Arthur D Little

Mobile TV

Tuning in or Switching off?

Contents

Foreword

Broadcast Mobile TV has the potential for exceptional growth but most existing services are not attracting as many paying customers as expected. So what strategies should regulators, infrastructure suppliers, content providers and mobile operators adopt?

Arthur D. Little has supported clients in all segments along the Mobile TV value chain. In this report, we take stock of developments to date and identify the actions we believe key players need to take to improve the Mobile TV business. In the years ahead, we look forward to linking our expertise and passion for innovation to help companies develop the strategies that will bring about that transformation.

Authors:

Karim Taga
taga.karim@adlittle.com

Christian Niegel
niegel.christian@adlittle.com

Lars Riegel
riegel.lars@adlittle.com

Executive Summary

Mobile TV services based on broadcast networks have been launched in many markets worldwide, but subscriber uptake and revenue growth was rather disappointing so far. At the same time, Mobile TV via 3G streaming, a service offered by most mobile operators, has so far not become more than a niche market. As a result, market players are increasingly critical of Mobile TV services.

However, by working on improving the existing business model for broadcast Mobile TV, key players can increase subscriber uptake, revenues and profitability. In particular:

- Regulators need to create an optimal framework for the development of Mobile TV services.
- Device suppliers need to increase the variety, functionality and affordability of Mobile TV enabled handsets.
- Mobile operators should use Mobile TV services in order to increase customer loyalty, to differentiate their standard voice and data services and to improve sales of high-value service bundles.

While broadcast Mobile TV services may have disappointed many market players to date, it is clear, that when the context is right, Mobile TV does have mass-market appeal. In South Korea, for example, 17 million, or over one third of all mobile subscribers, regularly use broadcast Mobile TV services. In Italy, well over 1 million subscribers subscribe to Mobile TV. The industry is therefore working on next generation Mobile TV business models, based on networks that combine terrestrial and satellite Mobile TV broadcasting networks and/or unicast and multicast standards.

The core revenue source of mobile operators, mobile voice, is increasingly under pressure, especially in the current recession. Operators therefore need to seek ways to differentiate themselves from competition and Mobile TV remains a good option to do so as part of a broader mobile data service strategy. We therefore recommend executives to stay tuned, rather than to switch off and lose sight of Mobile TV.

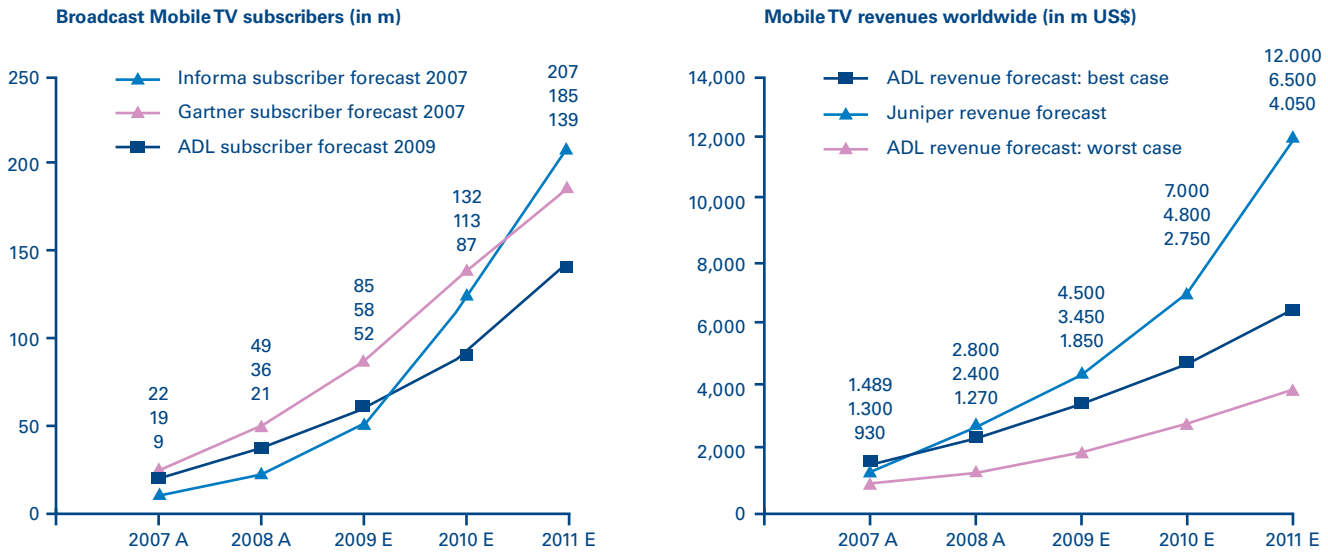
Disappointing Subscriber Uptake Worldwide

The mobile industry has often had to cut its projections for new mobile data services. The same holds true for broadcast Mobile TV. While almost 40 million users worldwide watch broadcast Mobile TV, this represents only about 1% of all mobile phone users worldwide.

With many mobile phone users watching broadcast Mobile TV free of charge, revenue and profit forecasts for most players are well below original expectations. Arthur D. Little estimates that total worldwide revenues from Mobile TV were less than US$3 billion in 2008, and those revenues stem from both broadcast Mobile TV and from Mobile TV via 3G streaming.

The most recent launches of broadcast Mobile TV in Europe show disappointing subscriber uptake so far: Switzerland, the Netherlands and Austria all report only a few thousand subscribers 6-12 months after service launch – and the current recession is not helping. We therefore expect lower worldwide Mobile TV subscriber uptake than projected by many. Arthur D. Little expects subscriber figures to not exceed 140 million worldwide and revenues from both broadcast and 3G streaming Mobile TV to not exceed 4-12 billion US$ by by 2011.

Figure 1. Projections for worldwide broadcast Mobile TV subscriber uptake and revenue growth



Source: Arthur D. Little analysis

Table 1. Divergent Mobile TV success around the Globe

Country	Total mobile subscribers end 2008	Total broadcast Mobile TV subscribers	Launch date	Standard	Service Providers	Devices
Asia						
Japan	105 m	18 m	Apr 05	ISDB-T	free to air	NEC, NTT, Sharp, Sony, DoCoMo
South Korea	45 m	S-DMB 1.85 m T-DMB 15.4 m	May/Dec 05	S-DMB / T-DMB	SKT, KTF, LGT	LG, Samsung, Motorola
China	616 m	1.2 m	July 08	CMMB	free to air	INOFIDEI, Huaqi, Telepath Technologies, Lenovo, ZTE, K-Touch
Europe						
Italy	92 m	1.2 m	June 06	DVB-H (CAS-Nagravision; Gemplus Encryption system: ISMACryp)	H3G, TIM, Vodafone	Quantum, Samsung, Nokia
Finland	6.6 m	5k	Dec 06	DVB-H 18C / OMA DRM 2.0	MobiliTV	Nokia
Austria	10 m	13k	May/June 08	DVB-H (OMA BCAST DRM Profile. The Headend enables OMA BCAST SCP)	mobilkom Austria, H3G, Orange	Nokia, ZTE
Switzerland	8.2 m	5k	May 08	DVB-H OMA BCAST DRM for the launch; later OMA BCAST Smartcard	Swisscom	Nokia, Samsung, LG
Netherlands	20 m	10k	Aug 08	DVB-H KPN (OMA BCAST DRM Profile)	KPN	Nokia, Samsung, LG
USA						
US	270 m	1 m	Mar 07	MediaFLO	AT&T, Verizon	Motorola, LG, Samsung

A wide range of broadcast Mobile TV businesses has been launched around the globe. Most are still in the early stages and show very limited subscriber numbers, although broadcast Mobile TV businesses in Japan, South Korea and Italy have achieved mass-market adoption. However, even these businesses have not yet proven their ability to secure sustainable commercial success. One key barrier to the global uptake of broadcast Mobile TV services is the deployment of many different standards (see table 1).

"Some broadcast Mobile TV businesses have achieved high subscriber figures – but a genuine example of a commercially successful Mobile TV business has yet to emerge anywhere worldwide."

Asia – High subscriber figures but low revenues

In Asia, Mobile TV has become a mass-market application in Japan and South Korea and mass-market adoption is imminent in China. One key reason for this is that people in these countries are generally known for adopting new mobile data services early. Moreover, handset suppliers in this region have offered a wide variety of Mobile TV devices from the start, including popular in-car devices.

Since the launch of free broadcast Mobile TV services by 1Seg in Japan in 2005, 18 million people have subscribed to the service. 1Seg's competitor, MBCo however had to close down its Mobile TV business as it required monthly subscription fee payments from its subscribers.

In South Korea, more than one third of the country's mobile users subscribe to broadcast Mobile TV services, mostly via the terrestrial network using the T-DMB standard. However, the Mobile TV business reports an accumulated loss of over US$100 million, due to the fact that the service is provided free of charge and advertising revenues do not cover the costs of operation.

In China, China Satellite Mobile Broadcasting Corporation launched a CMMB-based, free to air Mobile TV service in July 2008. Beginning 2009 the service has already attracted 1.2 million subscribers. Given that the service is free to air and that over 200 types of CMMB-enabled devices are available on the market, Arthur D. Little expects rapid mass-market adoption of the service.

Europe – Low subscriber figures but mobile operators use Mobile TV to sell high-value service bundles and to increase customer loyalty

All major broadcast Mobile TV networks in Europe use the DVB-H standard. This could potentially lead to lower end-user prices. But the use of a common standard has yet not led to substantial subscriber numbers in all markets, as the common standard has not resulted in low subscription fees for the end-user.

Italian providers of broadcast Mobile TV services have had the greatest success in attracting subscribers. H3G launched the first platform. Mediaset operates a second broadcast Mobile TV platform offering wholesale services to Vodafone and TIM. So far, H3G, TIM and Vodafone have together attracted 1.2 million users. A key success factor for subscriber uptake is the relatively early launch of broadcast Mobile TV services in 2006, just in time for the World Football Championships.

A less successful example is Finland where broadcast Mobile TV services have been launched in December 2006. A rather unattractive bouquet of channels enticed only 5,000 subscribers.

Austria, Switzerland and the Netherlands all launched broadcast Mobile TV services in 2008 via the DVB-H standard. So far none of these markets have reached the projected subscriber uptake and attracted more than a few thousand subscribers. However, broadcast Mobile TV network operators across Europe are working on improving their business models. Some operators are packaging Mobile TV services in high-value service bundles in order to acquire customers for their core business. Competing mobile operators recognized the success of the bundling approach and are starting to follow suit.

US – A proprietary Mobile TV standard with so far limited subscriber uptake

In the US, Qualcomm made substantial investments in spectrum acquisition and deployment of a nationwide broadcast Mobile TV network. Qualcomm acts as a wholesaler, promoting its proprietary MediaFLO standard. Although US users are known as heavy consumers of data services, broadcast Mobile TV has still only attracted 1 million users to date. Qualcomm continuous to push its technologically advanced MediaFLO standard. It has, for example, recently acquired spectrum suitable for MediaFLO in the UK.

Ways to Improve the Mobile TV Business

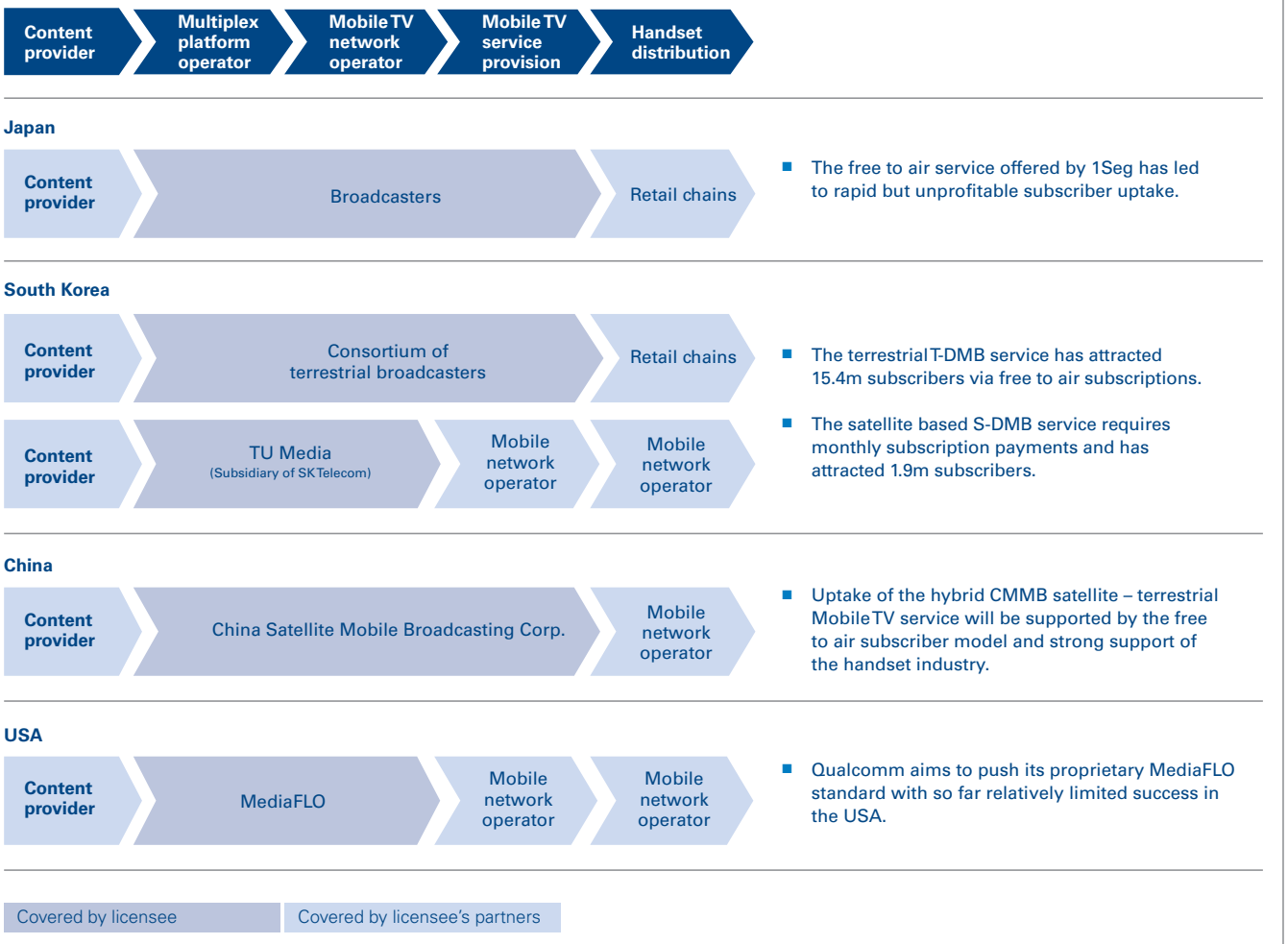
Many regulators around the world are preparing tenders for broadcast Mobile TV licenses and can learn important lessons from the success or failure of past tender processes and the resulting Mobile TV eco-systems.

Arthur D. Little has benchmarked how the Mobile TV license tender affects the set-up of a Mobile TV eco-system and how the eco-system along the value chain affects end-user uptake (see figures 2 & 3).

South Korea and Japan show two business models, each of which offers Mobile TV services free of charge to end-users without direct involvement by mobile operators. These models have delivered the highest subscriber uptake anywhere in the world.

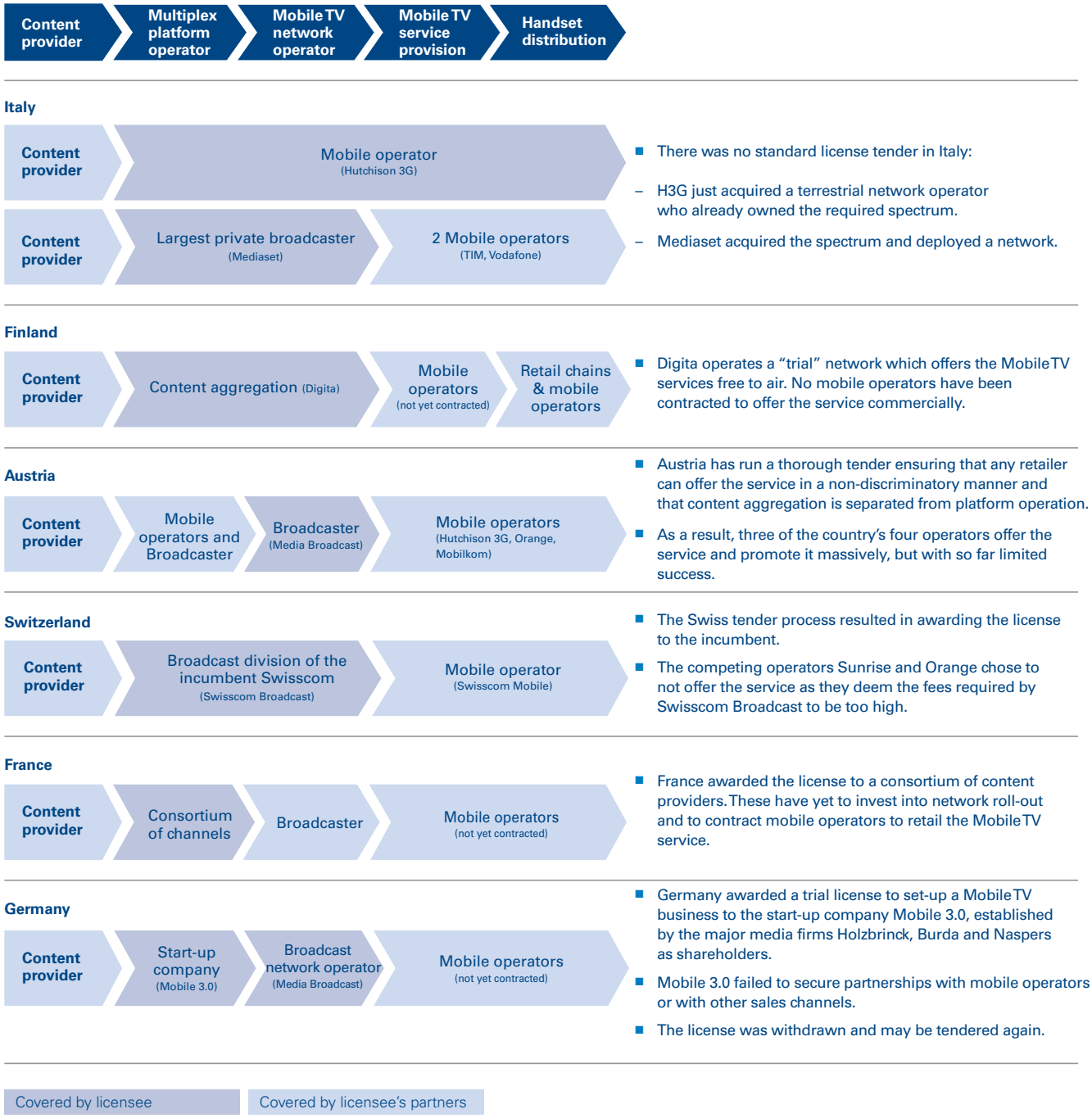
By contrast, the S-DMB satellite-based service in South Korea and the MediaFLO service in the US are subscription-based and have shown only limited subscriber uptake so far.

Figure 2. Broadcast Mobile TV business models in Asia and in the USA



Source: Arthur D. Little analysis

Figure 3. Broadcast Mobile TV business models in Europe



Source: Arthur D. Little analysis

Our benchmarks of Mobile TV eco-systems in Europe indicate the importance of the design of license tender processes.

The tender held by the Austrian regulator has led to a very appealing Mobile TV eco-system. Under the terms of the tender, the regulator required a clear separation between the Mobile TV licensee and the content aggregator. As a result, none of the mobile operators was awarded the license. Therefore, none of the mobile operators felt left out. In consequence, three of Austria's four mobile operators are clients of the Mobile TV broadcast network operator Media Broadcast and promote the service in the end-user market.

Further, strong competition among four bidders has led to a low wholesale price for both the network service and for the content in the base package. Media Broadcast also charges its clients, the mobile operators, only variable fees per subscriber. All these factors promote end-user uptake.

Other tender processes in Europe have led to less appealing Mobile TV eco-systems:

- The Swiss telecommunications regulator ComCom has awarded the licence to Swisscom Broadcast, a subsidiary of the incumbent Swisscom. While Swisscom Mobile offers Mobile TV to its customers, Orange and Sunrise chose to not offer Mobile TV so that over 40% of the market's mobile users cannot adopt the service without changing their supplier.
- In Germany the license was temporarily awarded to Mobile 3.0, which could however not secure any mobile operator nor any other partner to provide a sales channel. In consequence, the license was revoked.

Given that the uptake of broadcast Mobile TV in Europe has been limited, we suggest that regulators create a framework that best supports the future viability of Mobile TV businesses.

They can, for example:

- Keep network roll-out obligations moderate.
- Oblige the operator to rapidly launch the Mobile TV service in key cities.
- Set reasonable license fees and reasonable fees for spectrum usage.
- Grant flexibility on the provided content.
- Award the license to a consortium which is able to provide an end-to-end solution.
- Strengthen the position of the licensee who bears the investment risk in negotiations (e.g. with content providers).

All key players need to offer their contributions along the value chain at lower costs

A key challenge for the broadcast Mobile TV business is to realize a reasonable profit margin to recover investments. The challenge is to enable profitability already at low subscriber numbers with monthly subscription fees not exceeding €5-10.

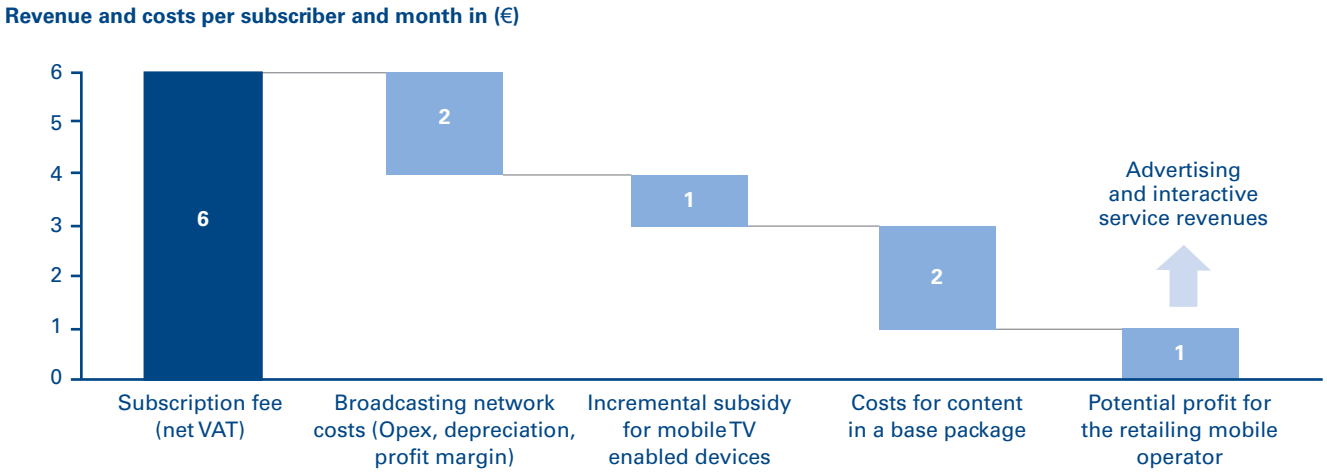
Therefore, players need to improve the key cost positions. To illustrate this, we show a typical revenue and cost structure which reflects many business projections we have seen for a mature Mobile TV business (see figure 4). Our example assumes that 10% of mobile users in a given market will have adopted the Mobile TV service 5 years after service launch at a monthly fee of €6. Even then, mobile operators still realize only €1 profit per month and per subscriber in our example due to three main cost blocks:

- Costs to operate the Mobile TV broadcast network.
- Costs for content.
- Costs for incremental Mobile TV handset subsidies.

The players along the value chain need to continue to work on improving the economics outlined in this example. They can contribute by:

- Lowering the costs of rolling out and operating the network, e.g. by using site-sharing, by ensuring low prices for infrastructure sourcing or by using cost efficient ways to transmit the signal to the broadcasting sites.
- Providing less expensive Mobile TV-enabled handsets, e.g. by taking advantage of the falling prices of chipsets and of large displays.
- Reducing the costs for content, e.g. by re-using existing content or by partially financing content costs through advertising.

Figure 4. Exemplary revenue and cost structure



Source: Arthur D. Little analysis

Key players work on improving the service and price attractivity of Mobile TV services to end-users

A key way to reduce end-user prices is by including advertising into the Mobile TV channels. However, so far the expectations put into the revenue generation potential of Mobile TV advertising have yet to materialize.

At the same time, players work on improving the attractiveness of broadcast Mobile TV by:

- Continuing to develop the density of the broadcast network with a focus on improving indoor reception.
- Providing Mobile TV services via hybrid networks that combine Mobile TV via 3G streaming and Mobile TV broadcast.
- Enhancing the attractiveness of channel bouquets by providing "made for mobile" TV channels.
- Improving the variety and availability of Mobile TV-enabled devices. Nokia, for example, now offers a low-priced Bluetooth dongle that receives the DVB-H signal and enables users to watch DVB-H based Mobile TV on phones already owned by users. They therefore do not need to buy a new, at times expensive and bulky handset.

Mobile operators need to factor in acquistion, retention and network offloading effects

Mobile operators should recognize that broadcast Mobile TV services offers two important benefits in addition to the prospect of launching a directly profitable service:

- Mobile TV allows mobile operators to acquire and retain customers for their core communication business.
- Mobile TV enables operators to offload network traffic from their 3G networks to broadcast Mobile TV networks.

Hybrid networks have the potential to reduce operating costs and network investments per subscriber

While the industry works on improving the business outlook for terrestrial broadcast Mobile TV networks, it is already working on the next generation of broadcast Mobile TV networks. These combine a satellite-based service with terrestrial repeater networks. The satellite signal can cover an entire region and can provide a different set of channels for every country market. The terrestrial repeater network is used to provide good coverage in urban areas and indoors. The key barriers for these services are the need for national regulators to align licenses for the required spectrum as well as the precondition that a consortium of mobile operators can secure financing for the massive investments for satellite launch or satellite transponder rental.

At least three major consortia are preparing their business concepts and plan to launch still in 2009. Given the current credit crunch, these plans may see delay.

- China Satellite Mobile Broadcasting Corporation already operates a terrestrial broadcast Mobile TV network, with over 1 million subscribers at the end of 2008. It intends to launch a satellite in 2009 to ensure nationwide coverage of the Mobile TV signal.
- The European Commission is currently running a tender for a satellite-based Mobile TV service. Four bids have been submitted and the process is expected to conclude in late 2009. The bids submitted plan to use the DVB-SH standard which can be combined with existing DVB-H services.
- Satellite2mobile, based in Dubai, aims to launch a satellite-based Mobile TV service covering the Middle East and North Africa.

At the same time, hybrid unicast/broadcast technologies such as WCDMA MBMS or CDMA BCMCS are beginning to mature. Operators can re-use their existing networks and frequencies to take advantage of these technologies, but handset availability is limited. Moreover, providing Mobile TV services via these standards will consume a significant amount of 3G network capacity, which is becoming increasingly scarce as the result of the uptake of mobile broadband in many markets.

Both types of hybrid networks have the potential to reduce the operating costs and network investments per subscriber:

- Hybrid terrestrial satellite networks cover an entire world region, typically spreading the investment costs over several hundred million addressable mobile subscribers.
- Hybrid unicast/broadcast networks limit investment costs by re-using infrastructure and spectrum of mobile network operators.

Four Hypotheses to Ensure Success

Like many new data services, Mobile TV has disappointed initial expectations. However, it still has considerable potential to become a mass-market service simply because it combines the two mass media TV and mobile communications. The strong subscriber uptake in Japan, South Korea and Italy underlines that potential.

Arthur D. Little offers four hypotheses on how those involved in Mobile TV businesses can improve their chances of success:

1. Regulators need to provide a framework that provides room for a profitable Mobile TV business.

Regulators should take a neutral stance on technology, giving license bidders the freedom to select the optimal broadcast Mobile TV standard for the topography and the given spectrum in a market.

Broadcast Mobile TV network operators should be encouraged to re-use existing broadcasting or mobile network sites. The resulting network investment savings lead to lower prices for end-users.

Concepts offering hybrid 3G streaming/broadcast Mobile TV services should be favored by regulators. Wider coverage and increased channel offerings lead to an improved user experience.

Mobile TV licensees need to be obliged to provide all parties willing to retail Mobile TV services at non-discriminatory conditions. This should motivate several mobile operators and other sales partners to retail the Mobile TV service, thus creating healthy competition for end-users.

Regulators should favor bidders that procure content at reasonable costs while providing an attractive range of channels. This is achieved by favoring concepts that offset content costs through advertising or value-added services.

Regulators should adopt the role of a moderator to facilitate cooperation between the media and telecommunication industries to support the development of a broadcast Mobile TV service. Sustainable cooperation among competing players is crucial to amortize the cost of rolling out a single broadcast Mobile TV network in a country.

2. All players along the value chain need to reduce the price for the service they contribute to the Mobile TV business.

Infrastructure suppliers need to work on cost-efficient solutions for network deployment, e.g. by:

- Providing transmitters which transmit several signals (e.g. DVB-T and DVB-H).
- Providing in-band Mobile TV formats that deliver Mobile TV signals simultaneously with a broadcaster's fixed digital TV service.

Handset suppliers can support a wider adoption of Mobile TV by:

- Providing affordable, mass-market devices and not just high-end devices.
- Providing dongles, which receive the broadcast Mobile TV signal and transmit it via Bluetooth to handsets. Such receivers broaden the range of mobile devices on which Mobile TV can be watched substantially, including devices that enjoy high sales such as iPhones, Blackberry and similar phones.
- Providing broadcast Mobile TV receivers for laptops.

Content providers have several levers to reduce the price for content. They can, e.g:

- Leverage existing content for stationary or IPTV platforms for the new Mobile TV platform.
- Seek to finance parts of the content costs via advertising and/or interactive services.
- Ask collection societies to refrain from charging full fees to support the uptake of Mobile TV.

Mobile TV network operators should offer Mobile TV as part of a high value service package or simply at attractive prices in order to increase customer loyalty.

3. The usability and attractiveness of Mobile TV services to end-users need to be improved.

There are several levers to improve the attractiveness of Mobile TV services:

- The coverage needs to be improved, e.g via hybrid ESGs that select the optimal reception from broadcast and streaming signals.
- Interactive services tailored to Mobile TV increase the attractiveness of broadcast Mobile TV services.
- Improved display quality, enhanced video compression, battery life and energy efficiency further improve the user experience.

4. All players should seek to lower operating costs and investment need per addressable subscriber by deploying hybrid Mobile TV networks.

- Hybrid satellite/terrestrial networks cover entire world regions, leading to substantial economies of scale.
- Hybrid unicast/broadcast standards lead to lower investment requirements and enable operators to offer Mobile TV on frequencies they already own.

Conclusion

Mobile TV remains a new and complex business at the crossroads of the media/TV and broadcast/ telecommunication industries.

While there is no proven Mobile TV business model around the world so far, the four trends stated in our hypothesis lead to continuous improvements of Mobile TV eco-systems. We therefore remain positive on the prospects of Mobile TV.

So far, 40 million people watch broadcast Mobile TV and we expect it to be 140 million or more by the end of 2011. We therefore recommend to executives to stay tuned rather than to switch off.

Glossary

Abbreviation	Explanation
3G	Third Generation Networks
BCMCS	Broadcast and Multicast Services
CAS	Conditional Access System
CMMB	China Multimedia Mobile Broadcasting
DRM	Digital Rights Management
DVB-H	Digital Video Broadcasting-Handheld
DVB-SH	Digital Video Broadcasting -Satellite services to Handhelds
H3G	Hutchison 3G
HSPA	High Speed Packet Access
ISDB-T	Integrated Services Digital Broadcasting-Terrestrial
ISMA	Internet Streaming Media Alliance
KTF	Korea Telecom Fretel
LGT	LG Telecom
MBCO	Media Broadcasting Corporation
MBMS	Multimedia Broadcast Multicast Service

Abbreviation	Explanation
MediaFLO	Media Forward Link Only
NEC	NEC Corporation
NTT DoCoMo	NTT Communications
OMA BCAST	Open Mobile Alliance for Mobile Broadcast Services
S-DMB	Satellite-Digital Multimedia Broadcasting
SKT	SK Telecom
T-DMB	Terrestrial-Digital Multimedia Broadcasting
TIM	Telecom Italia Mobile
UMTS	Universal Mobile Telecommunications System
VAT	Value Added Tax
W-CDMA	Wideband-Code Division Multiple Access
ZTE	Zhong Xing Telecommunication Equipment Company Limited

Contact

If you would like more information or to arrange an informal discussion on the issues raised here and how they affect your business, please contact:

Austria
Karim Taga
taga.karim@adlittle.com

Belgium
Jean Fisch
fisch.jean@adlittle.com

China
Jian Xu
xu.jian@adlittle.com

Czech Republic
Dean Brabec
brabec.dean@adlittle.com

France
Didier Levy
levy.didier@adlittle.com

Germany
Michael Opitz
opitz.michael@adlittle.com

Italy
Giancarlo Agresti
agresti.giancarlo@adlittle.com

India
Srini Srinivasan
srinivasan.srini@adlittle.com

Japan
Yoshikazu Matsuoka
matsuoka.yoshikazu@adlittle.com

Korea
Daesoon Hong
hong.daesoon@adlittle.com

Malaysia & Singapore
Thomas Kuruvilla
kuruvilla.thomas@adlittle.com

Middle East
Thomas Kuruvilla
kuruvilla.thomas@adlittle.com

Nordic Countries
Martin Glaumann
glaumann.martin@adlittle.com

The Netherlands
Martijn Eikelenboom
eikelenboom.martijn@adlittle.com

Spain
Carlos Abad
abad.carlos@adlittle.com

Switzerland
Karim Taga
taga.karim@adlittle.com

UK
Richard Swinford
Swinford.richard@adlittle.com

USA
John W. Brennan
brennan.john@adlittle.com

Asia Remains the Leading Mobile TV Region

Some broadcast Mobile TV businesses have achieved high subscriber figures – but a genuine example of a commercially successful Mobile TV business has yet to emerge anywhere worldwide.

Arthur D. Little

Arthur D. Little, founded in 1886, is a global leader in management consultancy, linking strategy, innovation and technology with deep industry knowledge. We offer our clients sustainable solutions to their most complex business problems. Arthur D. Little has a collaborative client engagement style, exceptional people and a firm-wide commitment to quality and integrity. The firm has over 30 offices worldwide. With its partner Altran Technologies, Arthur D. Little has access to a network of over 16,000 professionals. Arthur D. Little is proud to serve many of the Fortune 100 companies globally, in addition to many other leading firms and public sector organizations. For further information please visit www.adl.com

Arthur D. Little uses innovation in products, services, technologies, process and business models to help you achieve growth in the TIME (Telecoms, Information, Media and Electronics) sectors. Arthur D. Little has deep knowledge of the telecoms and media sector, based on extensive client work, addressing market analysis, strategy & performance improvement for operators and content providers. In the Mobile TV sector our TIME Practice has advised multiple operators, broadcasters and regulatory authorities around the world. Understanding new technology and market trends is crucial to success in Mobile TV. At Arthur D. Little, we can help you develop the strategies and resources you require to capitalize on these emerging Mobile TV businesses.

This report is printed on process chlorine free paper made from 100% recycled post consumer waste.

www.adl.com/mobiletv