006 to 171 million in 2010 (e.g., Chevalier, 2007). Similarly, Mobile TV revenues from those subscriptions are expected to reach \$12 billion (e.g., ABI Research, 2007; Kharif, 2007; Lomas, 2007) or even \$18 billion (Chevalier, 2007) by 2010. The European Commission has recommended its member countries to support DVB-H as Mobile TV standard (European Commission, 2008).

Research on the value of mobile services and Mobile TV

Value is a concept that has generated much interest and discussion in the mobile services literature for over a decade. One of the reasons is that mobile technologies are seen to create consumer value via different mechanisms than other digital technologies. Keen and Macintosh (1997: 46) argue that 'mobile services are one of the comparatively small number of technologies that are capable of bringing about a transformation which changes the limits of what is possible in the structures of every day life.' Mobile services render different consequences of buyer incentives; consumers may be more willing to pay for content. 'The free content model of the Internet is going to change in wireless. There is not the same resistance to paying for content among mobile phone users that there is on the web' (Ostergaard, 2002). Personalization in mobile services may also take a different form and level than with web-based services (Jarvenpaa and Tomak, 2003). However, what is missing in the literature is a discussion how these transformations affect consumption and benefit the consumer experience.

Value has also received attention in individual and small group research of mobile services. Deploying Rogers' (1995) diffusion lens, Davis' (1989) technology acceptance model, or Ajzen's (1991) planned behavior model, these studies (e.g., Wu and Wang, 2005; Hong and Tam, 2007; Lopez-Nicolas *et al.*, 2008) examine value from the

'technology user' or 'network user' perspective. Value is implicitly assumed to be created from the interaction of the user with the technology. Alternatively, value is created with people around him or her (Markus, 1987). Experience and knowledge about the technology and other users allow a user to evaluate the benefits of the technology. Better understanding of benefits increases user demand. The technology user lens has considered generic dimensions of usefulness and technology ease of use along with specific dimensions related to mobile services: ubiquity, convenience, location, and personalization (Hong and Tam, 2007).

The research on value from 'technology user' and 'network user' has also led to a broad recognition that an individual's adoption of services in personal contexts involves a set of perspectives and considerations different from organizational and work contexts (Pederson *et al.*, 2002). Value of mobile services is highly situation dependent (Hong and Tam, 2007). For example, value of mobile services is dependent on the unavailability of alternatives and the urgency of the situation (Mallat *et al.*, 2006). User-technology-environment interactions are complex with mobile services that render rational 'technology user' and 'network user' views unsatisfactory in understanding consumer behavior (Fomin, 2008). This and studies by Jessup and Robey (2002) have led to the search for alternative or more comprehensive models of value.

Value-driven models

Some alternative models incorporate consumer decision making. Kim *et al.* (2007) build a model of value of mobile services that considers a user as both a 'technology user' and 'service customer.' The model takes into account benefits and costs. The latter include the usage fee and costs stemming from technical complexity (i.e., complex manipulation, navigation, slow response, and unavailability). Kim *et al.* (2007) find that costs have a stronger explanatory power in terms of consumer value than benefits.

Blechar *et al.* (2006) incorporate prospect theory (Tversky and Kahneman, 1986) and mental accounting (Thaler, 1985) to shed light on the consumer evaluation processes of value. Blechar *et al.* (2006) examined attitudes before and after a trial of mobile services. Before trial, study participants had positive attitudes of using the services. However, after the trial, particularly their amusement and enjoyment assessments had become lower. As participants gain experience with the mobile services, their assessments of value decrease.

Xu *et al.* (2008) apply the theories of media psychology and human-computer interaction to understand user evaluation of mobile video entertainment services. They found that the attentional demands of media platforms negatively affect consumer experience during content delivery. Various interruptions from the environment imposed further burden on attentional resources and negatively impact enjoyment. Their findings highlight the importance of considering the consumers' information processing abilities in selecting appropriate content for mobile services.

Kaasinen *et al.* (2008) report on a Finnish TV mobile pilot involving 27 users who were exposed to 10 different

pilot services in the Helsinki area from July 2007 to February 2008. This pilot focused on upfront estimates of fair prices. About half of the consumers developed a habit of using Mobile TV at least once a week. Consumers' assessments of fair prices were complex. In some cases, they decreased with greater experience with the technology and a greater number of services. Pilot users wanted more flexible pricing options and only pay for those services that they actually used. Their fair price assessments were heavily dependent on the situational context of use.

While the value-driven approach has helped to open the black box of the consumer, the supplier firm's actions have largely remained as exogenous to the consumption process. We next turn to the strategic management literature to examine the role of firm resources and strategies in consumer consumption experience.

Customer centric value creation

In the strategic management literature, value is typically viewed as something that solely is created by service providers. Value creation is often used to mean the same thing as value capture. Value capture refers to a particular firm's share of appropriated value in the value chain (Jarvenpaa and Tomak, 2003). Discussions of business models are also primarily concerned with value capture (e.g., Karrberg and Liebenau, 2007) and how the firm can maximize its share of the consumer payments. Value creation in turn deals with consumer demand, growing potentially the overall market and the firm's revenue line. It is about increasing the size of the 'pie' rather than slicing the 'pie' among competing firms.

Recently, Priem (2007) made a contribution to strategic management by advancing a consumer perspective on value creation. He argues that 'consumer (i.e., end user) benefit drives the revenue streams that make resources valuable, and moreover, that the creation of benefits for consumers frequently also results in value for shareholders' (p. 222). He views the role of firms as aiding consumers in 'maximizing the use value that is created and experienced' (p. 222). Hence, he argues for a close linkage between productive firm resources and consumer consumption judgments and decisions. The argument for consumer centric value creation is that customer-experienced benefits are a prerequisite for value capture.

Priem (2007) argues that - via understanding consumer consumption processes - firms can develop more effective firm-level strategies. He outlines three sets of strategies that can increase the CBE, and thus ultimately the consumer willingness to pay or the number of paying consumers: (1) growing consumer's human capital, (2) reducing demands on consumers, and (3) leveraging synergies from within-household/group specialization. The specific strategies for growing consumer human capital may include increasing stock of consumer knowledge, acceleration of consumption experiences, and leveraging consumer knowledge to provide synergy. Reducing demands on consumers may include peer- and expert-based selection systems, imitation, innovation, broad assortment, rapid market penetration, and sharing consumer product-specific knowledge across related products. Finally, leveraging synergies may include targeting a



specialized household expert and sharing a consumption experience. Priem (2007) notes that these specific value creation strategies are likely to be very situation specific and therefore need to change over time as the customer's consumption and the evaluation of consumption changes (see also Woodruff, 1997).

Priem's (2007) three sets of strategies build on Porter's value chain model. Porter (1980) argues that different configuration and activities of the value chain can lead to differentiation, lower cost, and focused services, all contributing to value. Brandenburger and Stuart (1996) expand Porter's firm-specific value model to the network level and define that total customer value creation sets the upper limit for how much value a firm can capture.

Priem (2007) calls for research to identify additional customer-focused strategies that are developed within the consumer perspective and explicate the mechanisms how a particular firm uses its resources and capabilities to contribute consumer value. To Priem (2007), the customer perspective is most appropriate for complex, differentiated products. It is likely to apply less to commodity products that do not rely on 'consumer participation and learning during consumption' (p. 231). Although Priem (2007) developed his theory for both products and services, the theory should be particularly relevant to services. According to Groenroos (1998), service is best thought of processes that the consumer immerses himself or herself into than the delivery of an outcome to the consumer.

Value-based innovation models

Innovating with consumer consumption processes can reduce uncertain user demand for mobile services. Successful innovation is a highly creative process involving iterations of learning by customers and producers (Dougherty, 1992). The iterative learning reduces uncertainty about what is valued by customers and what competencies are needed by firms to aid value creation by customers (Dougherty, 1992). The firm's pacing and sequencing of different innovations should consider the learning processes of the consumer (Rindova and Petkova, 2007).

The dichotomy of 'radical vs incremental' is often used to denote the level of novelty in innovation (Tushman and Anderson, 1986). Radical innovations are asked for in the context of strong competition. Radically new offerings can render existing services non-competitive and put competitors out of business. But they can also frustrate and confuse consumers because novelty requires consumers to possess specialized knowledge so that the novelty can be seen to be purposeful or appropriate for the situation at hand (Amabile, 1996). Without the specialized knowledge, consumers are cognitively and affectively unable to respond to new concepts embedded in novelty (Repo *et al.*, 2004). Consumers may have only insufficient knowledge structures or schemas to understand radical innovations. With the fragmented consumer understanding, radical innovations can lead to much diversity of interpretations and value assessments, which then hinder the emergence of the collective consensus of the value of innovation (Rindova and Petkova, 2007). For consumers to be able to evaluate novelty in their consumer experience, they need to (1) have the specialized knowledge structure of the new

service and the alternatives, (2) understand the meaning of the service in a specific use context, and (3) be embedded in the social and cultural context in which the service is introduced (Amabile, 1996).

By contrast, incremental innovations enhance existing services and make them better. They are appraised as safe, triggering certain demand, and requiring only little effort to adjust (Rindova and Petkova, 2007). They do not require the development of a new knowledge schema; broadening the current schema's domain of applicability is sufficient.

A firm can facilitate value creation by choosing the level of novelty in service introductions that matches the available consumer schemas, and hence only requires marginal extension of the current domains of applicability. Similarity with the available schema increases consumers' ability to categorize, make sense of the features, and find meaningful contexts of use (Repo *et al.*, 2004). This similarity is likely to be inhibited or enhanced by the social context and is also affected by individual preferences. Technology-savvy and novelty-oriented customers (lead users) often experience a higher level of similarity with more radical innovations than mass-market customers (Rogers, 1995; Rindova and Petkova, 2007). They have a more positive perception of the value of novel offerings; they are willing to experiment with the offerings and to develop more sophisticated schemas, and they establish anchors to other objects with similar assumptions about underlying processes (Rindova and Petkova, 2007). Hence, lead users are associated with less uncertainty of demand for novel products than the mass market.

In this section, we sampled the varying perspectives to value. The technology and network views in the adoption and acceptance literature recognize that the value of mobile services is highly situation specific. The value-driven approaches consider both costs and benefits, and have rendered broader understanding of cognitive processes in consumption. Priem (2007) puts the consumer as a center of value creation and examines the firm strategies that can aid the consumer value creation. Consumer value creation is an inherently collaborative interaction between consumers and a service provider. It focuses on how consumers and firms act in partnership in producing greater consumer surplus during consumption and leads firms to allocate resources to those areas that positively contribute to consumer value creation. The innovation literature sheds light to how consumers judge new services, particularly those considered radical or novel. The level of consumer payments is likely to be dependent not only on how novel the service is, but also on the consumer's knowledge of the service and its appropriateness for a given situation.

Research methodology

To illustrate consumer-focused strategies in action, we focus on the 3Italia's DVB-H offering in Italy. We focus on this case as it was the first nationwide rollout of DVB-H; we had access to 3Italia's executives and the company's user database and logs; secondary data exist on the preliminary post-launch assessments by market research companies and other public sources. The case is best considered as a stylistic illustrative account of firm-specific actions rather

than a comprehensive description of what happened in the rollout and how it happened.

Our access to 3Italia executives involved 10 in-depth interviews with senior managers, product and marketing managers. These interviews provided different perspectives on our research question. We conducted interviews in June/July 2007 and in August/September 2008 in an informal fashion to give interviewees the opportunity to adequately report on the firm actions and emphasize points of perceived importance.

3Italia's Mobile TV services: the first nationwide DVB-H-based offerings

3Italia Mobile TV strategy

3Italia is the third largest mobile network operator in Italy and the Italian 3G market leader. 3Italia is largely owned by Hutchison Whampoa Group (95.4%), a Hong Kong-based company. After being awarded a 3G license in 2000, 3Italia was first renamed Hutchison 3G (H3G) Italia in 2001. In 2002, 3Italia as a brand then replaced H3G before actually initiating 3G offerings in the Italian market. In 2005, with the convergence of data, voice, and content in mind and in order to prepare for offering Mobile TV services, 3Italia acquired Canale 7, a full program TV channel. In 2006, when launching its Mobile TV endeavor, 3Italia counted 7.1 million 3G users and controlled 44% of the Italian 3G mobile market.

Following its growth in mobile telecommunications, 3Italia developed its Mobile TV strategy with two main objectives: (1) to remain a leader in the highly saturated 3G mobile communication market in Italy, and (2) to further develop its market, that is, to identify and approach other markets with new customers and additional revenue potential beyond the traditional mobile telephony market. 3Italia derived the second objective from recognizing three catalysts causing convergence of media, transmission, and computer technologies:

- (1) *Widespread IP protocol adoption and exponential growth of broadband capacity.* The IP protocol provided a standardized data transmission protocol enabling transfer of various types of data (e.g., voice, hypertext, and video) from various sources.
- (2) *Customers demand for single mobile handset.* Being increasingly offered mobile services, customers required devices that facilitated the reception of various mobile services on one device. Along with the customer demand came developments in the fields of microelectronics and user interfaces that facilitated the convergence of mobile handsets.
- (3) *Customer desire for 24/7 connectedness.* Both for work and leisure purposes, customers wanted to be continuously available, have access to information repositories, and conduct real-time transactions.

Regarding its move into Mobile TV, 3Italia took advantage of the convergence in two ways. It extended its core business of mobile telecommunications to Mobile TV, and thereby entered a new market gaining new customers and additional revenues for both its traditional voice and

data service offerings and its new Mobile TV offering. It also defended its core business of mobile voice and data services against attacks from new players such as handheld manufacturers, software vendors, or TV stations, which could possibly offer such complementary services as they entered the Mobile TV market themselves.

For its Mobile TV provision, 3Italia chose a broadcast centric business model exploiting its acquisition of full program provider Canale 7. It opted for providing its customers broadcast TV services enhanced by 3G mobile network-based services. Thus, it could retain full control over the value chain and determine price, capacity, and content without objections from broadcasters. This seemed helpful, as according to one executive at 3Italia, just getting an appointment with content providers could take years. Along those lines, Pearce (2007) reported that content providers felt the same about carriers, 'working with mobile operators is like making love to a porcupine.' The broadcast centric business model also allowed keeping premium content exclusive. It guaranteed flexibility and the opportunity for quick response to the market where demand was highly uncertain. For example, 3Italia could introduce and cancel channels without depending on third parties and aim at creating synergies in its various consumer offerings.

Towards its own DVB-H transmission network, 3Italia needed two components, broadcast sites and so-called gap-filler sites. 3Italia acquired traditional TV transmission frequencies and broadcast sites guaranteeing rooftop and partially outdoor coverage. As the acquired sites held high-powered analog equipment, 3Italia worked with technology alliance partners to replace the equipment with digital transmitters. Additionally, 3Italia acquired gap-filler sites to improve indoor coverage and equipped those with low-power equipment. 3Italia co-located the DVB-H gap fillers at its 3G sites and only asked external partners to identify new sites. In total, with 1000 5 W to 2.5 kW transmitters and 300 DVB-H gap-filler transmitters, 3Italia covered about 75% of the Italian population (Mobile TV Joint UMTS Forum, 2008). This ensured that Mobile TV had a broad coverage and consumers had freedom to view Mobile TV anyplace and anytime.

To offer Mobile TV, 3Italia needed content. In its initial package, it offered 15 channels. The intent was to offer programs of unquestioned popularity. 3Italia included news, entertainment, and sports content provided through two own channels, La3 Live and La3 Sport, two public channels, RAI1 and RAI2, Mediaset's channel Canale 5, and four SKY Italia channels, SKY Sport, SKY Vivo, SKY Cinema, and SKY TG24. For most consumers, these were familiar content that could leverage the existing viewing habits on the move or on the job.

In the next step, 3Italia diversified its packages, offering cartoon channels, soccer channels, a reality channel, and adult entertainment channels as premium packages. These offerings helped to increase the value to the lead consumers who were looking for additional popular entertainment options (such as the popular 'Big Brother' reality show). The premium packages increased the consumers' willingness to pay.

3Italia offered a range of tariff plans reaching from daily plans to 24-month contracts. The monthly price for a

common package including the basic Mobile TV package, one gigabyte monthly data traffic, a mobile community account, and 60 min of free voice services per day was about \$45. Additional packages could be purchased at prices starting at \$4.50. The diversity in pricing plans matched the variety in consumer evaluations of the initial service.

To engage the lead consumers, 3Italia offered subsidies on the first DVB-H capable handsets supporting real-time tele-voting and providing a 320×240 pixel resolution on a 2.2-inch screen. As more devices became available, 3Italia soon extended its offer.

3Italia introduced its Mobile TV offer with an announcement on 22 February 2006, in Milan. Starting on 10 April, it also expanded its in-store activities. It selected the top-performing stores in areas with sufficient DVB-H coverage to show Mobile TV demos. 3Italia held VIP and institutional kick-off events in Rome on 27 April and in Milan on 15 May to draw attention to its upcoming Mobile TV launch. It also launched an expensive advertising campaign to increase consumer awareness. Between 4 and 7 May 2006, 3Italia held a large sales conference with about 5000 sales representatives. To further attract customers with premium content, 3Italia acquired the exclusive Mobile TV rights for the FIFA Soccer World Cup 2006 matches. It announced to make all 64 matches available at no additional cost for all customers that activated before the end of June. In the course of its marketing campaign, between 8 May and 30 June, 3Italia sent 10 teams with six promoters each to sales outlets at airports, to lounge bars, stadiums, big outdoor events, fitness centers, and beach clubs to attract customers. It instructed the promotion teams to show potential customers the Mobile TV experience on mobile handsets and to sample free service trial codes. Along with the promotion, 3Italia additionally facilitated early registration in 1600 stores, thereby building customer awareness, making activations more predictable, and extending the sales period.

On 6 June 2006, 3Italia launched DVB-H-based Mobile TV. After only 58 days, it had already reached the threshold of 100,000 customers. It outpaced Korean SK that reached the 100,000 customer threshold for its DMB-based Mobile TV after 80 days. In early 2007, 3Italia with 400,000 customers controlled more than 30% of the Italian DVB-H-based Mobile TV market. About 1 year after the launch, in May 2007, it counted 600,000 customers. Despite the fast growth of the customer base (see Figure 1), regularly active Mobile TV users remained fairly constant at about 100,000 in Italy (M:Metrics, 2007).

In the summer of 2008, 3Italia initiated another strategy to go beyond its lead users. For €19 (or about \$23) per month, it offered its standard package including six 'free' channels (including European Soccer Championship 2008 and the 2008 Olympic Games) and 50-megabyte data service per day.

For a summary of 3Italia's Mobile TV timeline see Figure 2.

Customer value via 3Italia's Mobile TV offerings

In 2007, 3Italia's Mobile TV offerings were most highly valued by men aged between 25 and 44 years. They accounted for about three quarters of 3Italia's Mobile TV

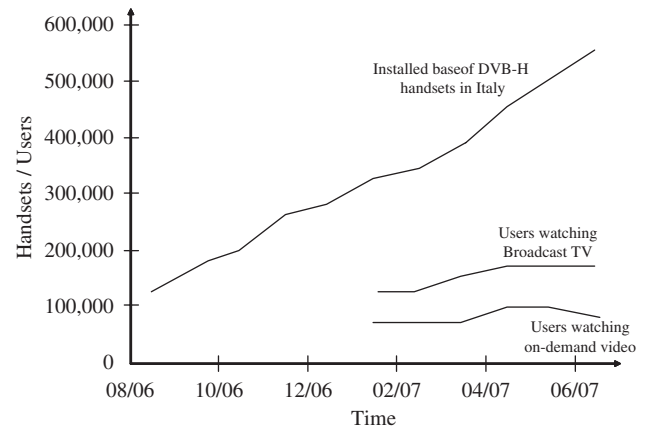


Figure 1 DVB-H handsets sold compared to Mobile TV and on-demand service use in Italy (Source: M:Metrics, 2007).

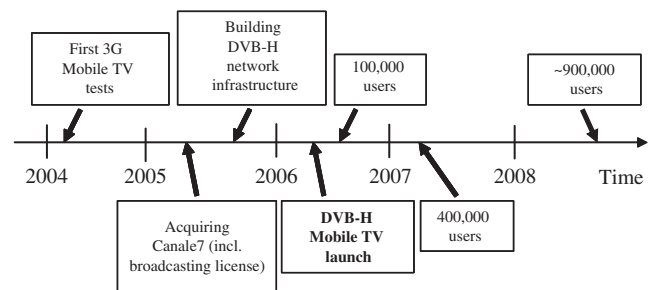


Figure 2 Timeline of 3Italia's DVB-H Mobile TV provision.

customers. The customer base was skewed towards the northern and center regions of Italy and mostly living in large cities.

The high appreciation of Mobile TV by lead (and later) users is shown in the above average willingness to pay. On average, 3Italia gathered \$240 of total revenue per Mobile TV customer, exceeding the average Italian mobile average revenue per unit (ARPU) of \$150 by 60%. Apparently, 3Italia benefited from overall customer satisfaction with its Mobile TV service, translating into higher total revenues. Mobile TV customers appreciated the available channels (Eurisko Market Research, 2007). Specifically, they valued 3Italia's own channels; customer satisfaction was at 82% for La3LIVE and at 93% for La3SPORT. Similarly, customer satisfaction with the available handsets in excess of 90% was high.

Obviously, the valuation of the content offered varied by channels. Viewer valuation, measured in numbers of minutes watched, was higher for sports than for entertainment or news. Also a movie channel received positive viewer valuations. In the cases of breaking news, customers took up the opportunity that Mobile TV offered. They watched the news regardless of the time of the day and their location. In several interviews, executives noted that customers expressed high satisfaction with the opportunity to be informed, that is, to watch breaking news the 'just in time' and 'truly anywhere.' With regard to channel types, customers watched private channels more often than public channels. Customers' main interest was passing time and being updated with news information.

Whereas the lead users were happy to watch the regular TV program 'anywhere', 3Italia's own channels generated additional value by offering additional, seemingly customized content. Reflecting the general content trend, customers watched La3Sport on an average of 40 min per week, and La3Live 15 min per week.

3Italia could assess the customer valuation of its Mobile TV products most easily and most objectively by looking at viewer times. This works especially well as long as customer pay per minute. It becomes a bit harder when Mobile TV gets included in flat rate packages.

In 2007, per day, 3Italia Mobile TV customers on average watched 72 min of Mobile TV (including channels not covered in the basic package). They preferably watched Mobile TV just before dinner and in the evening hours. Viewing time increased from 11 min per hour during the afternoon to 23 min between 6 and 7 o'clock. Viewing time dropped to 14 min per hour during dinnertime and increased to 19 and 17 min per hour, respectively, in the 6 h following dinnertime.

The company's user logs suggested that customers mainly value Mobile TV as complementary to their stationary TV. However, they also use Mobile TV as substitute when their stationary TV is occupied by others or when stationary TV use would disturb others.

Log files show that 3Italia customers view Mobile TV during a variety of activities: Mobile TV enriches their situation at either workplace (38%) or university and school (4%), where Mobile TV offers information and entertainment during breaks. Further, Mobile TV limits boredom during transit by allowing entertainment or information when people are on their way from A to B. Users watch Mobile TV while walking around (35%), traveling (28%), and using transportation means (14%). During transit, users most highly value programs with rather short formats that could easily be consumed while traveling. In addition, 3Italia customers extend the Mobile TV consumption to places such as a friend's house (8%), a bar or daily (7%), a restaurant (6%), or even a pub or discotheque (3%). Finally, customers value watching Mobile TV, especially entertainment content, when waiting (8% of customers) or spending time in public places (2% of customers).

3Italia's actions helped it to launch what is generally considered as a successful market approach for Mobile TV by industry experts (D&B Company, 2008). These strategies, in turn required 3Italia to develop or acquire competencies that rendered consumer benefits.

A consumer value perspective on 3Italia's Mobile TV offerings

We analyze 3Italia's strategies following the CBE perspective (Priem, 2007). The CBE perspective examines consumer value creation separately from firm value capture. While the firm value capture tends to assume demand as given and focus on what resources the firm should own, the focus on consumer value creation is focused on what actions the firm can take to understand consumption processes and increase the consumer benefits from consumption. These increased benefits in turn can increase the firm's top line via consumer payments.

The CBE perspective views consumption via production systems consisting of inputs, processes, and outputs. Inputs can be goods (e.g., devices), services (e.g., TV programs), and human capital that may already exist or be learned during consumption processes. Processes can include paying attention, enjoyment, and interacting with others. The output is the benefit experienced during a particular consumption event. Contrary to many classical models that rely on consumer preferences, the CBE perspective takes a knowledge-based view of customers. Consumers vary in their knowledge and expertise (i.e., service-specific human capital), which in turn affects the production processes and contributes differing amounts of value experienced. A consumer with much prior knowledge in a particular service (sports event) is likely to experience higher value than someone with less prior knowledge. These outcome differences in turn determine the consumer's willingness to pay. Priem (2007) argues that firms should engage in strategies that help consumers to increase their stock of knowledge and expertise, lower the needs of knowledge and expertise needed to engage in consumption, and promote complementarities and synergies so that the knowledge can be leveraged in multiple consumption activities. As introduced in the section Customer centric value creation, Priem (2007) proposes three sets of strategies: (1) growing consumer's human capital (stock of knowledge), (2) reducing knowledge demands on consumers, and (3) leveraging synergies from within-household/group specialization.

Growing consumer's human capital

With its first nationwide offering of DVB-H-based Mobile TV, 3Italia provided consumers with timely information and entertained them at times and at places previously not common for TV entertainment. As 3Italia users frequently watched Mobile TV during the day and professional activities, Mobile TV increasingly influenced their work and private activities. Without Mobile TV, appointments and activities away from home usually determined the end of TV consumption. The complementarity of stationary and Mobile TV, supported by the provision of identical programs, tempted users to finish a specific program on the mobile handset when leaving the house. Hence, Mobile TV helped to extend and perhaps even broaden consumption as it occurred in multiple locations and more frequently.

3Italia recognized the necessity for an intensive marketing campaign to kick-start Mobile TV. The marketing campaign built consumer knowledge of the offering. 3Italia initially targeted those who had previously expressed enjoyment of watching sport content, and hence would likely evaluate the Mobile TV offerings positively. These initial positive evaluations were critical in triggering a positive spiral of consensus in the broader market. 3Italia acquired the broadcasting rights for a key event of national interest, the FIFA Soccer World Cup 2006. Broadcasting the World Cup, 3Italia quickly developed a critical number of sport viewers who, through their payments, demonstrated the attractiveness of 3Italia's business model – not only to 3Italia, but also to its content partners RAI, Mediaset, and SKY. With the quick Mobile TV adoption,

3Italia further signaled handheld manufacturers the attractiveness of further developing Mobile TV technology and integrating it in their handsets. This in turn created value to customers by having options over different devices and possibly leveraging their earlier device knowledge.

Offering the Mobile TV services through the same mobile handset that consumers could also use for video, games, and music permitted users to leverage their existing human capital. Linking to existing human capital allowed the new offering to be viewed as incremental innovation that only needed little effort from the consumers to maximize consumption benefits. This was likely to be particularly the case with lead users. 3Italia's Mobile TV offerings provided consumers with more information and entertainment, but barely with the need for learning of any new competencies (possibly excluding those beyond media literacy). Greater benefits likely led to more frequent and intense consumption and in turn enhanced human capital, which further enhanced subsequent consumption experiences. Hence, a single integrated device and existing infrastructure created consumer value as it enabled a virtuous cycle of leveraged human capital and enhanced consumer experiences.

Over time, to gain more users and a higher willingness to pay per user, 3Italia changed its strategy in its efforts to further increase the CBE. It planned to enhance its early strategy of offering linear program structures identical to the TV program at home with on-demand Mobile TV capabilities that further increased the consumer synergies.

Reducing demands on consumers

Less than a year after its service launch, 3Italia offered various program packages including the low-cost (or lower cost) ones. This allowed people likely to experience less value from consuming Mobile TV to justify becoming a consumer of 3Italia's offerings. Connecting its DVB-H-based broadcast offerings to Universal Mobile Telecommunication System-based one-to-one services, 3Italia promoted consumers sharing their Mobile TV experiences with other actual or potential users. Lowering fee and offering 'flat rates' which bundle voice and data services with seemingly free Mobile TV services contributed to a remarkable increase in user numbers – especially with the European Soccer Championship 2008 and the Olympic Games 2008.

3Italia also reduced the possibility of disappointing experiences by offering programs that had already proven themselves popular such as the 'Big Brother' reality show. The initial 15 channels offered ensured sufficient, but not overwhelming breadth in viewing choices. The consumers experienced a delay in changing channels. 3Italia filled the delay with entertaining advertisements.

From early use metrics, 3Italia learned that Mobile TV did not compete with, but complemented home usage of TV. 3Italia recognized that Mobile TV accelerated the consumer's consumption of the media. This in turn improved the consumer's production function and consumption of media. Increased payments also suggested that Mobile TV was complementary for stationary TV provision.

A strategy that might be related to reduced consumer demands or treated as its own strategy is related to

reducing risks (privacy and safety threats) to consumers. 3Italia's Mobile TV offerings do not represent much of a privacy risk, as they do not spread personal information to the public. Whereas Mobile TV offerings could threaten the privacy of adult entertainment users as their private media interests may become observable and traceable, the limited handset screen size limits privacy concerns. However, as has been found with some other Mobile TV offerings, users even turn to their mobile devices at home in order to assure private viewing (Orgad, 2006).

Leveraging synergies from within-household/group specialization
Over time, 3Italia increasingly invested in offering 'made for mobile' programs. Such content, which is exclusively produced for Mobile TV, allows 3Italia differentiating not only its Mobile TV offerings from the stationary TV at home, but also its firm-specific service provision from service offerings by Mobile TV competitors. 3Italia argues that their own production of programs was achieved at a lower cost, which then allowed the firm to pass the savings to consumers.

In combining DVB-H-based Mobile TV with 3G services, 3Italia has also experimented with 'user-generated programs.' These programs have primarily focused on sports and on capturing other consumers' opinions, jokes, songs, and commentaries. The latter has become possible by 3Italia leveraging its existing video-blogger community to Mobile TV.

Fulfilling obvious needs for mass information and entertainment, interactivity and replying to single user requests is constrained by the DVB-H-based broadcast distribution. The only exceptions would be program decisions taken via tele-voting, which – in the case of 3Italia – are not (yet) part of the service portfolio. To leverage synergies from within consumer groups, and thus to increase the consumer benefit experienced, 3Italia has started combining broadcasting and one-to-one 3G-based services.

Table 1 summarizes the strategies pursued by 3Italia to increase the value gained from consuming its Mobile TV offerings. It should be noted that we did not directly interview or observe consumers, and hence we are not able to validate that these strategies and the resulting actions, in fact, mattered to the consumers.

Implications to research and practice for Mobile TV and mobile services

We opened this paper with the dilemma that increased exposure to mobile services has not necessarily led to increased usage or greater number of consumers who are willing to make payments on the service (e.g., Constantiou, 2008). Similar concerns have been expressed for Mobile TV that has become a hotbed of investment among many supplier firms (Carlsson and Walden, 2007). Hence, the question of how supplier firms can increase the value experienced by consumers in the consumption process is critical for the success of the Mobile TV. The Mobile TV offerings will fail or succeed based on the supplier firm's actions that aid consumers in their value experiences.

The CBE perspective sheds light onto how a consumer demand for the product or the service can be aided by

Table 1 3Italia's Strategies to Increase the Consumer Benefit Experienced

<i>Growing consumers' human capital</i>	<i>Reducing demands on consumers</i>	<i>Leveraging synergies (emerging)</i>
Exploiting complementarities between stationary and Mobile TV to broaden consumption	Offering also low (or lower) cost services	Investing in 'made for mobile' programs allowing to differentiate from TV at home and other Mobile TV offerings
Intensive marketing campaign to trigger a positive spiral of 'pro Mobile TV' consensus	Promoting the sharing of experience <i>via</i> complementary one-to-one services and flat rate bundles of voice and data	Experimenting with user-generated programs
Fostering the development of integrated handsets by signaling quick Mobile TV adoption Offering integrated handsets for TV, video, games, music, and telephony to leverage existing human capital of lead users	Focusing on channels 'proven successful' to foster complementary TV consumption Carefully handling possible privacy issues (interest in adult entertainment <i>vs</i> limited by screen size)	Introducing elements of interactivity into broadcasting based Mobile TV <i>via</i> tele-voting

supplier firms. Demand creates a revenue stream and renders supplier firm resources valuable. Demand can be increased with the better understanding of consumption processes, and facilitating and leveraging the consumer's learning and knowledge investment. It is important to note that – in the CBE perspective – complementarities and synergies do not deal with the firm's internal resource classes (e.g., information technology resources and organizational resources). Rather, they refer to different service offerings that share the consumer's knowledge and learning for value creation. In terms of the production function, synergy offers the consumer more efficient acquisition and use of knowledge.

CBE is based on the concept of bounded rationality, whereby consumers have limited capacities to acquire, process, and maintain knowledge. Hence, the core tenant of CBE is the efficiency in knowledge creation, acquisition, and application. Consumption often involves integration of the knowledge from the consumer's existing human capital and the supplier firm can assist in this integration process. Although it is the consumer who immerses himself or herself in the service and produces the value, the supplier firm can increase the benefits experienced by offering education and training, selecting programs that fit the mobile platform, and maximize the attentional involvement (Xu *et al.*, 2008).

The main implication of CBE to Mobile TV and mobile services research and practice is that greater attention is needed to incorporate the effects of consumer knowledge and learning in models of value creation. According to CBE (Priem, 2007), value creation can be positively aided by supplier firms via strategies that target the consumer human capital either by increasing the stocks of knowledge, reducing the demands on knowledge, or leveraging the consumer knowledge across multiple services.

CBE challenges the long-held assumptions that greater use leads to greater benefits experienced and greater willingness to pay. CBE argues that use does not lead to higher valuation of consumption benefits and higher willingness to pay without appropriate changes to consumer knowledge and learning.

The CBE perspective is complementary to the resource-based view of the firm (Barney, 1991) and the transaction cost approach (Williamson, 1971). Whereas these other approaches focus on the firm ownership of resources and how ownership creates value through competitive appropriation of consumer surplus among the members of the value chain, the CBE perspective focuses on what needs to be done with the resources to increase consumer value, and thus to reduce demand uncertainty.

The CBE perspective might also reveal insight to some of the existing value-driven studies of mobile services that found that in the consumers' assessment of value, costs are more important than benefits (Kim *et al.*, 2007). It highlights the role of service-specific knowledge in the value creation process. Where costs are judged to be higher than benefits, consumers may not yet have sufficient service-specific knowledge to render meaning to the benefits and put them in appropriate use. Consumers' service-specific knowledge accumulates from increased and accelerated use, which in turn increases the consumption experience and willingness to pay. Of course, increased knowledge does not totally eliminate the costs and the paradoxical effects of the technology. Increased knowledge does not eliminate other consumption alternatives that may, over time, be judged to be more appropriate and more value creating.

Consumers' service-specific knowledge can be also seen to represent switching costs to the consumer (Porter, 1980). An efficient production function reduces the amount of effort and time needed to use the service, and hence erect barriers to consumer's switching to another alternative. However, what is different in the CBE perspective from some of the other discussions of switching costs is that the focus is not just about increasing the sacrifice of the consumer without increasing the benefits experienced. In the CBE perspective, the goal is increased user experience, which leads to greater willingness to pay. This, in turn should decrease the frustrations of the consumer feeling 'a hostage' of a service provider.

In conclusion, the CBE perspective is still in its embryonic stage and needs much further development.



The approach is also limited as it primarily assumes a rational consumer. It does not replace the existing value capture approaches, such as resource-based view of the firm (Barney, 1991), but it may help the firm to take a customer centric approach that can complement other strategic perspectives. The customer centric CBE perspective can be used to increase the value created from consumption, which in turn should decrease the uncertainty in consumer demand. Reduced uncertainty can be a step toward sustained firm performance as value experienced increases payments that exceed the firm's costs in aiding in value creation.

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