Mobile Television in Italy: Value Chains and Business Models of Telecommunications Operators

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ABSTRACT This article explores the Italian mobile television market and analyzes the value chain and business models used by the main operators. As suggested by the term itself, mobile television involves the coming together of two different industries, telecommunications and broadcasting. In the author's view, the business models for offering mobile television services will not rely only on broadcasters but telecommunications operators will have a key role, too. To illustrate these aspects, the article considers the Italian case representing one of the main developed mobile television industries at European level.
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KEY WORDS: mobile television, value chain, business model, telecommunication operators, broadcasters

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The terrestrial television market is changing across Europe. Most countries in Western Europe have launched digital terrestrial television services and analogue switch off is currently at the top of the media agenda in these countries. One of the most important advantages of the switchover from analogue television transmission into digital is spectrum release and the resulting possibility of freeing up frequencies for other services, such as mobile telephony. In particular, nowadays mobile television is a debated issue: it means the opportunity to view traditional television and interactive programs directly on the client's own mobile. The interactivity is an essential feature of "broadcasting on the move", because this new TV model is closely related to the telephone, the pre-eminently interactive communication medium.

Offering mobile television services to the customer requires several different core competencies that cannot easily be provided by one single company. As suggested by the term "mobile television", two different industries come together: the mobile industry and the broadcasting industry. This article aims to illustrate that the business models for offering mobile television services will not rely only on broadcasters, but that telecommunications operators will have a key role, too. With an empirical investigation of the Italian context, the ambition of the article is to point out not only the innovative aspects but the most critic characteristic that the advent of mobile television implies.

METHOD

Mobile television has not been studied in depth, due—first of all—to its novelty. The nature of this research is therefore exploratory and supported by the case study method. Unlike quantitative methodologies that seek to predict behavior, the qualitative research method is more suitable for understanding a topic from a specific perspective. From the wide variety of possible research strategies, the case study approach is, on this occasion, very useful because the research question is exploratory and the questions asked concern the “how” in a context of contemporary events and behaviors that cannot be manipulated (Albarran, Chan-Olmsted & Wirth, 2005:556).

The Italian telecommunication companies Tim, Vodafone and 3 Italia were selected as they represent three market leaders within the Italian mobile television industry. To analyze these case studies, the author collected primary and secondary data. Information about the telecommunication operators was derived from a variety of sources such as company press releases and presentations, company annual reports and research reports on industry and company developments. This method allows capturing and tracking the value chain and business models of the operators involved in the current transitional digital media landscape. Although case studies alone are only meant to describe and not to explain the phenomenon being studied, the author has interviewed operators involved in the launch and commercialization of mobile television in Italy with the aim of providing direct evidence or proof to underpin the discussion. It is important to note that the selected case studies can not be used for generalization but present an understanding the role of telecommunications operators in the launch of mobile television services.

Combining theoretical studies (Rogers, 1962; Amberg & Wehrmann, 2003; Trefzger, 2005) with a study focused on the Italian context, the article aims to analyze which roles are played by the telecommunication operators in the value chain for mobile television services. The article is structured in three sections: in the first one it describes the meaning of mobile television, its opportunities and its limitations; in the second one, it illustrates the value chain and the business models applicable to mobile television and the roles played by the telecommunications operators; and in the third part, it examines the case study of Italy, presenting the supply of mobile television services and the value chain and business models adopted by the main involved operators.

MOBILE TELEVISION AND ITS ADOPTION

Over the last ten years, digital technology has encouraged a rapid growth in the personal consumption of media. The advent of personal video recorders (PVRs), video-on-demand and the multiplication of program offerings have enabled viewers to personalise the content that they want to watch. And with interactivity viewers can directly express their preferences to broadcasters. As part of this trend, and alongside the growth of mobile telephony, "the place of viewing is no longer limited to the television receiver at home, or in a vehicle, but is widened to allow personalised viewing of television by individuals wherever they are located" (DigiTAG, 2005:3).

So mobile television provides the opportunity to view traditional television and interactive programs directly on one's own mobile telephone or other supported devices. The interactivity is an essential feature of "broadcasting on the move", because this new TV model is closely related to the telephone, the pre-eminently interactive communication medium. Mobile television can be defined as the possibility of watching television programs on a handheld device and "on the move"—on public transport, waiting for an appointment or while at work.

The idea of watching television while on the move and not at home is not new. As well illustrated by Trefzger (2005), in 1982 Sony introduced its first portable television, the Watchman, but, unlike its music peer, the Sony Walkman, it did not have much success. The failure of the Watchman could be traced back to several reasons, including its dimensions (nearly 20 cm high and 9 cm wide), its screen (tiny) and its battery power (too low) (Günthör, 2005). But today the story seems to have changed. Consumers are using their mobile phones for multimedia—not just for communication, for entertainment (with streamed video, music and games), and for news and information services. With your mobile you can do a whole range of things: calling, sending and receiving messages and e-mails, managing appointments and addresses, taking photos, listening to music, listening to the radio, playing games and watching short video clips. Now it seems to be the turn of television. Today, television and mobile phones are technologies that most people cannot imagine living without. As reported by many studies on media consumption in different countries, television more than any other medium determines the daily life of many people and is the most consumed medium (AGF/GfK Fernsehforschung, 2005; CENSIS, 2005). Because the mobile phone is not used solely for communication via voice or SMS anymore, but also for entertainment and information, it appears feasible also to use this companion to receive

TV while not at home or in front of a large TV screen. Hence, mobile television will extend the hours of television viewing to parts of the day when viewers are not at home.

As shown by experience with innovations, often affected by the more or less advanced implementation of new technology, technology alone is not the only determining factor for the success of a product. But, particularly for products and services developed for consumers, user acceptance is a critical success factor (Trefzger, 2005). The first studies referring to how families adopt new products and/or innovative services were conducted by Rogers (1962) and Bass (1969), but in recent years many case studies have appeared in the economic literature on the adoption of specific mass media, such as color television and the video recorder, with the aim of defining a model. In the field of mobile applications the relevance of user acceptance is high, too (Amberg, Wehrmann, 2003:5).

Similar to Rogers' diffusion theory[1], Forrester Research (2004) segmented European mobile phone users into three clusters[2]:

- Fanatics
- Followers
- Fugitives

Fanatics always use up-to-date technology and own the newest handsets. They are keen on trying out new products and services and also interested in the technology behind them. 16% of mobile users belong to this cluster.

Followers represent the population with 42% of users. They appreciate technology according to its practical usefulness and they adopt it when they believe it is mature.

*Fugitive*s, who prefer easy usability, represent the last 42% of users. They do not adopt new technologies until it is absolutely necessary. "For them it is only important *that* the technology works, and *not how* it works" (Trefzger, 2005). With regard to mobile television one can see that it is important for the adoption process to initially target the segment of innovators and early adopters (referring to Rogers) or, following the segmentation model from Forrester Research, the Fanatics. They are the first to try out new services and they need to be persuaded that the new service gives them added value. If they are convinced and accept the new service, other market segments will follow as result of the diffusion process.

Furthermore, when regarding mobile services and mobile television in particular, it is most important to focus not only on the service itself, but

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1 Rogers (1962) defined five categories, in which he classified the adopters depending on their *innovativeness*: 1. innovators, 2. early adopters, 3. early majority, 4. late majority, 5. laggards.

2 The results of the Forrester Research were again used by Trefzger (2005).

on the contextual conditions of the service, too. The Compass Acceptance Model (CAM) (Amberg et al., 2004) allows us to consider all these variables. On the basis of the complementary classifications—benefit/effort and services/general conditions of services—the CAM considers four distinguishable dimensions: perceived usefulness, perceived ease of use, perceived mobility and perceived costs. *Perceived usefulness* is "the degree to which a person believes that using a particular system would enhance his or her job performance" and *perceived ease of use* describes "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989:320). *Perceived mobility* considers the mobile device and the available mobile networks while *perceived costs* is used to consider monetary costs but also non-monetary costs such as, for example, health risks (Amberg et al., 2003:80).

Generally people decide to adopt a new product or service only if it meets their expectations and needs, and above all, if it provides added value and is convenient and easy to use. Other factors that have an impact on user acceptance include socio-demographical factors, mobile usage behavior and social and cultural influences (Amberg & Wehrmann, 2003:24, Amberg et al., 2003, Trefzger, 2005).

From several studies conducted throughout Europe, it emerges that viewers have indicated their interest in watching television from a handheld device (BMCO; Nokia; IPDC). In particular, the quality and range of content offered by the mobile television is highly critical for user acceptance. Participants in different trials carried out by some telecommunication operators in many European countries (Germany, France, Great Britain, Italy and Finland) expect that all content from conventional television would also be available on the mobile, even if it was not suited for mobile viewing. The viewers were not familiar with the idea of content specially designed for the mobile phone and just expected regular TV channels. Indeed, they want to have:

- good picture and sound quality
- value for money
- right selection of channels
- single device to carry (phone)
- simplicity of use
- service availability

Analysts believe that just showing existing channels on the mobile would not create value in the long term but is also not very well suited for the intended usage behavior of mobile television. Television content specifically designed for mobile reception needs to be developed (Betti, 2004, Visiongain, 2004). The formula "content is king" in the mobile environment has a provocative nature. It is widely recognised that an increased choice of channels and content alone would not be sufficient for determining the success or failure of mobile television. For example, consumers need sophisticated but easy tools to enable them to make the best use of available content. What mobile television does is to enable content to be presented in even more compelling formats with increasing quality and convenience of access and, as far as it is concerned, content is one of the primary drivers for the adoption of digital TV services. The following table summarizes the acceptance criteria for mobile television.

Table 1: Mobile Television Acceptance Criteria

Dimensions and their value	Acceptance criteria
Perceived Usefulness	User expectations Location and time-independent usage Program offering / number of channels Quality of content Interactivity
Perceived Ease of Use	Display size and resolution Picture quality Interface design / navigation Login procedure
Perceived Mobility	Battery life of handset Reception quality (at different locations) Location-dependent functions
Perceived Costs	Costs for service (pricing, transparency) Costs for device Acceptance of advertising Tolerated forms of advertising

Source: own illustration following Amberg & Wehrmann, 2003 and Trefzger, 2005

Booz Allen & Hamilton (2006) estimates that people prefer to use the mobile phone as a television set for watching short programs such as news and current affair programs, first of all due to technical limitations (picture quality and battery power) and consumer viewing habits. Nowadays most consumers are likely to use mobile television when away from home to kill time, e.g. when waiting for a bus or train or just to keep informed when they are on the go, e.g. to get a quick news update. They will not spend hours continuously in front of their mobile phone watching TV (Södergard, 2003). Therefore, the consumption of mobile television is not limited to the traditional use of television. In fact people want to have the possibility of watching TV anywhere and anytime. Next to offering live broadcasting, mobile television services must include video on demand services.

Another two acceptance criteria emerge from many recent studies on mobile television[3]: the usability of the mobile television service (Mobile Handset Interfaces, 2002), strictly depending on the design of the

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[3] To enable the reception of television services on the handheld some prerequisites need to be fulfilled: technical aspects, like delivery networks and standards, and regulatory aspects, such as broadcasting licenses. These aspects will not be treated in this paper.

interface and the way of navigating within the service, and the pricing of the service.

To summarize, the first pilots launched in the main European countries (Germany, France, Great Britain, Italy and Finland) show a certain willingness to pay for mobile television content exists. For example, in the BMCO study (2004), viewers indicated a willingness to pay 8-12 euros per month to access 6-8 different television channels.

Now after describing the meaning of mobile television, its opportunities and its acceptance by the population, section 2 will examine the value chain and business models adopted by operators offering mobile TV services.

MOBILE TV VALUE CHAIN AND BUSINESS MODELS

With the introduction of third generation networks, which are based on the Internet protocol (IP) and allow higher data transmission rates, services making use of video, sound and data (triple play services) are becoming a reality. In the transition to triple play services with their requirements, telecommunications operators need to reconsider their current and desired industry positions or risk being overtaken by other better-adapted and more specialized market players. So offering mobile television services to the customer requires several different core competencies that cannot be easily provided by a single company (Pyramid Research, 2005). As suggested by the term “mobile television”, two different industries are coming together: the mobile industry and the broadcasting industry.

The coming together of these two industries is evidence of the convergence between the telecommunications, media and information technology sectors. Convergence is not just about technology, as illustrated in the Green Paper of the European Commission (1997), but about services and new ways of doing business and interacting with society.

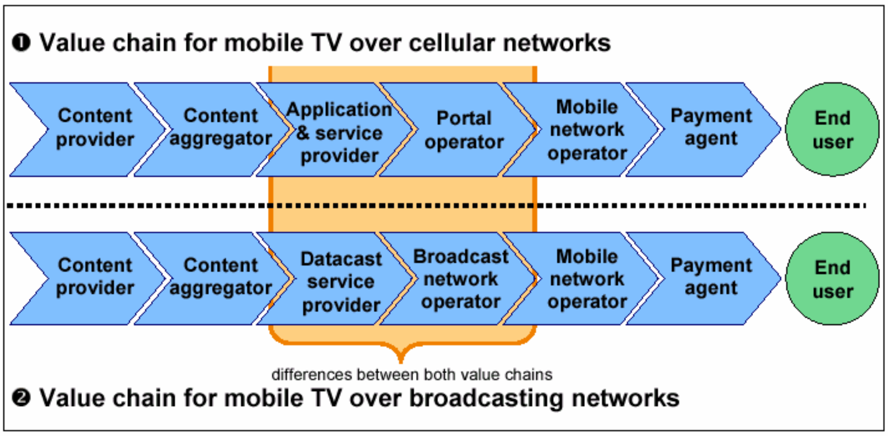
To better understand who the new operators involved in the development of mobile television are, it is useful to illustrate the value chain for mobile television. According to Chan-Olmsted & Kang (2003), the concept of value chain is closely related to the issue of the business model, because the former scrutinizes the value added to a product or service in each stage of its acquisition, transformation, management, marketing and sales, and distribution. In essence, the value chain represents a systematic approach to analyzing an industry by segmenting the market activities that add different values to the final product.

Media economics tries to define the value chain of this new service, but, as in other cases, nowadays there are many suggestions for possible value chains (Booz Allen & Hamilton, 2005; Visiongain. 2004; DigiTAG

2005; Trefzger, 2005), presenting some common features but significant differences, too.

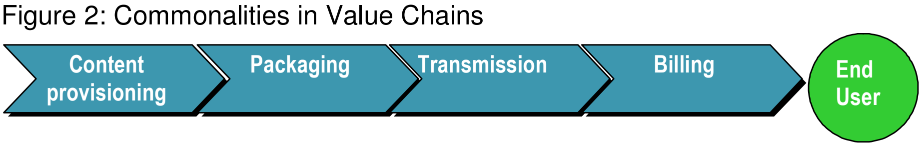
Following Trefzger and Visiongain, we will differentiate between two value chains: one for providing the service over a cellular network and the other for providing the service over a broadcasting network. As shown by the following diagram, the value chains differ slightly in the two players highlighted by an orange box (Trefzger, 2005:35): an application & service provider/portal operator for mobile television over the value chain of mobile networks and a datacast service provider/broadcast network operator for mobile television over the value chain of broadcasting networks.

Figure 1: Value Chains for Mobile Television



Before analyzing the different players, we want to consider the common tasks that can be schematized as follows:

Figure 2: Commonalities in Value Chains



Apart from the "billing" function, it looks like the value chain of "a multi-channel and multi-service television platform" (Prario, 2005; Andersen Consulting, 2002).

Content provisioning, the task of content providers, relates to content production and distribution.

A content provider offers original content or a popular brand (e.g. MTV, Coca Cola, Nike) or personality that is suitable for mobile television. Content providers do not necessarily create all content themselves; they also buy or subcontract content from content producers and act as agents for content owners (Andersen Consulting, 2002; UMTS Forum, 2002; Visiongain, 2004).

Content providers for mobile television could be new companies that have specialized in content for the mobile channel, as well as TV broadcasters, movie production companies and popular brands.

Indeed, ever more involved in the production of interactive contents, they have to supply these new services to consumers. "Content providers offering high-grade mobile content play a very important role in the mobile television value chain(s) and have a strong bargaining position" (Trefzger, 2005:37).

Packaging, the task of content aggregators, relates to the selection and packaging of content from different sources into convenient and attractive bundles and to the selling of these to service operators, directly to consumers or other third parties. As observed by Trefzger (2005), content aggregators distribute the content through various channels depending on their distribution rights. A TV broadcaster is a content aggregator in the traditional TV environment and could also perform this activity in the mobile television value chain (Visiongain, 2004). Alongside the young specialized companies, there are often established media companies that already bundle content in the traditional media value chain. They have the advantage that they have already gained experience in the business and own a strong brand and reputation (Büllinger & Wörter, 2000).

Transmission, the task of mobile network operators, relates to the diffusion of content. Networks transmit data across their infrastructure and are responsible for the development, the maintenance and the operations of their transmission infrastructure. Telecommunications companies and broadcasters can be mobile network operators. In the value chain for mobile television networks, operators must also provide a feedback channel for interactive TV services transmitting via the cellular network. Due to the already existing billing relationship with the mobile user, the mobile network operator can charge for TV services and collect the revenues (Trefzger, 2005).

In fact payment agents are responsible for billing customers for mobile services and collecting the money. More precisely, the payment agent performs two functions: financial infrastructure provider (FIP) and a payment service provider (PSP), functions that can be fulfilled by different parties. On one side, the financial infrastructure provider stores the customer's money and when the merchant requires, it will debit the customer and pay the merchant. It can be a bank, a credit card company or a mobile network operator itself. The latter charges the consumer directly, either on their monthly phone bill or by deducting the amount from a prepaid account. In this case the relationship with the client is even closer. On the other side, the payment service provider provides the technology, the service or the application needed to perform business transactions between the merchant and the consumer. This includes the contribution of all information required for the transaction and negotiation between all parties involved in the value chain.

The relationship with the end user (or customer) is very important. Depending on the pricing model of mobile television services, the customer who uses the service must pay for it. The consumer could theoretically get a separate invoice from every merchant whose content or mobile services was used, but this would lead to complexity and high transaction costs as well as to problems with consumer acceptance, particularly when the amount invoiced is small. Otherwise, all merchants could be billed by one company. In the case of mobile television, the mobile operator, unlike broadcasters, has already established a billing relationship with the consumer and seems to be predestined for this role (Büllinger & Wörter, 2000).

After illustrating the common players involved in the mobile television value chain, we have to make some comments on the two players which differ in the value chain for mobile television over cellular networks and in the value chain for mobile television over broadcasting networks.

In the first value chain the application and service provider and the portal operator play a role.

The application and service provider develops, implements or operates mobile entertainment platforms. This function can be fulfilled partly by the content provider or content aggregator for development of TV services, or by the mobile operator for delivering the service via its network. However, third parties could also fulfill this service.

Mobile television content and services are often well organized in a portal (it looks like the "walled garden" of a multi-channel and multi-service digital television platform). The portal can be owned and operated either by the mobile network operator or by any other third party, for example a famous brand or a TV broadcaster.

In the first case only the customers of the mobile operator can access the portal, while in the second case the customers of all network operators, if they have a billing relationship with each of them, can obtain admission to the portal.

In any situation it is very important for all contents and services in the portal to be offered under one brand with a strong reputation, so as to diminish the consumer's uncertainty over the value of the content.

In the value chain for mobile television over broadcasting networks, two different players are involved: the datacast service provider and the broadcast network operator.

The datacast service provider has to control the distribution capacity available on the broadcasting network used for the delivery of mobile television as opposed to the cellular phone network that is used in the other value chain. Often it makes alliances with content providers and aggregators and sells either a fixed amount of raw network capacity to them for a certain time period or delivers particular content for them at agreed times, including additional services, such as content protection or billing. A special service offered by the provider is the electronic service guide, supplying information about what is on updated in real time and about programs and scheduling services, or giving additional news about content and services that one may wish to watch and use. In the more updated versions, this takes the form of a videoportal.

The second player is the broadcast network operator that is the owner and carrier of the digital broadcast infrastructure. It has agreements with several datacast service providers and sells broadcast capacity and coverage to them.

As illustrated in detail by Trefzger (2005), if broadcasters own the broadcast network and hold the necessary license, they could offer their TV programs and content to customers without involving the mobile network operator. In this model, the mobile network operator would only be needed for interactive TV services requiring a feedback channel, which would use the cellular network.

Just illustrating the value chain for mobile television, it emerges that there are many benefits for mobile operators. They have:

- the opportunity to expand their business into the broadcasting domain and find new funding sources
- the opportunity to increase the average revenue per user (ARPU): new chargeable broadcast services and additional opportunities for interactive services using cellular networks
- the opportunity to expand billing mechanisms and customer care to cover also mobile television, having a large existing customer base
- the opportunity to take several or even all the roles in the value chain: as content aggregator, content provider or broadcast network operator

Before illustrating the roles adopted by the different Italian telecommunications operators in the value chain for mobile television, it is important to look at another correlated issue: the business model.

When offering a mobile television service, the companies involved—mainly the mobile operators and TV broadcasters—must evaluate and decide how to earn money from the service. First of all they have to decide if the service should be supplied for free or if the user should pay for it.

As illustrated by Booz Allen & Hamilton (2005), there are three distinct business models for mobile television: free television, pay television and video on demand (VoD)

Table 2: Three Business Models for Mobile Television

Model	Offering	Revenue Source	Positioning of Broadcaster
"Free TV"	• TV channels broadcast • Free-to-Air • General channels • Theme channels	• Advertising (increase in audience ratings)	• Integrated operator (content provider, packager, network operator and payment agent)
"Pay TV"	• Bouquet of Pay channels and /or • Premium contents via DVB-H in NVoD (possibly broadcast in "push" mode to handsets)	• Basic subscription • Pay per view / time	• Content provider, content packager • Network operator
"VoD"	• Video on demand content (provided through 3G network) • Additional pay services	• Pay for consumption (bandwidth / content)	• Content provider, packager

As illustrated in the above table, the free TV model is entirely financed through advertising. All the revenues go to the TV broadcasters, but only if advertisers want to pay the content/service providers for the additional viewers generated by mobile television. Furthermore, the mobile phone as an interactive and widely used medium offers new and different forms of advertising, which can especially help to reach the younger audience. Mobile marketing campaigns include services such as quizzes, opt-in alerts, contests, voting, and customized ringtones (Gibler, 2004). Mobile television can unify the traditional and the new medium in itself by enabling the combination of the classical TV spot with interactive elements from the mobile channel in one viewing device.

It is also important to observe that users will watch traditional TV programs less than new content formats created *ad hoc* for the handheld with the attribute of short duration, which means that advertising in commercial breaks lasting many minutes will not be suitable. However, programs would be well-suited to sponsoring using an interstitial image of the sponsoring brand; it could be shown at the beginning and/or at the end of the program and optionally include further interactive elements (Trefzger, 2005). A model suggested by Nokia and represented by Trefzger would have users pay less for their data services when they allow advertisements to be displayed on their mobile phone (visiongain, 2004:162). This model could also be applied to mobile television, perhaps combined with a monthly subscription. "It would then give price-sensitive users the opportunity to save on the monthly fee by accepting advertisements" (Trefzger, 2005:58).

The pay-TV model includes two methods of payment: a monthly subscription or a pay-per-view model, depending on time spent viewing, volume of downloaded data and type of content/services.

Generally, to access specific content and services, the consumer has to subscribe, mainly on a monthly basis. Most pay-TV offers today sell their services for a monthly subscription fee, which often includes a package of channels, but also allows access to additional TV content via pay per view. The subscription model is already adopted by some mobile operators for their mobile television offerings.

Often thematic programs are organized into packages whose price is less than the sum of the single programs.

"Bundling is a profitable and attractive way of offering e.g. two products to customers who were only willing to pay a smaller incremental price for the second product compared to the stand-alone price" (Trefzger, 2005:50).

Pay per view is a form of payment for consumption, linked to a single event or service directly requested by the user or transmitted in near video on demand. Near video on demand is the re-transmission of the same programs at determined times, allowing the viewers to watch a program when they want.

Often this form of payment gives access to programs and services not available free to air, so-called premium contents such as football matches, live concerts and events.

For mobile television this means that the user only gets charged for the actual usage of the mobile television service either based on the time spent viewing a program or the data-volume transferred during a TV-session or a single event, such as a football match that is watched or a news-clip that is downloaded. People consuming mobile television only occasionally, or using the new service for the first time, will incline toward the payment by consumed time because more economical than a monthly fee.

The third business model applicable to mobile television is video on demand, it means the possibility of watching a program or accessing a service when consumers prefer. They must have access to the portal where the content is organized and this accessibility has a price. In the portal there are not only different services, such as TV programs, videos or films that can be downloaded, but also interactive services.

There may also be combinations of these models (e.g. a subscription-based service with commercials).

THE CASE OF ITALY

The penetration of the mobile telecommunications service in Italy is above the Western European average at approximately 123.5 lines per 100 inhabitants at the end of 2005 up from a penetration rate of 109 lines per 100 inhabitants at the end of 2004. Growth rates have been substantially higher than the European average. The increase is due to innovative services and an increase in customers with multiple lines and the number of operators. At the end of 2005, 15% of Italian users owned a 3G handheld and 3 operators—3 Italia, TIM and Vodafone—had launched mobile television services. According to Forrester, the mobile television industry is valued at 1.5 billion euros in the world and in Italy 7 million clients and a turnover of 3 billion euros are expected by 2011. Users are interested in these new services, too, as shown by the different trials conducted in Italy by the main Italian telecommunication operators collaborating with broadcasters such as Mediaset and RAI.

In Italy the main distribution platform for mobile television services is UMTS (Universal Mobile Telecommunication System). All the above-mentioned mobile operators offer three main types of video content:

1. TV channels in live streaming (RAI, RAI News 24, CNN, Coming Soon, Cartoon Network, etc.)
2. pay per view or video on demand of goals of football matches, video news, reality, videoclip
3. other content including video MMS, games, and chat

Without presenting in details the supplies of each operators, summarized in Table 2, it is interesting to observe that telecommunications operators besides the diffusive services (it means traditional TV programs) offer interactive services, too.

More precisely, referring to the CAM model illustrated in the first section of the paper, it emerges that in Italy there is willingness to spend time and money on mobile television services. It is very important to note that, in particular from the experience of 3 Italia, it emerges that consumption depends strictly on the quality of the supply and the usability of the handhelds, two important acceptance criteria for mobile television. Users with a better mobile phone are consuming twice as much as users with a less good handheld.

The mean consumption is 3.5 minutes a day and the reproduction of traditional TV content is not sufficiently appealing for the UMTS platform. Otherwise successful contents are those created *ad hoc* for the platform like, for example, the summary and preview (in 3 minutes) of a fiction and a reality show. Adult contents are often used during the night from 9 p.m. to 12 p.m. All the three Italian telecommunication operators provide these types of contents to their users but in different ways.

Depending on the programs and services, the Italian telecommunication operators use both a pay television model and a pay-per view model. For example, users can access football matches and recent films with pay per view as form of payment, while for watching the scheduling of the national broadcasters they have to pay daily or monthly subscriptions.

Table 3: Services and Prices of Operators

Operator	Streaming		VoD/PPV		Others	
	Content	**Price**	**Content**	**Price**	**Content**	**Price**
3 ITALIA 4.5 million 3G users	Sky TG 24 Fox mobile *Concerti 3* 3 Sport TV Cartoon Network Soap TV	from 0.90 € for a 5-minute connnection.	News Entertainment Concerts Football matches Concerts Soap operas Adult content	0.09 € for access to the portal 0.09 € for every page visited from 0.60 € to 4 € for downloade d video	Backgrounds Ring tones Games Music Traffic news Ticket one cinema Chat, dating Videofiction	0.09 € for access to the portal 0.09 € for every page visited
Tim 0.6 million 3G users	Rai 1, Rai 2, Rai 3, Rai news24 La7 MTV Coming soon Game Network 5 music channels *Isola dei Famosi*	0.40 € per minute promotional sale – 5 € monthly	News Goals from football matches (SERIE A TIM) Calendar Videoclips Traffic news (traffic cam) Adult content	0.006 € per minute (WAP) 0.04 € for the download of a KB (GPRS) 0.75 € or 2 € for each video	Backgrounds Ring tones Games Logos ….	From 2 to 4 € for ring tones 1-2 € per logo
Vodafone 1.2 million 3G users	RAI News 24 Live! TV Music Happy Mobile Coming Soon *Campioni, il sogno* CNN Contents in streaming	1.5 € per day "all-inclusive" Free first month Promotion: 0.90 € every day until 30 september 2006	Video goals from football matches (Serie A Vodafone) News (TG5, TG1) Cartoons Fiction Adult content (Winter Olympics) …	0.19 € for access to download 1- 2 € for each video Video goals 0,75 € each match	Backgrounds Ring tones Games Ca. 500k musical pieces	1-2 € per ring tone 2.5 € per game 1.5 € per logo

Generally it results that users prefer the pay-per-use model to that of subscription. In fact, the promotional offer of 0.90 euros a day for "all you can watch" (Vodafone) has been more successful than the subscription of 5 euros a month for the "all inclusive" offer (Tim).

But, more in details, which are the business models and value chain used by Tim, Vodafone and 3 Italia for providing mobile television services?

The value chain for mobile television services—from content production to the final user—features a number of different roles that can be combined in many different ways and one firm may undertake several roles.

In Italy two different mobile television business models are emerging: the first one—which we can call "mobile network operator integrated model", used by 3 Italia, and the second one—which we can term "mobile network operator broadcaster partnership", used by Tim and Vodafone.

More precisely, from the interviews it emerges that the mobile network operator 3 Italia operates along the entire value chain (content provisioning partially outsourced), while the main Italian commercial broadcaster Mediaset is carrier for all telcos and packager of the channel bouquets (e.g. simulcast commercial channels + premium events such as soccer). In fact Mediaset channels are available to all mobile network operators. Referring to the value chain, 3 Italia directly controls the frequency; it acquired a national free-to-air TV channel, called Canale 7, for 200 million euros in order to obtain the frequency and transform it into DVB-H. About the content, the telecommunication operator is pursuing agreements with different packagers to create its bouquet of channels, with discussions with Italian broadcasters and about pay TV Live sports events. Furthermore it has its own TV broadcaster, called La3, that in the first months will transmit three channels. 3 Italia has also acquired a network and this operation obviously facilitates its control over access, both in terms of billing and Conditional Access System.

Another aspect important to observe is that 3 Italia will launch two new terminals (LG, Samsung) able to receive the DVB-H standard to encourage the launch of its supply.[4]

Indeed, as observed in an interview with a 3 Italia operator, who prefers to maintain anonymity, "…having strategic alliances with the providers of mobile handhelds allows 3 Italia to obtain terminals realized according to technical features that are defined by the Group itself" (Interview in Milan, May 2006) and allows economies of scale for the purchase, too.

On the other hand, Tim and Vodafone use the same business model, which is different from that used by 3 Italia. In this case we can define it

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[4] The cost of the new terminals will be from 99 euros to 499 euros, depending on the subscription chosen by the users.

as a "mobile network operator broadcaster partnership" business model, in which the role of broadcaster is crucial. Still referring to the mobile television value chain, the two telecommunications operators do not own a frequency: it is controlled by the broadcaster Mediaset, with whom they have an agreement. More precisely, Mediaset owns the frequency and operates the network, too, which is controlled by Mediaset and, for example, referring to Tim, DVB-H gap fillers hosted on Tim towers, will cover 75% of the population by the end of 2006. As Marco Bosetti, Business Affairs manager of Mediaset, said, "the role of Mediaset in the launch of mobile television services is increasingly significant….It has recently come to an agreement with Tim and Vodafone for using our network" (Bosetti interview, 2006).

About content, the mobile network operators are free to define their content on their capacity lot and in both cases nowadays there are on-going discussions with Italian broadcasters and about pay TV Live sports events. "The service contents are available pursuant to agreements between Mobile Italy and major TV channels. In recent years Mobile Italy has been building its brand as a platform for content providers by entering into partnerships and developing business synergies. In order to offer a wider range of services and content to its customers, we have strengthened our partnerships with some important providers like Acotel, Zed, Buongiorno Vitaminic and brands like Disney, MTV and Mediaset", said Enrico Parazzini, responsible for the TIM Media business unit (Parazzini interview, 2006).

As with 3 Italia, access is controlled by Tim and Vodafone, both in terms of billing and conditional access system. Not depending on the business model, the mobile network operator bills the end users and pays the broadcaster (for example Mediaset) for the content. In the cases of TIM and Vodafone, the mobile network operator must pay Mediaset also for network operation services.

CONCLUSIONS

If we consider the Italian case it emerges that:

- the mobile telecom operator has to purchase spectrum and/or has to pay for transmission capacity within the broadcast network (if it does not own the frequency)
- the mobile telecom operator manages the end-user relationship (billing, marketing, customer service, etc.)
- the content can be sourced primarily by third parties, such as Internet service providers, broadcasters, portal owners, etc., but it can also be sourced by the telecommunication operator (e.g. 3 Italia)

Unraveling these different activities gives an idea of the complexity and different functions that need to be performed by telecommunications operators.

The current environment has high requirements in terms of resources and capabilities for mobile operators to develop new services and products. An opportunity to gain access to these additional resources and capabilities is to cooperate with third party content providers and application developers (Ahonen, 2002). Alliances and partnerships can enable mobile operators to make the transition from double to triple play services and successfully develop and commercialize triple play services in their aim to secure long-term viability, too. And this is the case of the Italian mobile operators.

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Enrico Parazzini, responbile of the TIM Media business unit, June 2006

Two people of 3 Italia and 1 people of Vodafone who prefer to maintain anonymity.