

Mobile Broadcast Business Models

Generic Business Models and Country-specific Implementations



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1 Introduction

After the main technical issues of mobile broadcasting are being solved, now regulatory frameworks and business models seem to be the most important issues to drive the market.

Targeting to enable open markets for mobile broadcasting, **bmcoforum** is observing the regulatory situation and the implementation of business models in the different markets and countries. The **bmcoforum** working groups "Regulation and Spectrum Lobbying" and "Generic Business Models" permanently consider and analyse the specific approaches.

Details on the frequency, platform and media regulatory situation in 23 countries, mainly from Europe, as of March 2008 can be found in the **bmcoforum** study "The status of national licensing frameworks for mobile TV – A country-by-country assessment".

In May 2008 **bmcoforum** has published a study "Best Practice Regulatory Frameworks for Mobile TV" explaining the regulatory approaches in advanced countries

The study shows that each of the analysed frameworks has its pros and cons. The regulatory frameworks which differ a lot from country to country have a huge influence on the business models and the implementation speed as they enable or delay the formation of the value chain among the players coming from different industries as media and telecommunications.

In most of the countries spectrum available for mobile TV before digital switch-over is limited, mainly to one multiplex. So, sharing of spectrum between players is the challenge. Under the analogue world, broadcasters used to have their dedicated spectrum – now they have to share a multiplex with others. Mobile operators enter the market as they own customers to target. The value chain may become much more complex than in terrestrial TV or 3G based mobile TV.

A large number of generic business models approaches have been described elsewhere over the last years. In November 2006 **bmcoforum** has published its study "Mobile Broadcast Business Models – A State of the Art Study"

While in autumn 2006 mobile broadcast services have been launched mainly in Italy, Korea and Japan, during the last two years more countries have started commercial implementations of business models, among them Austria, Finland, The Netherlands, Switzerland and US. Other countries as Poland, Germany and France are in different implementation phases as on-going public tenders, negotiations between the players or soft launches. Based on their experiences our understanding of viable business models and its variety have been extended.

So it seems to be the right time now for another **bmcoforum** business models report, reflecting these new experiences.

After explaining general aspects of business models, this report describes the situation in the analysed countries. This may help countries being in an initial phase of defining their framework not to run into some obstacles other countries have experienced.

During the last years a lot of mobile operators have started streaming based mobile TV services. Although broadcast and streaming based mobile TV service may converge into a single service offer this report focuses on broadcast based mobile TV.

This report was generated based on special input from **bmcoforum** members. The contributions represent the personal view of them only, partially amended by discussions within **bmcoforum's** working group. We would like to thank them for their contributions and comments. Other players may have different opinions. These players are invited to enrich our further discussions.

2 The current terrestrial broadcasting business

2.1 Regulatory framework

In most of the countries the regulatory framework for broadcasting is well established. Normally two types of licenses will be granted:

- Media license

A media license is granted by national administrations to a broadcasting company. It specifies the regulatory framework for broadcasting the licensed TV channel regarding content and responsibilities.

One broadcasting company can obtain several media licenses for different TV channels.

- Frequency license

A frequency license is granted by national administrations for providing a broadcast service over a dedicated frequency range. It specifies the regulatory framework for operating and managing the network but also such aspects as coverage obligations.

The frequency license can be granted to a single broadcasting company, a consortium of broadcasting companies, a broadcast network operator or any other player.

Under licensing aspects, two roles can be identified in the broadcast business model:

- Content aggregation¹ for a TV channel
- Broadcast network operation

In the past with analogue terrestrial TV there was a one-to-one relationship, one TV channel using a broadcast frequency dedicated to the broadcaster or the broadcast network operator.

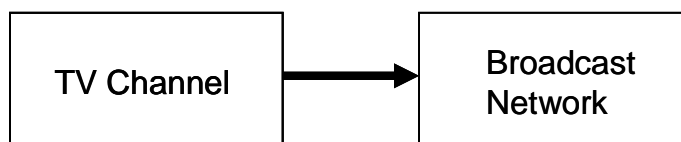


Fig 1: One-to-one relationship in analogue terrestrial TV

With digitalisation the same frequency can be used to broadcast more than one TV channel in a multiplex. Here regulation comes into forces. The question is how to dedicate the capacity of a multiplex to the broadcasters.

¹ Content aggregators are sometimes called "programme aggregators"

A multiplex can broadcast

- Only channels of one broadcasting company having several media licenses

As in the analogue case the broadcasting company can operate also the broadcast network

- Channels of different broadcasters

In this case the frequency license can be hold either by one of the broadcasters providing broadcast network service to the other broadcasters, by a joint company of them or by a dedicated broadcast network operator.

The assignment of TV channels to the multiplex normally is influenced by the regulator.

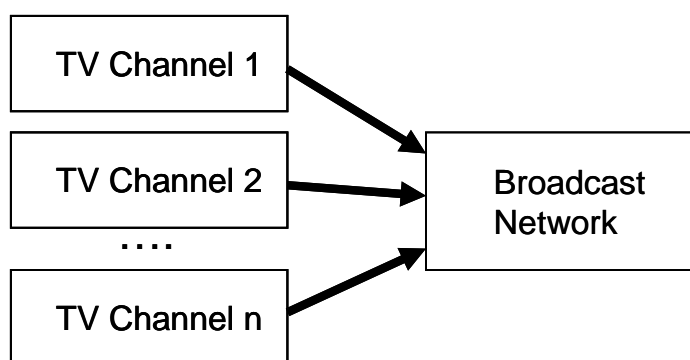


Fig. 2: Many-to-one relationship in digital terrestrial TV

2.2 Revenue models

TV channels are of different nature based on their main revenue sources

a. Public channels

Public channels are refinanced mainly by the public in the one or another way. Usually, their budgets are built based on country-specific taxes or license fees, paid by the inhabitants.

In some countries as UK and Italy public channels are to increase their advertising revenues. France is considering stopping advertising on public broadcasting at all. In Germany financing based on a mandatory TV fee per household has been increased over the years.

Public broadcasters normally fulfil objectives of public interest, e.g. in the field of information and culture. That is why they are interested in *high population coverage* and mainly prefer unencrypted broadcasting of

their content, so that each technology enabled device is able to display their channels, including unconnected devices².

The core business of public broadcasters is based on free available devices which can be obtained from any electronics retail store.

b. Commercial channels

Commercial channels are mainly refinanced by advertising revenues. This forces those to reach *high audience shares* as ad revenues are based on audience measurements.

The core business of commercial broadcasters is also mainly based on freely available devices which can be obtained from any electronic retail store.

In some markets another part of their revenues can come from receiving payments for the distribution of their channels via network operators as cable, satellite or terrestrial multiplex operators. Consequently, commercial broadcasters are interested in extending this business approach also to mobile distribution, getting revenues from a mobile broadcasting platform provider. Knowing that revenue generation depends on encryption over the air, commercial broadcasters support content protection.

One of the models is to get some guaranteed minimum fee, but to participate on increasing number of users.

c. Pay TV channels

Pay TV channels are considered as premium channels; here customers have to pay for dedicated content.

Pay TV service providers package own or third party content and sell them to the customers they own by having subscribed the Pay TV service.

So, they are interested in a *high customer basis*. Their billing can be on a periodical (monthly) and/or pay per view basis.

Another part of their revenues can come from selling the premium TV channels to distribution network operators as cable, satellite or terrestrial multiplex operators.

Also advertising revenues are possible but normally not at the same extent as for commercial broadcasters.

The revenue is shared with the Pay TV content and channel providers.

The content of Pay TV service providers is encrypted; the Pay TV service providers control the conditional access system. In traditional systems customers have to buy set-top boxes which are able to support the respective conditional access system.

Other players are the access network operators handling access networks such as terrestrial, cable, satellite, IP or WIMAX.

² Unconnected devices are those which have no connection to a mobile network.

Some channels may be broadcasted clear-to-air. In this case broadcasters have to pay for broadcasting their channels.

In the case of cable TV networks or encrypted terrestrial and satellite channels the corresponding access network operator sells the access to the channels to its customers he owns by having subscribed the access service.

So, access network operators are interested in a *high customer basis*. Normally, their billing is on a periodical (monthly) basis.

Access network operators are interested in providing good quality content, so they may share the revenues with the channels.

From the viewpoint of TV broadcasters mobile TV can be considered as just another delivery channel added to terrestrial, cable or satellite delivery. It can be served based on the same business model as all the other delivery channels. It cannot be expected that they will change their business model due to distribution on mobile devices. So in some cases they argue that no specific regulation for mobile TV is necessary.

3 The current mobile services business

3.1 Regulatory framework

The mobile operator business is coupled to a corresponding telecommunications license bundled with dedication of frequencies for the mobile network operation.

Although the mobile operators provide mobile TV services based on their 3G networks, media licenses for the streamed TV channels are not necessary in most of the countries as streaming is not considered as broadcasting and consequently not falling under the jurisdiction of media regulation.

3.2 Revenue models of Mobile Network Operators

Using their 3G networks Mobile Network Operators have started mobile TV service offers based on streaming. Revenues may come from different sources:

a. Customers

MNOs are very flexible in billing their customers. Some of them charge content and transmission time separately, other package both together. More and more flat rates are offered, either including multimedia services only or package multimedia services with telephony services.

MNOs may agree on a revenue sharing model based on payments to broadcasters for the content but getting own revenues for transmission and billing.

b. Advertising

These revenues are based on the ads included in the portal of the MNO providing access to mobile TV and other multimedia services.

From the point of view of MNOs broadcasting based mobile TV can be considered as an extension of the existing streaming TV offer to serve many users with the same TV channel at the same time.

While a separate broadcast service might be charged by subscription fee and/or pay per view, an integrated approach with streaming should be transparent to the users and not differentiate between the delivery networks.

4 Generic mobile broadcast business models

In the literature and in practice, a large number of different approaches to describe mobile TV business models can be found, differing in abstraction level or type of value chain presentation.

4.1 Roles and players of the value chain

The following main roles of the value chain have been identified:

- Content aggregation: aggregating content into TV channels based on a broadcast license if necessary

This role can be performed by anyone owning a broadcast license, including traditional broadcasters, new mobile TV specific broadcasters or mobile operators.

In Italy, the mobile operator Hutchison 3 Italy is aggregating content for two specific made for mobile channels. An example of a mobile TV specific broadcaster is the German Hannover TV, a new company providing a special made for mobile channel with regional content.

- Broadcast network operation: operating the broadcast network

This role can be performed by a broadcast network operator either based on an own frequency license or providing the service for a third party which owns the frequency license.

Examples of mobile network operators are TDF in France or Swisscom Broadcast.

- Mobile broadcast service provision: providing the mobile broadcast service based on a platform license if necessary

The role of the mobile broadcast service provider is taken here to define a service consisting of channels broadcasted for mobile reception.³ It is a new role in mobile broadcast business and one which did not exist in the classical mobile and broadcast businesses so far. To some extent it can be compared to a cable operator, packaging channels and other packets as well.

As will be shown later in this chapter, this role can be performed by many different constituencies. Examples are a broadcast network operator as Digita in Finland, a mobile network operator as 3 Italy, a consortium of broadcasters as foreseen in France, a consortium of mobile network operators or a new entrance as Mobile 3.0 in Germany.

- Distribution: providing the mobile TV service to customers and billing/charging them.

This role can be performed by anyone having access to customers.

³ This should not be confused with the IPDC service provider, who is responsible for the technical service provision and whose role can be taken by the broadcast network operator or any third party.

Examples are electronic retail stores selling devices to customers as Media Markt, mobile network operators as Orange or Vodafone, access network providers as cable network or satellite operators and pay TV service providers as Canal+ or BSkyB.

- Mobile network operation: providing a mobile communication channel for interactive services as well as for service purchase and protection.

This role is performed by mobile network operators as KPN, T-Mobile, Telecom Italia Mobile or Swisscom Mobile

- Users/customers

Players in the value chain can take over one or more roles, e.g.

- In Italy, Mediaset is in the role of the broadcaster as well as the broadcast network operator.
- In the Netherlands KPN is in the role of the MNO and (via Nozema) also related to the broadcast network operator. The same is true of Hutchison 3 Italy, a mobile network operator owning a frequency license. In Switzerland Swisscom Broadcast is operating the broadcast network and Swisscom Mobile providing the mobile service.
- TDF in France as well as in other countries (e.g. via MEDIA BROADCAST in Germany or Digita in Finland) being an independent broadcast network operator not related to any broadcaster or MNO.

4.2 General revenue models considerations

Mobile broadcasting is a new service generating additional costs which should be covered by corresponding revenues.

Revenues can come from three main sources, namely from

- Taxes or license fees
- Service fees (monthly, weekly, daily, one-off fee)
- Advertising

Taxes or license fees for stationary TV are charged in a lot of countries, being the basis for free-to-air services of public broadcasters. They may also be a basis for public mobile TV services.

Service fees are based on the additional value of mobile TV services and may be gathered by companies owning subscribers as mobile network operators or pay TV broadcasters.

Different charging mechanisms may be used. A monthly subscription fee is considered the most acceptable according to nearly all pilot market research. But pay-per-view or time-based charging are other options.

Another option is an one-off service fee, e.g. to be paid when obtaining a mobile TV capable device in a retail store, enabling the buyer to access the mobile TV service for the whole live-time of the device. This especially may be applied for unconnected devices.

Additional customer revenues can be generated by interactive services related to broadcast services. The charging models then are based on the models applicable to the kind of interactive service used. For SMS-based voting the well-established premium SMS charging can be used. Pointing to the internet well-established internet charging mechanisms can be adopted.

Mobile broadcasting provides a new distribution channel for TV content including **advertising**. Thus, selling air time to advertisers can be considered as an additional income source for broadcasters. This can be the main revenue source for programme packages containing content which is freely available on other distribution ways.

New potential for advertising may be opened up by combining broadcast ads with personalised advertising features using the interactive channel.

Advertising revenues probably will become significant only at a later point in time when mobile TV service has achieved sufficient penetration. Only a sufficiently large user base is relevant for advertising clients and the reason for them to invest into a new distribution way such as mobile TV.

4.3 Free-to-air models

The business models of free-to-air services do not differ from those applicable to any other digital terrestrial TV service. Here a broadcaster provides one or more channels to everybody who owns a device able to receive them.

The user can obtain devices in an electronic retail store. Mobile operators may provide/subsidise corresponding mobile devices for up-selling their 3G mobile TV services and also free-to-air broadcast services.

German mobile operators providing to their customers DVB-T enabled devices for the free-to-air DTT channels may serve as an example here.

Free-to-air models are either tax or license fee based as in the case of public broadcasters or advertising based as in the case of commercial broadcasters.

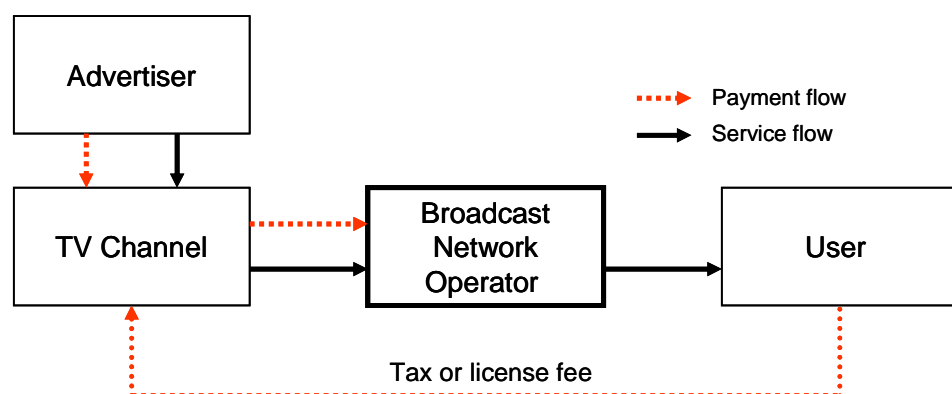


Fig. 3: Free-to-air model

The broadcaster will pay for broadcasting the channels to the broadcast network operator based on taxes/license fees or advertising revenues. The con-

sumer might consequently insist on receiving that content without making further payments.

Additionally interactive services are generally possible in the case of mobile connection⁴. The user will pay for the service to the service provider being a mobile operator, a broadcaster or an advertiser (not shown in fig. 3)

4.4 Service-fee based models

When focusing on models where customers pay a service fee for using mobile broadcast services, the question is: Who is able to bill the customers?

Several existing players from the broadcast and mobile industries are able to sell mobile broadcast services as they own customers and can bill them:

- Mobile network operators
- Pay TV service providers
- Access network providers
- Retailers

In principle each of them can set up a vertical value chain, providing mobile TV services exclusively to its customers. Under such a vertical approach competition is only possible if several multiplexes are available used in different value chains. This may lead to an inefficient use of spectrum as the same channel might be broadcasted several times to reach high audience via the different providers.

Today in most of the markets only one multiplex is available, at least before full digital switch over. This gives the reason for regulators to prefer a shared network model, where a mobile broadcast service provider acts serves several distributors, all coming from the above mentioned players. Additionally free-to-air service can be provided as well.

In the following the approaches for each of the players are described more in detail.

4.4.1 Mobile network operator led model⁵

Mobile network operators are the most natural providers of mobile broadcast services as intentionally the service is targeting mobile phones which to a large degree are distributed and supported by the mobile operators. They own the direct customer relationship.

The mobile network operator led model is a vertical business model approach. The mobile network operator handles the role of mobile broadcast service provision as well as the role of the distributor by managing the end-relationship with customers on service provision, marketing and customer care.

For the service, the mobile network operator will need to purchase some content from broadcasters and other content providers. In addition, he may be

⁴ Such services may be launched in some countries in 2009.

⁵ The following description is partially taken from (1)

come himself a broadcaster in case of aggregating content for own channels, acquiring a broadcast license if necessary.

Based on an own frequency license the mobile operator may also play the role of broadcast network operation using its existing mobile network infrastructure. An alternative is using the services of a third party broadcast network operator who either owns a frequency license or uses the license of the mobile operator.

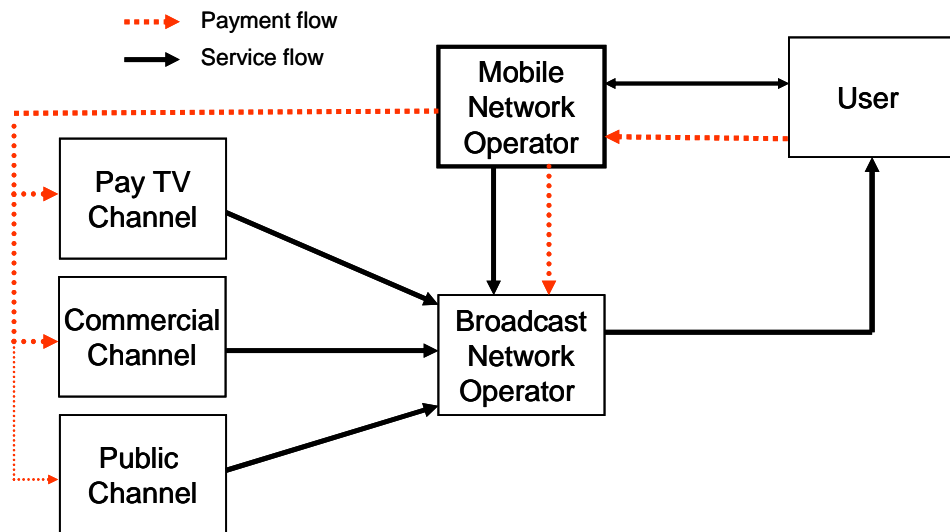


Fig. 4: Mobile network operator led model

Customers will have access to an integrated service proposition, which means that a complete package can be offered by the mobile network operator.

The mobile network operator will receive service fee payments for the use of mobile broadcast service from customer on subscription, pre-paid or pay per view basis. One-off fees are also possible to be used for unconnected devices, e.g. navigation devices.

Fully interactive services are a possibility and no separate billing procedure will be necessary for consumers to pay for the use of such services.

As a variation, the mobile network operator could directly handle advertisements.

While the mobile network operator would be responsible for general marketing, it could be possible for broadcasters to market individual television channels. For channels that generate revenues, e.g. tele-voting, broadcasters would be responsible for marketing the channel while the mobile network operator would be responsible for billing. Revenues would be shared.

The mobile network operator will have the control over the mobile device. He is also in a position to subsidise the device and to offer the mobile broadcast service in a package with other mobile services.

The commercial risk is with the mobile network operator being in the role of the mobile broadcast service provision. He will need to pay the broadcast network

operator for the network set-up and operation unless he takes on this role himself, but possibly also to pay the broadcasters for providing the channels.

In any given country, there will normally be more than one mobile network operator competing against each other. This model implies that each of the mobile network operators will broadcast his own package, even if the same channels are also available in the package of another mobile network operator. This inefficient usage of frequencies can only be overcome through the shared network model.

The mobile broadcast services of Hutchison 3 Italy and SK Telecom (via TU Media) may serve as examples for the mobile operator led model.

4.4.2 Pay TV service provider led model

Pay TV service providers may be interested in providing mobile broadcast services to their stationary pay TV customers.

The Pay TV service provider led model is a vertical business model approach. The Pay TV service provider handles the role of mobile broadcast service provision as well as the role of the distributor by managing the end-relationship with customers on service provision, marketing and customer care.

Normally, Pay TV service provider will provide only channels from his stationary Pay TV bouquet. As this is not an integrated service proposal, consumers may need to subscribe and pay to more than one service provider to obtain the different services.

One option is bundling both services, so that a customer can obtain rights for both, stationary and mobile access within one service package.

Normally a Pay TV service provider will use the services of a third party broadcast network operator who either owns a frequency license or uses the license of the Pay TV service provider.

Being in the role of mobile broadcast service provision, the Pay TV service provider will define the specifics of broadcasting and service purchase and protection. This is especially likely in markets without subsidiary of mobile phones.

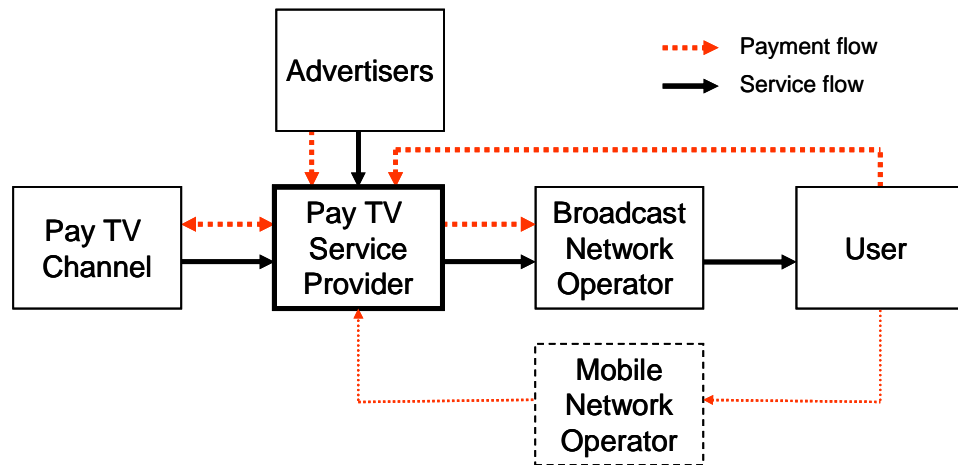


Fig. 5: Pay TV service provider led model

But given the expected initial high cost of mobile broadcast enabled receivers, market penetration may remain low if no receiver subsidies are offered.

The Pay TV service provider will receive payments for the use of mobile broadcast services from customers on subscription, prepaid or pay per view basis, or optionally through payments made via the mobile network operator.

The service can be based on unconnected and/or connected devices.

In case of connected devices revenues from interactive services are a possibility, but they will make necessary a separate billing procedure. As an alternative, the Pay TV service provider could obtain the status of a mobile virtual network operator (MVNO) or use premium SMS.

For interactive services the Pay TV service provider will need to enter into an agreement with the mobile network operator regarding the device technology.

The commercial risk is with the Pay TV service provider being in the role of the mobile broadcast service provision. He has to pay to the broadcast network operator for the network set-up and operation, unless he also takes on this role.

So far no commercial Pay TV provider led model has been implemented.

4.4.3 Access network operator led model

This model is close to the Pay TV service provider led model.

Access service providers may be interested in providing mobile broadcast services to their stationary access network customers.

An example here is the attempt of the US cable TV networks winning back young customers by providing to them mobile TV as part of an ATSC bundle.

The access network operator led model is a vertical business model approach. The access network operator handles the role of mobile broadcast service pro-

vider as well as the role of the distributor by managing the end-relationship with customers on service provision, marketing and customer care.

Normally, an access network operator should tend to provide only channels from his stationary access network bouquet. As this is not an integrated service proposal, consumers may need to subscribe and pay to more than one service provider to obtain the different services.

One option is bundling both services, so that a customer can obtain rights for both, stationary and mobile access within one service package.

A terrestrial TV network operator may use its own terrestrial infrastructure for broadcast network operation. Cable and satellite access network providers may use the services of a third party broadcast network operator who either owns a frequency license or uses the license of the access service provider.

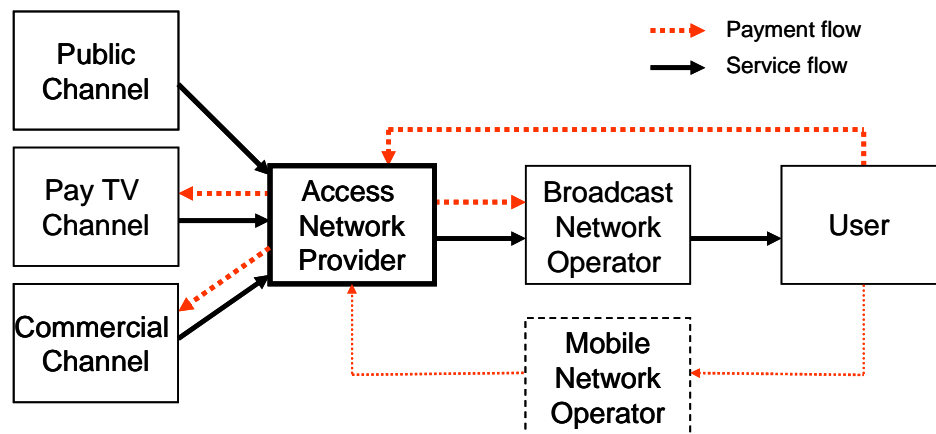


Fig. 6: Access network operator led model

Being in the role of mobile broadcast service provision, the access network operator will define the specifics of broadcasting and service purchase and protection. This is especially likely in markets without subsidiary of mobile phones.

But given the expected initial high cost of mobile broadcast receivers, market penetration may remain low if no receiver subsidies are offered.

As the design and offering of a competitive mobile TV service requires customer insight and b2c marketing experience, it is questionable whether access network providers in all cases are in an ideal position to also become a mobile broadcast service provider.

The access network operator will receive payments for the use of mobile broadcast services from customers on subscription, prepaid or pay per view basis which requires either a stand-alone billing functionality or some co-operation with a mobile network operator. Optionally payments are made via the mobile network operator.

The service can be based on unconnected or connected devices

In case of connected devices revenues from interactive services are a possibility, but they will require a separate billing procedure. As an alternative, the access network operator could obtain the status of a mobile virtual network operator (MVNO) or use premium SMS.

For interactive services the access network operator will need to enter into an agreement with the mobile network operator regarding the device technology.

The commercial risk is with the access network operator being in the role of the mobile broadcast service provider. A DTT service provider probably can share the DTT and mobile broadcast network infrastructure. Other access network operators have to pay to the broadcast network operator for the network set-up and operation, unless he also takes on this role.

So far no commercial access provider led model has been implemented.

4.4.4 (Device) Retailer led model

Retailers are also potential players to sell mobile broadcast services, especially for unconnected devices as laptops, navigation and other portable devices.

But they tend more to operate as distributors than taking the commercial risk for being the mobile broadcast service provider.

Especially in markets without subsidiary of mobile phones they are able to sell mobile broadcast services on a prepaid, pay per view or one-off fee basis. In any case for selling interoperable devices they have to agree with the mobile broadcast service provider on the broadcast and service purchase and protection technologies.

4.4.5 Shared network model

In markets with limited spectrum availability for mobile TV the shared network model is the best model using the spectrum efficiently and supporting at the same time competition via a wide range of distributors.

The shared network model is a horizontal business model approach. A dedicated mobile broadcast service provider facilitates broadcasting to mobile devices and so providing shared network offers to distributors.

A special case of the shared network model is the wholesale model, where the mobile broadcast service provider also purchases channels and other broadcast services from broadcasters and other service providers, among them also the mobile network operators.⁶

In the wholesale model the mobile broadcast service provider is in the position widely (limited in some geographic areas by regulation or license terms) to de-

⁶ In the former **bmcoforum** business models study we described only the wholesale model. But the implementations in Finland and Austria differ slightly from the wholesale model as here the mobile broadcast service provider being close to the broadcast network operator does not gather the service bouquet. In Austria this is the matter of the distributors, in Finland any combination of content aggregators and distributors will be possible.

fine the channels to be broadcasted. However, he needs to consider the interests of the distributors selling the mobile broadcast services to their customers.

In some cases, the mobile broadcast service provider may become himself a broadcaster establishing his own channels, acquiring a broadcast license if necessary.

The distributors manage the end-relationship with customers and are responsible for service provision, marketing and customer care.

Normally a distributor is not obliged to provide all broadcasted channels to its customers. As this is not an integrated service proposal, consumers may need to subscribe and pay to more than one distributor to obtain the different services.

Customers of each of the distributors will have access to a package contracted by the distributor either directly with the content aggregators or, as in the wholesale model, with the mobile broadcast service provider. The packages and the service offer of the distributors may differ in some parts, e.g. in bundling them with other services in different manners. The service packages might be branded with the distributor's brand, allowing for individualised and segment specific marketing.

The mobile broadcast service provider will define the specifics of broadcasting and service purchase and protection technologies, likely in cooperation with the distributors. Hereby he has to take into account the special technical requirements of the distributors, e.g. provision of service for connected and unconnected devices.

Ideally, such a mobile broadcast service provider can bring together and match the requirements and best practise experiences from both distributors as well as broadcasters and aggregate that into a best of class service.

The distributors will bill their customers for the service and pay the mobile broadcast service provider for broadcast network operation and the content aggregators for the content.

In the wholesale case the money flow from to the distributors will go to the mobile broadcast service provider who then may pay the content aggregators for content provision.

In case of connected devices revenues from interactive services are a possibility both for channels as well as for other distributors than mobile network operators (not shown in fig. 7 and 8). This will require a separate billing procedure for those distributors or channels. As an alternative, they could obtain the status of a mobile virtual network operator (MVNO) or use premium SMS.

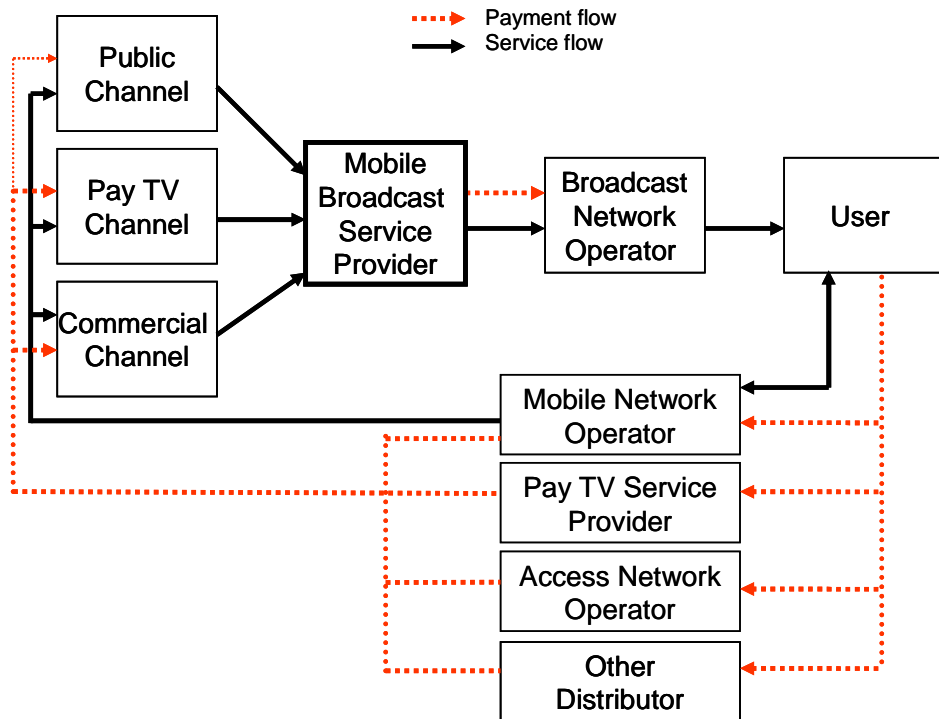


Fig. 7: Shared network model

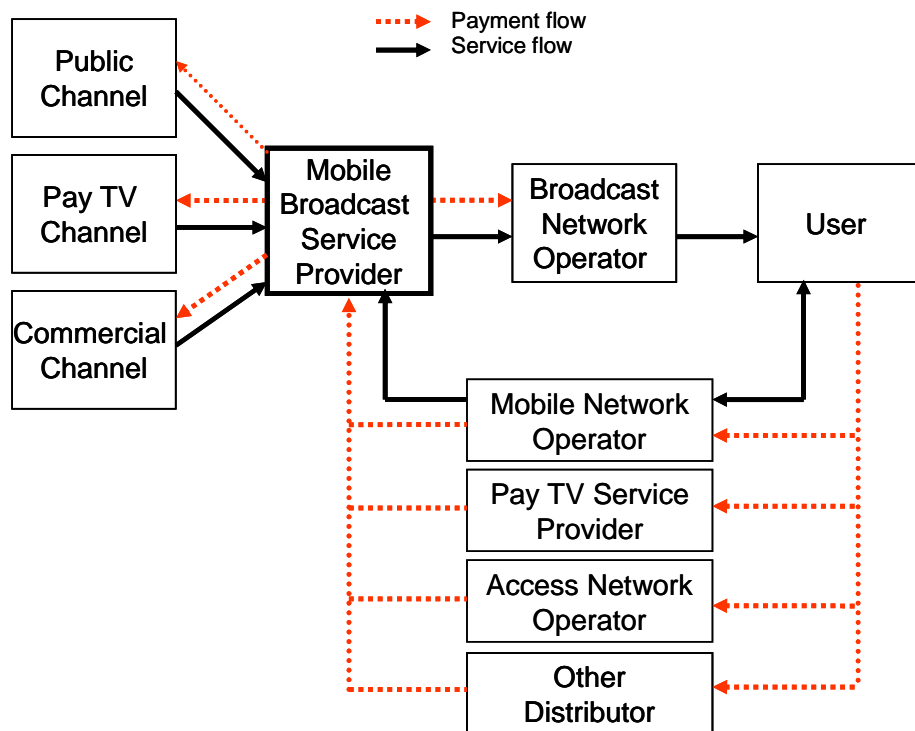


Fig. 8: Wholesale model

For interactive services the mobile broadcast service provider and content aggregators may need to enter into an agreement with all distributors regarding the device technology.

While the distributors would be responsible for general marketing of their competitive services, it could be possible for broadcasters to market individual television channels. For channels that generate revenues, e.g. tele-voting, broadcasters would be responsible for marketing the channel while the mobile network operator would be responsible for billing. Revenues would be shared.

The mobile broadcast service provider could promote market penetration through image marketing.

The stakeholders fulfilling the role of the mobile broadcast service provider may come from

- Investors not involved in the mobile or broadcast business so far (as for Mobile 3.0 in Germany),
- A broadcaster, providing channels on his own or third-party broadcast transmission capacity
- A consortium of broadcasters (foreseen in France)
- A mobile network operator having access to broadcast transmission capacity (as KPN in the Netherlands)
- A consortium of mobile network operators (as initially planned in Germany)
- A broadcast network operator (as Digita in Finland and MEDIA BROADCAST in Austria)
- A technology provider (as Qualcomm behind MediaFLO USA)
- Others

The commercial risk depends on the contracts with the distributors but may be mainly with the mobile broadcast service provider. He needs to pay to the broadcast network operator for the network set-up and operation unless he also takes on this role.

4.5 Service bouquet

4.5.1 Bouquet aggregation

There is a wide range of channel aggregation practices, ranging from full definition by the regulator up to full freedom for the licensee.

Obviously four legitimate interests should be considered:

- The media regulators taking care on a balanced channel bouquet under political, social and cultural aspects.

- The distributors taking care on an interesting bouquet which they are able to sell best to their customer base and which gives them some opportunities to differentiate from their competitors.
- The main public, commercial and Pay TV brands to be part of the bouquet
- The users interested in a wide variety of channels

So far, in most of the countries bouquet aggregation rules are part of the frequency license. In Germany a special platform service license has been granted separating the wholesale service provision from the frequency license.

As with digital terrestrial TV, a multiplex can carry several TV channels. Due to the lower bit rate needed for mobile TV, the number of mobile TV channels per multiplex is even higher. Someone should decide what channels will be broadcasted for mobile reception.

In vertical business models the decision on the broadcasted bouquet most likely will be taken by the corresponding leading player: the mobile network operator, the Pay TV service provider or the access network operator.

The interesting case is the shared network model, where the rules and obligations for the mobile broadcast service provider differ a lot in the licenses granted so far or to be granted soon:

- In Finland channel aggregation is done by the licensee Digita, being a broadcast network operator.

According to the license terms Digita is not itself allowed to function as distributor. Digita shall neither participate in the consumer business nor in the content business.

Furthermore, Digita is required to sell broadcast capacity to all media license holders under equal terms. No single entity can purchase more than one third of the capacity.

- In Italy, Mediaset has agreed with TIM and Vodafone leaving one quarter of the overall capacity to each of them to select own channels to be added to the Mediaset base offer. This led to doubling some prime channels in the same multiplex.
- In Germany, the federal state media regulators obliged the service licensee Mobile 3.0 to broadcast 3 public TV channels, but also to provide capacity, on reasonable conditions to
 - Channels with high coverage and attractive content for mobile distribution
 - News, music and sport channels
 - One regional TV channel
 - Radio channels (one TV channel equivalent)

It is left to Mobile 3.0 to decide on the channels for the rest of the capacity and whether to consider requirements of potential distributors.

- In France, the national regulator CSA is granting special media licenses for mobile broadcasting to broadcasters, so fully defining the bouquet without any influence by the distributors.
- In Austria channel aggregation is not allowed to be done by the licensee, but is the responsibility of the distributors, namely the mobile network operators.

4.5.2 Bouquet content

As mentioned before, users are interested in a wide variety of channels. The number of channels possible to provide depend on the spectrum available for mobile broadcasting and on the required video/audio quality. A way to extend the number of channels is combining mobile broadcast TV with 3G streaming TV in a single user experience.

There are a lot of partially diverging requirements to be fulfilled when providing a mobile broadcast channel bouquet.

In a general case, from the broadcast business point of view a bouquet should contain:

- Main public TV channels being broadcasted either unencrypted or encrypted

Distributors are not interested to be bypassed by unencrypted public TV channels as this reduces the number of channels they are able to package for subscription. This is more evident if public broadcasters own attractive content, e.g. sports.

By contrast, public broadcasters argue that they have a public mandate to be reached by the broad public which can be fulfilled only by general available devices.

- Main commercial TV channels

Commercial channels tend to be part of the commercial service package of distributors. The reasons are that they like to get revenues out of the new distribution channel and advertising revenues are hard to achieve during the mobile broadcast service take-off due to small audiences.

- Pay TV channels

So far, not in all markets Pay TV channels are interested being part of a wholesale mobile broadcast bouquet.

As market research in pilots has shown, brand TV channels well known from stationary TV are well accepted also by potential mobile users. So on the one hand, from the distributor's point of view the bouquet should contain attractive TV channel brands. On the other hand distributors are interested also in getting special made for mobile channels, interactive mobile TV channels and (interactive) applications and data services

Special made for mobile channels can be created by repurposed content from existing channels or by newly created channels, all adapted to the mobile watching environment.

Examples of repurposed content based special made for mobile channels are

- Channels combining best content from a number of stationary channels as "The Best of Mediaset" including Football Seria A, Moto GP, top events, concerts and theatre or Sky Sport "mobile" including important competitions, championships and matches all provided by Hutchison 3 Italy
- Loops as „MTV Music" broadcasting the top 40 music videos from Germany and Europe looped 24/7
- Mobile distribution before stationary distribution as the soap "Verliebt in Berlin" broadcasted to mobile at 1 PM instead of 6 PM to stationary devices
- Broadcasting additional soap backstage content
- Special formats of existing content to avoid long shots, e.g. being "closer to the ball"

Examples of special made for mobile channels are

- A live programming guide, referring to other mobile TV channels as "La3 Live" of Hutchison 3 Italy
- A special sport channels using user generated content as "La3 Sport" of Hutchison 3 Italy

Interactive mobile TV channels are partially available today in 3G streaming mobile TV providing voting, communities, advertising, merchandising, e-commerce etc. and so generating additional revenues. The same type of interactive services may be provided with mobile broadcast services as well.

Examples of interactive services are:

- Voting with thumbnail buttons
- Quiz show live participation
- Music voting and downloads
- Live update of goals and additional information
- Live update of an auction and direct bidding
- Advertising with additional information

With the mass character of mobile broadcast other types of interactive service may arise including chat integration into the content stream or interacting with the provided content.

(Interactive) **Applications and data services** are based on broadcasting applications and data. Examples are interactive games or traffic services

From the content point of view a bouquet can include

- General purpose TV channels
- Genre specific TV channels as sports, news music, kids, comedy, documentation

- Local TV channels
- Radio channels
- Data channels

The example bouquet shown in fig. 9 consists of some clear to air public channels, a base commercial package for all retailers including public, commercial and pay TV channels, a special pay TV package as well as distributor specific channels. Normally such a base commercial package should be offered to all distributors on a non-discriminatory basis.

A distributor then can select its own commercial offer from the base package, eventually add the pay TV package and provide its specific channels.

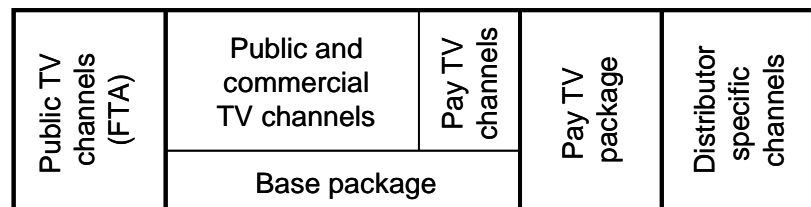


Fig. 9: Example bouquet structure

4.6 Business model examples

4.6.1 Models based on several multiplexes

In some countries *several multiplexes* are available for mobile broadcasting or will be available in the future (after digital switch-over).

A lot of business models are possible in the case of availability of several multiplexes, e.g.

- In Korea where several multiplexes are available for T-DMB, licenses are granted to broadcasters, each of them filling a multiplex with own channels. As the service is free-to-air each channel can be received by any service enabled device.
- In Italy two multiplexes are operated for mobile TV: one with a vertical MNO-led approach, the other with a shared network approach for two MNOs

Different multiplexes may be operated by different mobile broadcast service providers competing to get distributors exclusively or not. The danger of this approach is again that brand channels may be broadcasted twice (by each of the mobile broadcast service provider) which is not a spectrum-efficient use.

4.6.2 Models based a single multiplex

At the moment in most of the countries only a single terrestrial multiplex is available for mobile broadcasting which should be used in the most economic way to serve as much as possible customers. Only the shared network model can guarantee that different distributors as MNOs, Pay TV service providers, access network operators and other distributors can offer broadcast channels to their customers.

The options seen from the practise are manifold. The following demonstrates only some examples:

- Case 1: A Pay TV broadcasting company obtains or holds a frequency license and may use it for providing mobile Pay TV services to its customers separately or in package with the stationary Pay TV service (vertical approach: Pay TV service provider led model).

In this case the content is defined by the Pay TV broadcasting company. The service probably will be exclusive for the subscribers of this company. MNOs might become resellers but without influence on the content.

- Case 2: A public broadcaster obtains or holds a frequency license and uses it for providing free-to-air services to everyone owning a mobile device capable receiving mobile TV. T-DMB in Korea may serve as an example (vertical approach: free-to-air model).

This approach is possible for public broadcasters financed by tax or license fees. In the initial phase commercial broadcasters are unable to provide free-to-air services as only low advertising revenues can be generated due to the low number of service enabled devices in the market.

From Korea it is reported that the commercial free-to-air broadcasters still make losses even as the number of sold devices exceeds 10 million (T-DMB).

- Case 3: A commercial broadcaster obtains or holds the frequency license and uses it to provide paid mobile TV services. In this case it needs distributors (wholesale model).
- Case 4: A mobile network operator obtains or holds a frequency license and uses it for providing paid mobile TV services exclusively to its customers. As an example 3 Italy may serve (vertical approach: MNO led model)
- Case 5: Mobile operators form a joint venture obtaining the license for broadcasting a basis bouquet for all of them and leaving some channels for their differentiation (wholesale model).
- Case 6: A broadcast network operator obtains the license and provides the capacity to one or several channel providers and/or MNOs. Finland may serve as an example here (shared network model).

Combinations of the described cases are possible when a second or more multiplexes will be licensed for mobile TV as may happen after the digital switch-over.

5 Country Studies

5.1 Austria

5.1.1 Regulatory Framework

a) Frequency and platform license

The Austrian regulator KommAustria has granted a license for the operation of a multiplex platform for mobile terrestrial broadcasting (so called MUX D) to MEDIA BROADCAST. As the licensee is automatically granted the necessary frequencies, KommAustria serves as a one-stop-shop being the only competent regulator.

Among others, the license is bound to following obligations:

- Minimum of 50% population coverage 10 months after license granting
- Assignment of a minimum of 50% of the capacity to a base package
- Must carry of national terrestrial TV channels until end of 2009

The regulatory framework foresees three (groups of) market players: first, the licensee, second, program aggregators (distributors) which may be mobile operators or pay TV operators, and third, content providers. The licensee takes the role of the operator of the technical platform (mobile broadcast service provider) and the broadcast network. Regarding program aggregators it has to provide access to the platform on a non-discriminatory basis.

The licensee is not allowed to act neither as programme aggregator nor as a broadcaster. Furthermore, it is not allowed to have any influence on the selection of content. This is the task of program aggregators which come to agreements with TV and radio stations, package channels and distribute them to customers. The capacity of the multiplex is divided into a base package which contains programs available to customers of all aggregators, and premium packages which may be filled with (pay) content individually selected by aggregators.

b) Media License

No special media license is necessary for mobile TV, existing licenses apply.

5.1.2 Status⁷

On February 29th, 2008, KommAustria has granted the MUX D license to MEDIA BROADCAST, Germany, which has applied for the license in cooperation with the mobile operators One and Hutchison 3G. Formation of this consortium and the underlying agreements between MEDIA BROADCAST and the mobile operators on the one hand and the latter and content providers on the other hand

⁷ The following information is valid as of July 2008.

have been crucial for success as KommAustria has emphasized the importance of viability of the proposed business model.

The business model is based on the principle that each market player is responsible for its core business, i.e. the licensee builds and operates the platform and the broadcast network, and mobile operators are responsible for marketing mobile TV, for the availability of handhelds and for selecting content and content providers provide content apt for a successful launch of mobile TV.

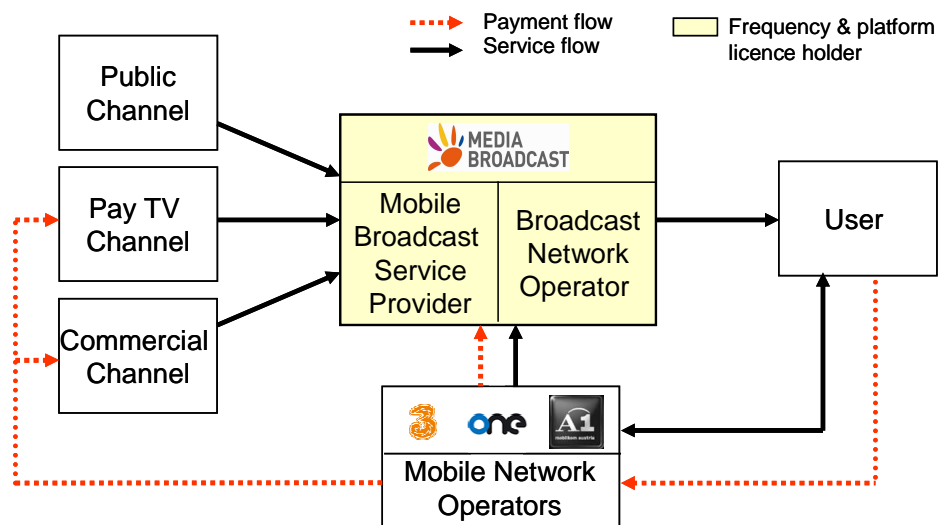


Fig. 9: The Austrian business model

The program aggregators have agreed on 15 TV and 5 radio channels to be broadcasted by MEDIA BROADCAST (figure 10).

At service launch in June 2008 the service was available in the EURO2008 cities Vienna, Innsbruck, Salzburg and Klagenfurt. End of August 2008 the network cover also the other federal capitals and surroundings (Bregenz, Eisenstadt, Graz, Linz and St. Poelten).

3 Austria is providing mobile phone N77 as well as the Nokia N73 DVB-H addition, both for 69 € with a 24 months contract period. There are no additional mobile TV fees for user with a ShowTime XL tariff. For all other tariffs there is a special service launch offer, free of charge until end of 2008 and 6 € p.m. afterwards.

Additionally to the DVB-H based channels 3 Austria is providing 35 3G-based streaming TV channels plus 10 erotic channels. Furthermore, 17 TV channels are broadcast to be displayed at laptops or PCs.



Figure 10: Austrian service bouquets
 (Source: www.drei.at)

One is providing all TV and radio channels under the brand "GUCKUCK Handy TV". The package is available for a 24 months contract of the "Große Plaudertasche" tariff (normally 25 € p.m. telephony flat rate). The launch offer is available until end of August 2008. It includes free of charge access to all channels, free of charge telephony and free of charge Nokia N77 until end of 2008. Afterwards the mobile TV package costs 9 € per month.

A1 is selling Nokia N77 from 49 € on (depending on the telephony tariff, e.g. A1 ABSOLUT ZERO 35 € p.m. and A1 Komplett Paket 10 € p.m.) plus a 40 € online bonus. The launch offer providing free of charge mobile TV until end of 2008 is valid until mid of August 2008.

A1 is also providing 11 3G-based streaming TV channel (A1 TV package), the DVB-T enabled LG HB620T and 3G data modems with embedded DVB-T tuner.

5.1.3 Assessment

In Austria a new legislation/regulation has been implemented which is setting specific rules for mobile TV.

KommAustria is the only regulatory authority granting both platform license and frequencies.

The licensee has been selected via beauty contest.

The beauty contest was based on a business-oriented approach.

Business models and cooperation between licensee, program aggregators and content providers have been agreed upon prior to licensing, thus forcing market players to make – at least in some cases - binding business decisions at an early stage of the mobile TV project.

5.2 Finland

5.2.1 Regulatory Framework

a) Frequency and platform licence

Finnish authorities promote open business models with shared networks.

The licensee sells DVB-H capacity and related services to content providers and to service operators. According to the license terms the licensee is not itself allowed to function as a service operator. It should neither participate in the consumer business nor in the content business.

According to the license terms, the licensee is required to sell DVB-H capacity to all programming license holders under equal terms. No single entity can purchase more than one third of the capacity. The network supports different types of business models. For example, content providers could act as service operators by themselves if they choose to.

According to the license terms, the network had to be opened to commercial operations by 01.12.2006 and to cover 40% of the population by 01.12.2007. The coverage will be reviewed every year with the ministry.

b) Media licence

The media license conditions are set in the Radio Law and Telecommunication Market Law.

Licenses will be granted by Ficora (Finnish Communications Regulatory Authority). License duration is according to the application.

No separate media licence is needed if a channel already has a normal TV license and is transmitting the same programs over the mobile TV.

The mobile TV media license itself is a light version of the normal TV license.

No programming licenses needed for data broadcasting.

5.2.2 Status

In March 2006, the Ministry of Transport and Communications granted the first DVB-H network license to Digita.

The key reasons for granting the network license to Digita were its neutral position in the market and its technical competence in DVB-H. The key objective was to have one neutral network operator sharing the scarce spectrum resource with several service operators and content providers.

The deployed network covers 40 % of the population in the six biggest cities of Finland: Helsinki, Espoo, Vantaa, Turku, Tampere and Oulu.

Some channels and data service providers want to purchase the capacity directly from Digita to keep the maximum control. The usage of this model will increase after high penetration of devices.

Some channels will use a channel aggregator or mobile operator to share the risk. This model is expected to be used especially in early steps of penetration. Channel aggregators or mobile operators purchase capacity for the channels.

Mobile operators and pay-TV operators will act like service operator. They handle the customer interface and billing. They can also function as a channel or as a channel aggregator.

There is also another assumption: Free-to-air channels to take low level access fees and act like pay-TV channels.

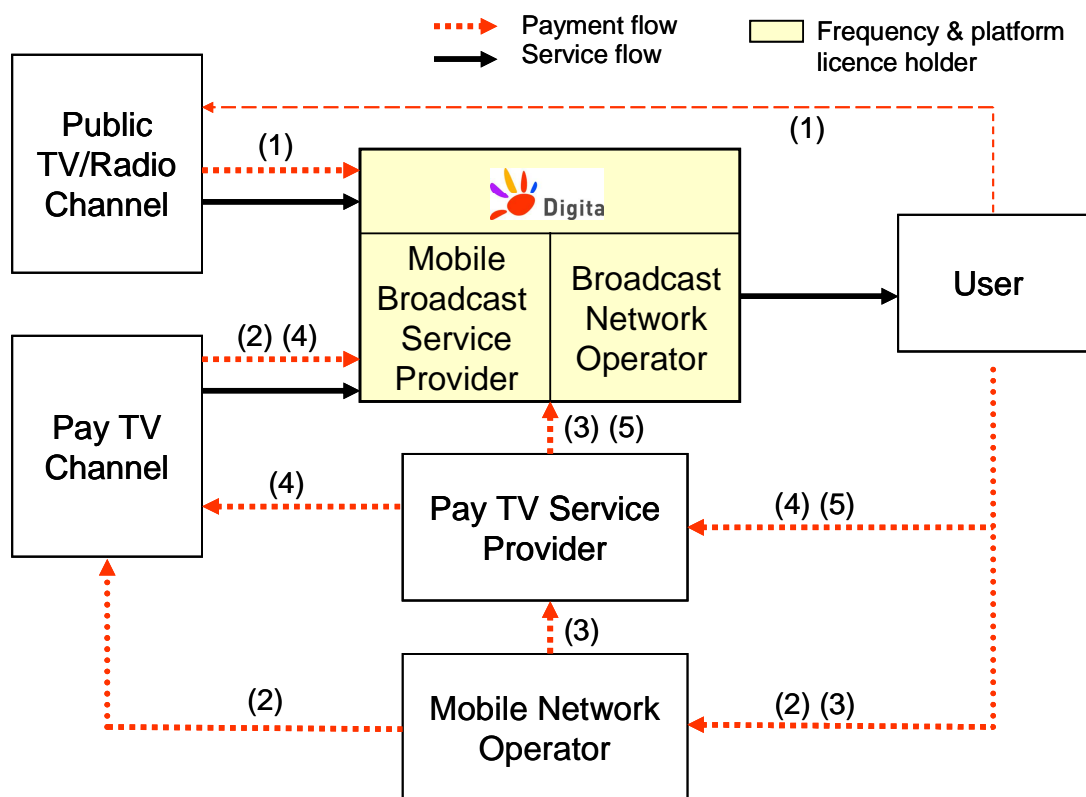


Fig. 10: The Finnish business model

Based on those assumptions several business model options can be realized (see fig. 10):

- (1) A public channel (free-to-air) has a contract for the distribution capacity.
- (2) A mobile network operator handles the consumer interface (sales, billing, and customer care). A Pay TV channel has a contract for the distribution capacity.

- (3) A mobile network operator handles the consumer interface. A Pay TV service provider has a contract for the distribution capacity on the behalf of a Pay TV channel.
- (4) A Pay TV service provider handles the consumer interface. A Pay TV channel has a contract for the distribution capacity.
- (5) A Pay TV service provider handles the consumer interface and has a contract for the distribution capacity on the behalf of a pay TV channel.

Digita has selected Nokia to provide the service platform. The system is up and running. The first terminals in the market were Nokia N92 terminals. The Finnish market is open to all terminal vendors that are interoperable with the OMA BCAST standard. The availability of a wide set of handsets is seen by all market participants as a critical success factor for the mobile TV market.

Recent holders of special mobile TV media licenses are SBS Finland, Elisa Oyj, Mobilive Entertainment Ltd. The first media license holders have started services in 12/06.

5.2.3 Assessment

The market start has been slow but at the moment it looks like business models and roles of players have been found. At the same time Nokia has launched more devices N77, N96 and several accessory products so there are more choices for the consumers.

As a consequence, only a few free-to-air channels are available at the moment.

The Finnish share network business model on the one hand opens a lot of challenging options for broadcasters, mobile operators and distributors to cooperate; on the other hand it is complex for the players to settle them.

5.3 France

5.3.1 Regulatory Framework

The French law has been adapted to propose a regulatory framework for shortening the date of the switch-off of analogue services, launching HDTV services as well as Mobile TV services also called "Télévision Mobile Personnelle" (which may also include radio services). In France, the CSA (Conseil Supérieur de l'Audiovisuel) is the regulatory body empowered for granting media companies with a license.

A multi-city multiplex called M7 has been identified to support the commercial service. This multiplex can cover 50% of the population, additional studies are being performed to extend its coverage to 70%.

In May 2008 CSA has granted 16 media licences for the constitution of a "Télévision Mobile Personnelle (TMP)" multiplex. The French state owned TV group, France Television, has already pre-empted 3 channels.

Within its call for tender, the CSA has set the following requirements:

- Minimum coverage of 30% of the population within 3 years
- Minimum coverage of 60% of the population within 6 years
- Outdoor Service

Most of the candidates have exceeded the CSA requirements and have proposed to extend the service to in-door coverage within the first room.

The French TMP expected calendar is the following one:

- June-July: Elaboration and Signature of the convention with the CSA.
- August-September: All licensees should gather within a multiplex. By law, licensees have no more than two months to define and agree upon the multiplex status.
- End 2008, a soft launch could be made in one or two cities. Real commercial launch is expected by mid 2009.

5.3.2 Status

By law, mobile network operators have the right to enter the multiplex if they fund a significant part of the broadcasting infrastructure.

In January 2008, a significant number of TV channels have signed a mobile TV charter defining their vision to achieve a successful TV service. Under this charter, media companies promote:

- Encryption for every TV channels
- Being open to several distributors as defined in the French law
- Seeking a common CAS platform
- Requesting in-door coverage to the first room

In May 2008 the French regulator CSA awarded DVB-H mobile TV broadcast licences to BFM TV, Canal Plus, Direct 8, EuropaCorp TV, Eurosport, I-Tele, M6, NRJ 12, NT1, Orange Sports, TF1, Virgin 17 and W9. Three channels are reserved for public broadcasters France 2, France 3 and Arte.

5.3.3 Assessment

The constitution of the "Forum Television Mobile" gathering representatives of MNOs, media companies, broadcasters, telecommunication companies was of great help to the CSA in defining the call for tender. The Forum also addressed technical and business issues. Nevertheless, it seems that there is no consensus yet on a common business approach.

MNO's role still has to be clarified. It is difficult to predict whether they will only have a distributor role or whether they will take a seat within the multiplex.⁸

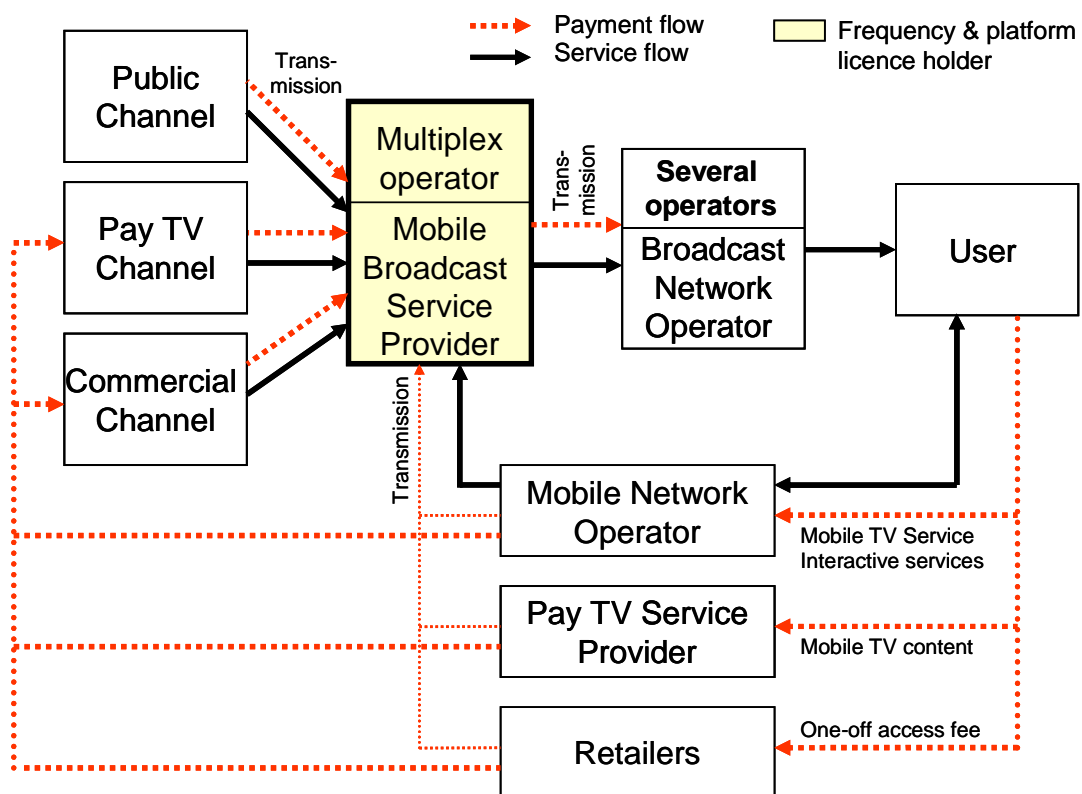


Fig. 11: A possible French business model

⁸ Orange having granted a licence for Orange Sports is part of the multiplex.

5.4 Germany

5.4.1 Regulatory Framework

For mobile broadcasting the German regulation differentiates 3 licence types:

- Frequency licence
- Platform licence
- Media licence

a) Frequency licence

The Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway (BNetzA) is responsible for granting frequencies according to the German Telecommunications Act. These frequencies are needed to operate a broadcast or other network.

According to decree no 31/2007 coverage obligations are:

- Minimum 50% population coverage in every State Capital (16 cities) until December 31st, 2008.
- Preferably 20% coverage of German population until December 31st, 2008.
- Coverage of at least every city with more than 150k inhabitants and in each "Land" coverage of at least the four biggest cities with more than 100k inhabitants until June 16th, 2015.
- Preferably 70% coverage of the German population until June 16th, 2015 and 90% coverage of the German population until 2015 if in 2013 DVB-H services have reached a penetration usual in the market.

b) Platform licence

In Germany a special platform license has to be granted, not connected with the frequency or the media license.

As media handling is the matter of the federal states, the corresponding Media Authorities agreed on a single licensing framework. Nevertheless, 14 different tenders had to be published by the federal states' Media Authorities (e.g. in Berlin on March 9th, 2007). Depending on the media laws of each federal state the licence term is 3-7 years.

The DVB-H tenders targeted on finding a sustainable overall concept that includes functions of channel provisioning, set up and financing of the broadcast network as well as channel aggregation and marketing of the services.

The pilot project shall target to ensure media plurality and find out a sustainable overall concept that

- Provides for a diverse service offer
- Allows the access of the content and service providers on reasonable conditions
- Allows equal access

- Seems to be commercially applicable
- Includes different technical reception methods
- Takes into account the interest and the acceptance of the users
- Guarantees financing of the network coverage.

On reasonable conditions the platform should provide capacity to

- Channels with high coverage and attractive content for mobile distribution
- News, music and sport channels
- One regional TV channel
- Radio channels (one TV channel equivalent)

The rest of the available capacity may be allocated by the platform provider using transparent criteria. This shall also include multimedia services.

During February to April 2007 all state media authorities called for tenders for platform licenses based on the above described framework.

c) Media licence

Mobile TV is considered as another distribution method of TV channels. As such the media licence conditions as for any TV channel will apply.

Existing media license holders do not need a new license as far as the conditions of the licence apply for the mobile TV offer.

5.4.2 Status

On October 11th, 2007, the frequency license has been granted to MEDIA BROADCAST. However, building of the DVB-H broadcast network depends on successful commercial negotiations with the platform licensee.

The platform licenses have been granted to Mobile 3.0 in 02 and 03/2008 after providing the required contracts with content partners.

Mobile 3.0 is a joint venture of Mobiles Fernsehen Deutschland (owned by South-African Naspers/MIH and private equity) and Neva Media (own by German publishing houses Burda and Holtzbrinck and private shareholders).

Mobiles Fernsehen Deutschland already owns the DMB platform licence and has provided a DMB-based service since June 2006 with a limited number of users so far. However, this service has been closed in May 2008.

Mobile 3.0 successfully competed with a consortium consisting of the German mobile network operators O₂, T-Mobile and Vodafone D2.

It can be expected that new entrances will apply for media licences focused on mobile TV channels. So, in Lower Saxony a special channel Hannover TV has been founded to provide free-to-air local news, interactive as well as entertainment and business formats.

But for the recent knowledge so far no special made for mobile media licence has been granted.

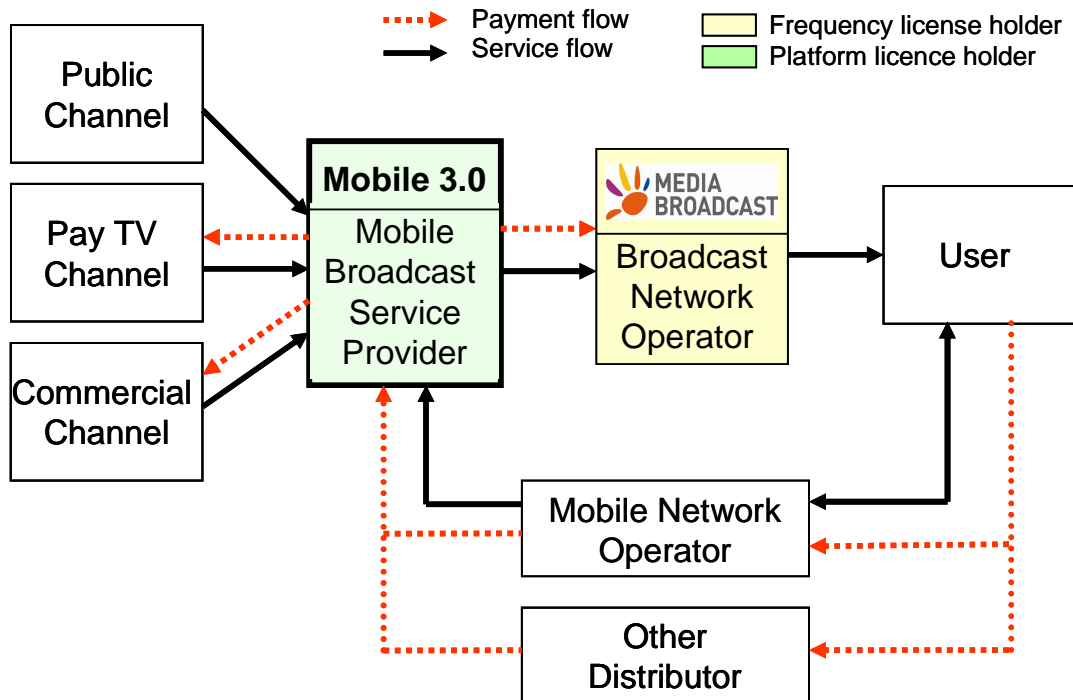


Fig. 12: The German DVB-H business model

Other than expected by regulatory authorities, in June 2008 Mobile 3.0 has started only a pilot in Hamburg, Hanover, Frankfurt and Munich.

Meanwhile, all German mobile operators within existing tariffs provide mobile phones capable of receiving free-to-air DVB-T services.

5.4.3 Assessment

The German mobile TV regulatory framework includes some peculiarities which might affect the service take-off:

- Mobile 3.0 is a new entrance and (more or less) neutral actor in the value chain, not belonging to broadcaster and mobile network industries.
- The risk of the whole business is with the platform provider Mobile 3.0.
- The frequency licence holder MEDIA BROADCAST is in a comfortable position as it may set up the network only after getting a contract of Mobile 3.0.
- The positive effect of a neutral platform provider may be (still to be proved in practice) that it can act as a mediator between the broadcaster and mobile industries. On the other hand profit orientation of the new entrance may have negative impacts on the business cases and the end user price.
- Having been granted the platform licence Mobile 3.0 is in a weak position in relation to both, broadcasters and mobile operators who are not

under any pressure and can wait for an appropriate b2b service offer of Mobile 3.0. This negotiation process has already delayed the commercial start.

- On the other hand Mobile 3.0 is obliged to fulfil the coverage obligations of the licence by contracting MEDIA BROADCAST. This may lead to an initial service offer without mobile operators. However, the DMB experience of Mobiles Fernsehen Deutschland has shown that market penetration is hard to reach without mobile operators.

5.5 Italy

5.5.1 Regulatory Framework

The Italian Regulator AGCOM (Autorita' per le Garanzie nella Comunicazione) carried out a public consultation in November 2005 with the aim of gathering information on future potential mobile broadcast TV services.

Several companies provided a contribution to the public consultation: notably the main TV and Radio Broadcasters' Associations (RNA, FRT, AERANTI CORALLO, WorldDAB Forum), the main licensees in the field of mobile and fixed telephony (Vodafone, Wind, H3G, TIM, Fastweb), the main companies involved in building up and operating digital networks (RAI, Mediaset, Gruppo Espresso, Prima TV), the main satellite operators (SES Astra, Eutelsat), key manufacturers (Alcatel, Ericsson), the main consumer associations and several other entities interested in replying to the public consultation (SKY, DMT, MAGIVEX, MBI, FOX, SODIELEC).

Following the results of the public consultation, AGCOM approved document n. 191/06/CONS that went out for public consultation in April 2006. The document contained a draft of the AGCOM decisions aimed at enabling and regulating the market of mobile broadcast TV. Finally, in May 2006, AGCOM published its decision n. 266/06/CONS containing the modifications to the regulations for digital terrestrial broadcasting (n. 435/01/CONS). These modifications were introduced with the aim of regulating the initial launch/start-up phase of digital terrestrial broadcast services to mobile terminals. Decision n. 266/06/CONS constitute the basis for the Italian mobile TV regulation framework.

In particular, the underlying principles of decision n. 266/06/CONS are:

- Technology neutrality (with regards to the standard to be adopted)
- Mobile TV frequency range: UHF
- Same principles which regulate digital terrestrial, satellite and IPTV transmissions in Italy.

In terms of network operator license, decision n. 266/06/CONS states that:

- Ownership of digital TV network operator license (at national or local level) allows also broadcasting only to mobile terminals.
- In the start-up phase of digital terrestrial broadcasting to mobile terminals, each subject holding a network operator license can operate at most one diffusion block (MUX) in UHF spectrum for the transmission of programs to mobile terminals.
- The same constraints valid for TV broadcasting network operators apply to mobile digital TV network operator licensees (limits, infrastructure sharing etc.).

Other provisions of the 266/06/CONS decision are:

- Authorization to provide digital terrestrial TV content to mobile terminals

- The underlying principle was to have the same rules defined to digital terrestrial content providers apply to mobile digital TV terrestrial content providers.
- Same constraints in terms of copyright, pluralism, competition rules.
- Subjects already authorized to provide TV content or providing it on satellite and cable should present a simple declaration to be able to have their content broadcast over digital terrestrial to mobile terminals.
- Service providers need an authorization to start commercial services.
 - No discrimination, pluralism, competition and equal opportunities rules apply.

5.5.2 Status

In November 2005, H3G announced the acquisition of Canale 7, a quasi-national analogue network and its national DTT license originally planned for fixed reception. After consultation with AGCOM, the Autorita' Garante della Concorrenza e del Mercato (AGCM) decided to approve the deal. H3G acquired Canale 7 with the intention to launch mobile broadcast TV services.

At the beginning of 2006, RTI (Mediaset Group) similarly acquired Europa TV and its national DTT license. RTI acquired Europa TV to be able to launch mobile broadcast TV services. AGCM authorized the deal under the following conditions:

- The new mobile TV network will be exclusively dedicated to provide contents to mobile terminals;
- The network will be open to telecommunications operators to acquire MUX capacity at equal, transparent and not discriminatory conditions;
- The network will transport also third party contents (other than RTI);
- The business model for the MTV commercial offer will be based on:
 - RTI shall not provide retail mobile TV offers to end consumers.
 - Mobile phone operators will provide the retail mobile TV offer to end consumers.
 - Advertising revenues only for mobile operators;

As of today, there are two mobile broadcast networks in Italy: H3G network and Mediaset network. There are 3 mobile broadcast TV commercial services offered to the end consumers: La3 from H3G, Vodafone SKY TV from Vodafone and TIM TV from TIM.

In terms of business models, H3G is pursuing vertical integration (Figure 14) managing its own MUX and service platform whereas TIM and Vodafone manage their own independent service platforms but rent network capacity from Mediaset network (Figure 13).

In terms of content provisioning, SKY is providing content to all of the three platforms, major free-to-air channel are available on TIM TV and La 3 platforms. Mediaset and Telecom Italia Media provide also domestic football game content to TIM TV and La 3 TV. Content from public broadcaster RAI is offered only on La 3 TV. Adult content is only available on La 3 TV. TIM and Vodafone are allowed to share, if they want to, the same content.

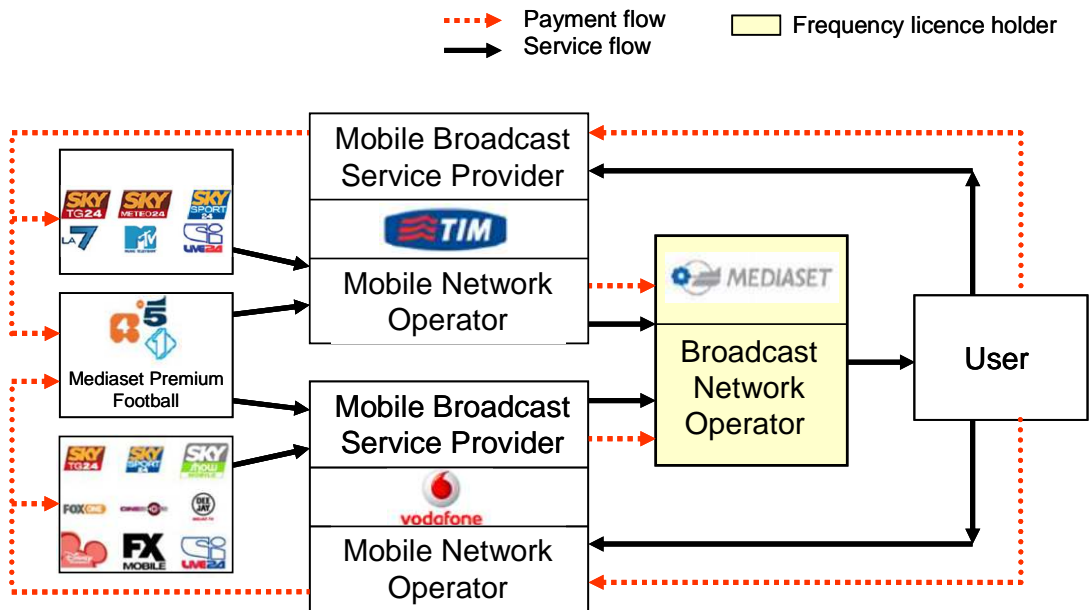


Fig. 13: The Italy/Mediaset business model

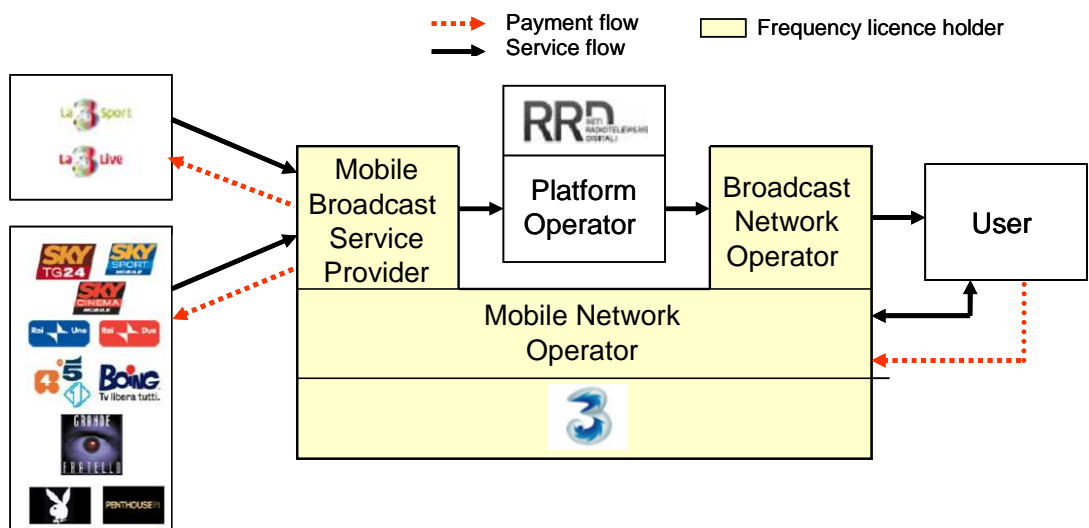


Fig. 14: H3G Italy business model

Handsets have been made available mostly by Samsung, LGE and Brionvega with most of the top 10 handset makers missing. A limited number of data cards and portable players including mobile broadcast functionality are also in the market. Overall number of handsets with mobile broadcast capability is approaching about 1 million most of them sold by H3G. It is undisclosed publicly the number of active subscribers. Heavy advertising of mobile broadcasting has been carried out only by H3G with the remaining players in a quiet defensive mode.

Commercial services to consumers are mainly pay-TV offered also in bundle deals with voice/data (especially in H3G case).

Since mid of 2008 H3G is offering part of the former channels free-to air, namely La3, RAI Uno, RAI Due, Best of Mediaset, Sky Meteo24 and current.

5.5.3 Assessment

In both cases, H3G and Mediaset operators leveraged acquisitions of TV stations including the license and the infrastructure in full compliance with Italian law.

After nearly 2 years of operation of two mobile broadcast networks in Italy and 3 commercial services offered by three different Mobile Network Operators to the end consumers, the following considerations could be made:

- A flexible and liberal regulatory framework endorsing technology neutrality principles has allowed a market-led approach with key players in the Italian industry making substantial investments in mobile broadcasting, building up 2 networks based on their selected broadcasting standard and launching 3 different mobile broadcast services. The regulatory framework has also enabled different business models to be pursued in the marketplace.
- In the H3G vertically integrated model, it is clearly H3G taking all the risks/rewards of the launch of mobile broadcasting services. In the case of Vodafone and TIM, the upfront investment in a dedicated mobile broadcasting network is reduced as they both rent network capacity from Mediaset.
- Mediaset appears to be the best positioned firm from a financial risk standpoint as they took the risk of building up a mobile broadcast network but at the same time they managed to secured network capacity lease contracts with TIM and Vodafone for 5 years. At the same time, there appears to be a money flow from Mediaset to TIM and Vodafone for their cellular sites utilized to complement the main broadcasting sites. Also, Mediaset appears to be banking on providing content to 2 out of 3 service platforms. A strong position in the market by Mediaset compared to other players could be associated to the provision of content as well as managing the broadcast network.
- Service advertising is important for take-up: H3G managed to get better take up for their mobile broadcast TV service due to heavy advertising.

- Price and limited line-up of handsets with only a handful of devices supporting mobile broadcast could be one of the factors currently limiting additional substantial market growth.
- Other limiting factor for further growth of mobile broadcast services could be identified in a consumer's value proposition mostly polarized on pay TV offer with limited or no availability of free-to-air content. As mentioned before, H3G recently decided to offer some channels free-to-air while other channels as part of pay-TV packages.
- Also, as these licenses were originally planned for DTT usages, questions arose around coverage, capacity and interference with existing fixed broadcasting networks. Additional frequencies and investments may be required to increase the service quality and meet consumer demand.
- Finally, it is also worth noting that access to frequencies was not considered under the assumption that mobile TV is a new service therefore limiting the market entrance to other players.

1.

5.6 Switzerland

5.6.1 Regulatory Framework

a) Frequency and platform license

The Eidgenössische Kommunikationskommission ComCom has granted a country-wide mobile TV frequency license to Swisscom Broadcast AG. The license is valid until end of 2017.

The licensee has to fulfill the following coverage obligations:

- 44% of population until May 2008, Outdoor
- 60% of Population until end of 2012, Outdoor

A minimum of 70% of transmission capacity have to be used for TV distribution.

The licensee has to provide its broadcasting services under fair, reasonable and non-discriminatory conditions to all radio and TV stations and telecommunication providers.

Every single company or consortium of companies was allowed to bid for the license.

b) Media License

No special media license is necessary for mobile TV, existing licenses apply.

5.6.2 Status

After publishing the tender in June 2007, the Bundesamt für Kommunikation BAKOM received two bids, one of Swisscom Broadcast, the other of Mobile TV Schweiz.

End of September 2007, based on the published criteria BAKOM announced to grant the license to Swisscom Broadcast AG.

Swisscom is marketing its mobile TV service under the brand "Bluewin TV mobile". As a specific it is integrating mobile TV services via DVB-H (HD) and via UMTS/EDGE (Standard) into a single offer.

At service launch the DVB-H based service was available in Basel, Berne, Geneva and Zurich and Lausanne (44% pop coverage). UMTS/EDGE based service has 99.8% pop coverage.

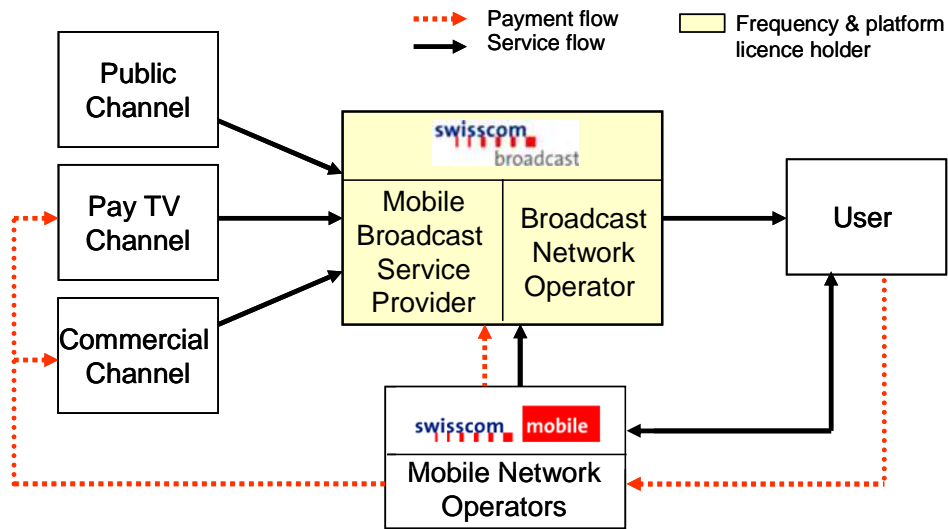


Fig. 16: The Swiss business model

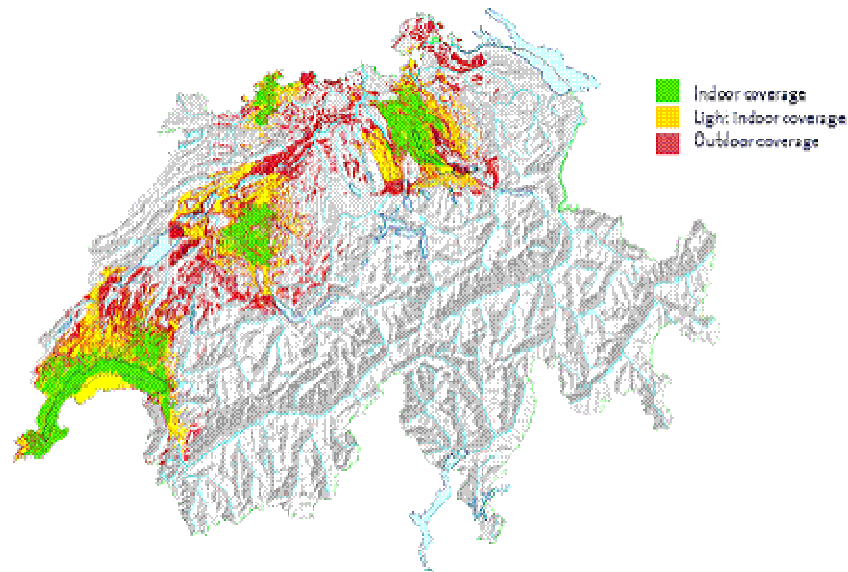

















Fig. 17: DVB-H coverage in May 2008
(Source: www.swisscom.com)

So the user can access 20 channels in the areas where DVB-H is available and the same channels plus 10 additional channels in the UMTS/EDGES covered area.

The following channels are available:

Channel	Language	Standard	HD
 SF1	SF1	D	✓
 SFzwei	SFzwei	D	✓
 SFinfo	SF info	D	✓
 ARD	ARD	D	✓
 ZDF	ZDF	D	✓
 ORF1	ORF1	D	✓
 Pro7	Pro7	D	✓
 Sat.1	Sat.1	D	✓
 Vox	Vox	D	✓
 RTL	RTL	D	✓
 RTL2	RTL2	D	✓
 n-tv	n-tv	D	✓
 MTV	MTV	D	✓
 VIVA CH	VIVA CH	D	✓
 Eurosport	Eurosport	D	✓










Channel	Language	Standard	HD
 TSR1	TSR1	Fr	✓
 TSR2	TSR2	Fr	✓
 TF1	TF1	Fr	✓
 TV5	TV5	Fr	✓
 France 2	France 2	Fr	✓
 France 3	France 3	Fr	✓
 France 5	France 5	Fr	✓
 M6 suisse	M6 suisse	Fr	✓
 TS1	TS1	It	✓
 TS2	TS2	It	✓
 RAI 1	RAI 1	It	✓
 Italia 1	Italia 1	It	✓
 Canale 5	Canale 5	It	✓
 CNN	CNN	En	✓

Fig 18: Swiss service bouquet
(Source: www.swisscom.com)

The price for Bluewin TV Mobile (both HD and standard together) is CHF 16 p.m. or CHF 2 per day. The monthly subscription can be initiated by SMS and terminated by SMS or at the portal. Termination is possible at any time, no minimum contract time necessary.

Swisscom provides Nokia N77 without any phone tariff contract for CHF 499. Depending on the tariff of a 12-months contract it costs between CHF 49 and CHF 219 and a 24-months contract between CHF 1 and CHF 99. Swisscom also announces Samsung P960 and Nokia N96 later this year.

5.6.3 Assessment

The Swiss business model is a wholesale model. Swisscom Broadcast is able to select the channels being broadcasted. The only obligation is providing 70% for TV distribution.

As beginning of December 2007 the mobile operators Orange and Sunrise declare not further being interested in distributing DVB-H base mobile TV services to their customers the only distributor in the market is Swisscom Mobile.

5.7 United States

5.7.1 Regulatory Framework

The Federal Communications Commission (FCC) is the national authority in the United States in charge of regulating telecommunications, media and various electronic communications network and services. So far, the US benefits from the absence of most of the Mobile TV regulatory entanglements witnessed in other countries. In particular, no broadcasters were given a Mobile TV spectrum license as heritage of their broadcasting legacy, and no mobile operators were offered any similar favour. Instead, in 2003 and 2004, a set of UHF Digital Dividend spectrum – “the 700 MHz” was made available in fully transparent manner allowing new players to invest and choose the right to use whatever technology they chose, and to offer any service/application that appealed to them the most. In 2008, the FCC auctioned the balance of its UHF Digital Dividend spectrum under similar rules.

a) Frequency licence

The FCC adopts and maintains rules and regulations, which are codified in Volume 47 of the Code of Federal Regulations. There is no license specifically for “mobile broadcasting.” The FCC has regulations which govern use of the 700 MHz (UHF) spectrum. These regulations are contained in Part 27 of the FCC’s rules. These regulations are technology-neutral and service-neutral.

In 2003 and 2004, the FCC conducted auctions for channels 54, 55 and 59 prior to the digital television switch-off. In 2008, the FCC auctioned channels 52, 53, 56, 57, 58, as well as spectrum within channels 60-62 and 65-67.

Channel 55 was auctioned in 2003 and 2004 on an unpaired basis and included 6 large geographic licenses. (In the 2008 auction, one channel, Channel 56, was auctioned on an unpaired basis and was divided into 176 geographic licenses.) Qualcomm acquired the 6 licenses for Channel 55, acquiring a 100% national footprint (Qualcomm acquired 5 of the 6 licenses in the FCC’s auctions and purchased the 6th license in a post-auction transaction.). Qualcomm’s MediaFLO USA subsidiary is using these licenses to provide mobile TV service to its partners Verizon Wireless and AT&T.

Channel 55 licenses have a term of 16 years expiring on February 17, 2019 and are subject to renewal if the licensee is in compliance with FCC rules and meet any other applicable requirements.

There is no quantitative obligation (such as coverage) related to Channel 55 licenses. Rather, there is an obligation to provide “substantial service” by February 17, 2019. “Substantial service” is defined as “service which is sound, favourable, and substantially above a level of mediocre service which just minimally warrant renewal.”

As for other obligations, the licensee must comply with the FCC’s technical rules such as emission mask, power level and interference protection requirements – in particular those applied to the existing incumbent TV stations (analogue and digital) which the licensee must meet until February 17, 2009. These protection

rations are required for co-channel and direct adjacent channels (N, N+1 and N-1).

b) Platform licence

In the USA, the platform license concept does not exist.

MediaFLO USA is in charge of building and operating the MediaFLO Mobile TV network, aggregating the content and providing the service on a wholesale basis to interested mobile operators, who in turn decide how best to market the Mobile TV service offering to their wireless subscribers. Verizon Wireless launched the service in March 2007 and AT&T started its own service offering in May 2008. Both offerings have differences and commonalities and are retailed separately by the mobile operators. Both operate over the national single frequency mobile TV network on channel 55. To date, 58 top US markets in are on-air, including New York City, Los Angeles, Chicago, Washington DC, Atlanta, Orlando, etc.⁹

c) Media licence

The concept of Media License does not exist in the US for Mobile TV. No special media license is required to broadcast a mobile TV channel. The process is very straightforward and neither the government nor the FCC has developed layers of regulations and obligations on a new service. To date the Mobile TV service is made of familiar and compelling broadcast TV and cable network programming as part of a new distribution channel including existing linear and made-for-mobile customized programmes from the top US network (Fox, NBC, CBS, ESPN, MTV, etc.). It includes full length news, sports, and entertainment programs.¹⁰

5.7.2 Status

MediaFLO USA was created to deliver mobile entertainment to third parties. This service incorporates Forward Link Only (FLO) technology that broadcast mobile content over a dedicated nationwide network that now covers 58 markets (over 130 million people). MediaFLO USA delivers live, TV-quality video and audio to millions of devices simultaneously. MediaFLO USA is partnering with a number of entertainment brands to secure high quality digital content.

MediaFLO USA offers currently the following brand-name channels:

- CBS Mobile
- Comedy Central
- ESPN Mobile
- FOX Mobile
- MTV: Music Television
- NBC 2GO
- NBC News2GO
- Nickelodeon
- PIX (AT&T-exclusive channel)
- CNN Mobile Live (AT&T-exclusive channel)

⁹ See Verizon's and AT&T's websites for full details on service offering and geographic availability.

¹⁰ See Verizon Wireless and AT&T website for additional details on the service offering.

- ESPN Radio (Verizon Wireless-exclusive channel)
- Tr3s (Verizon Wireless-exclusive channel)

The mobile TV service is delivered to consumers in partnership with mobile operators. MediaFLO USA provides the service on a wholesale basis to the mobile operators, who then retail it to their subscribers.

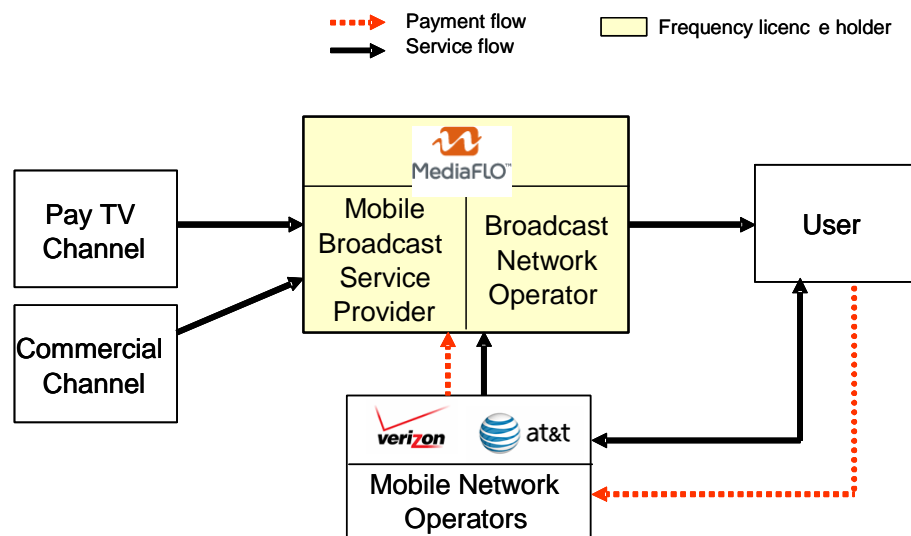


Fig. 19: The US/MediaFLO business model

With the launch of its V CAST Mobile TV on March 1, 2007, Verizon Wireless was the first mobile operator to make the mobile TV service from MediaFLO USA available to consumers. The V CAST Mobile TV service can be viewed on a number of terminals from LG, Samsung and Motorola.

AT&T started offering the AT&T Mobile TV service from MediaFLO USA to its mobile customers on May 4th 2008. The AT&T Mobile TV service can be viewed on a number of terminals from LG and Samsung.

5.7.3 Assessment

As highlighted above, the FCC has established a healthy competitive regulatory environment to enable an early launch of new services such as Mobile TV. In addition to have auctioned the spectrum early based on a technology neutral and flexible regulatory regime, the FCC has also provided predictable and stable technical rules leading to the full and efficient use of the capacity by the end of the transition in February 2009. As a result, in the United States, there is a MediaFLO Mobile TV network deployed according to business drivers and free from complex and stringent layers of regulation impacting economics and commercial negotiations. In view of the significant investments required for the provision of a quality Mobile TV service as well as the fast and largely unknown customer behavior and adoption of such service, such market-led approach is

more conducive of competition and provides greater incentives for stakeholders to invest and deliver consumers with choices and quality services at reasonable prices.

5.8 Japan

5.8.1 Regulatory Framework

There is only one mobile TV infrastructure in Japan to date that is based on a free model embedded in the existing digital terrestrial television network using the ISDB-T technology. Every digital broadcasting spectrum multiplex is divided into 13 "segments" with twelve used for HDTV and one used for "mobile TV" ("1seg"). As part of the "embedded" model, the government has not yet addressed a new regulation for this "1seg mobile TV service" therefore it is provided under existing broadcast regulation requiring free-to-air delivery and an advertising-based only revenue model. Broadcasters do not need a dedicated broadcasting license due to 1seg's positioning as "supplementary broadcasting" restricted to digital terrestrial TV simulcast.

5.8.2 Status

At the end of 2005, KDDI was the first operator to introduce 1seg compatible devices. By 23rd February 2007 they had sold close to 2 million 1seg devices and by the end of March 2007 the three operators had shipped over 7 million 1seg handsets expecting a combined 20 million devices by end of March 2008. With the growing number of 1seg devices, a profitable commercial business model is of increasing interest for the various players. Meanwhile KDDI is also evaluating creative advertising multimedia concepts with TV stations.

In 2006, the regulator MIC started to consider the use of the digital dividend spectrum (VHF/UHF) for the launch of new services included for "mobile broadcasting services" following the analog switch-off officially set for 2011. Review of the candidate technologies is undergoing based on spectrum compliance and technology neutrality. In summer 2007, MIC announced a Broadcasting Law Reform proposal to the Japanese parliament in order to address the digital convergence of services and technologies. The MIC has requested an Advisory Board contributing to the creation of a regulatory framework applicable to "mobile broadcasting services" especially regarding

- i) appropriate spectrum allocation and regulation
- ii) technical matters (planning, efficiency, transmission, etc.) and
- iii) suitable licensing regime (vertical vs. horizontal) to enable successful business models. Amendments are likely to include a lift of the ban on 1seg specific content and regulation. MIC final regulations and timeline are still to be determined.

The wireless carriers KDDI and Softbank have announced planning and trial activities based on the Mobile Multimedia Broadcasting platform MediaFLO, while other consortium, e.g. NTT Docomo and some broadcasters are evaluating ISDB-Tmm, next generation of the ISDB-T standard. All players are evaluating new innovative Mobile Multimedia Broadcasting services in order to generate revenues and evolve to profitable businesses.

In conclusion, regulation pertaining to the new usages to the “digital dividend” in Japan is undergoing important changes in order to address the digital convergence and enable profitable businesses and economic growth. ISDB-T was never mandated by law in any Mobile TV-specific regulation.

6 References

- (1) DigiTAG Handbook "Television on a handheld receiver – broadcasting with DVB-H"

7 On the bmcoforum work item “Generic business models”

In November 2006 the “Generic business models” work item of **bmcoforum** has published the report “Mobile Broadcast Business Models – A State of the Art Study”. This report has found widespread interest.

After the publication in several countries commercial services have been established under quite different business model approaches. First experiences are available now.

So, in September 2007 the work item has been reactivated to contribute to the worldwide discussions on the “right” business model and how to bring business models to commercial success.

Among others the following aspects are part of the discussion within the work item

- The worldwide business situation including business models
- The relationship to the mobile business (streaming based mobile TV , interactivity, advertisement)
- Content production
- The value chain behind interactivity and advertisement
- The influence of the regulatory model on the business model
- Integration of public broadcaster and pay TV broadcaster approaches

8 Authors

This report has been compiled as part of the "Generic business models" work item of **bmcoforum**.

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Mobile Broadcast Business Models

Generic Business Models and Country-specific Implementations

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