



**Evolution of the terrestrial TV
distribution methods :**

Threat or Opportunity?

The domains that were primarily investigated are :

- A) the emergence of new forms of video distribution namely :
 - DVB-T,
 - TVoDSL, TVoWimax
 - TV distribution on mobile infrastructures such as DVB-H, DMB, 3G, Mediaflo and HSPDA

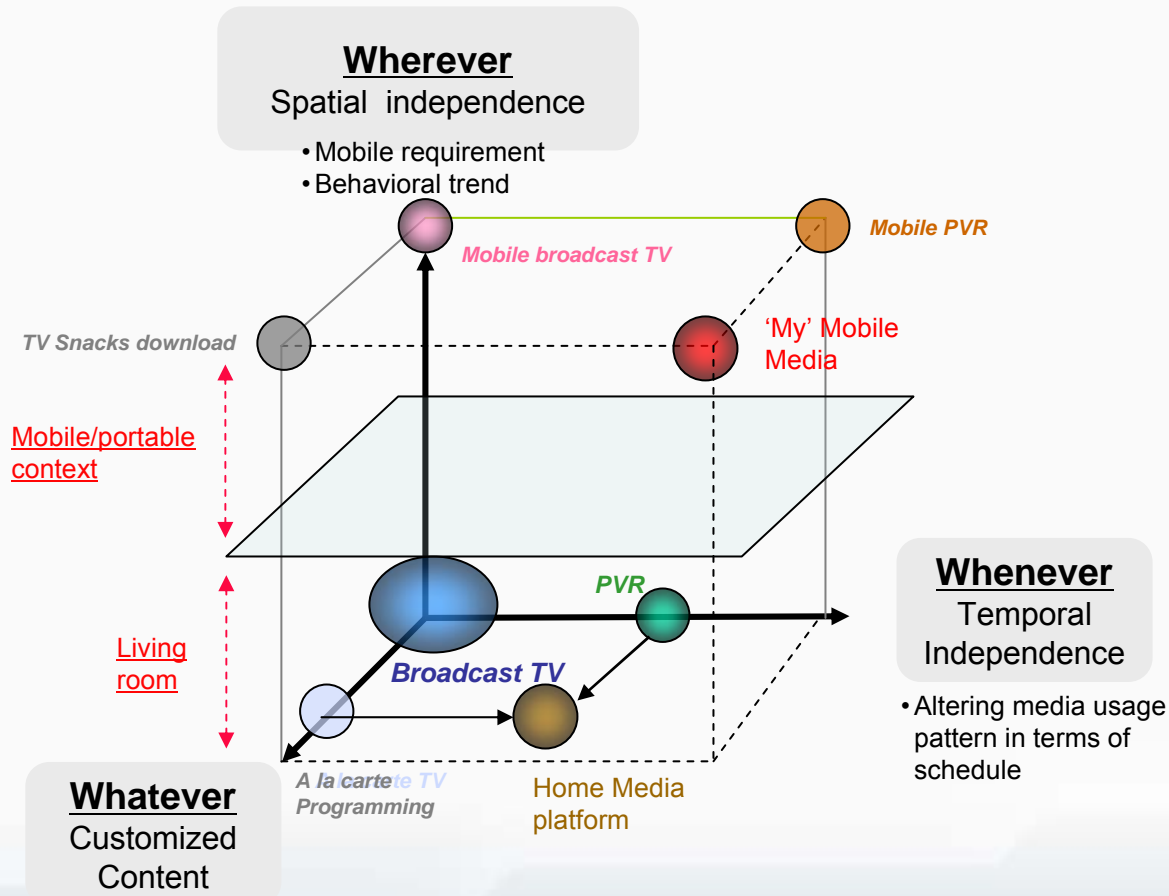
- B) the emergence of new TV consumption patterns such as :
 - Personalization : on demand programming, de-linearized programs (time shifting)
 - Interactivity : TV programming making use of online real time return path
 - Mobility : linear consumption of TV on the move (space shifting)
 - Portability: combination of time shifting and space shifting

Agenda

- **SES view of the evolution of TV consumption patterns**
- **SES view of the evolution of the competitive landscape**
- **The impact of these evolution on SES clients : the broadcasters**
- **The key differentiation of SES GLOBAL**
- **Conclusion**

Evolution of TV - framework

TV consumption is expected to progressively evolve towards usages that are radically different from the model of linear Broadcasted TV in the living room



- TV service providers will gradually provide more control to the customer as far as :
 - What the customer watches by providing the ability to the customer to “cherry pick“ some of the broadcast à la carte or simply to consume on demand
 - When the customer watches by enabling the customer to reschedule the broadcast to fit his/her agenda
 - Where the customer watches by enabling the customer to access his favourite content from devices that are not necessarily located in his living room

We expect the evolution of TV services (2010-2015) to progressively lead to:

- More TV screens as a consequence of the emergence of TV systems adapted to new usages
- More time spent watching TV due to better fit between devices and context of usage :
- An even better TV experience mainly driven by the emergence of High Definition TV as “the core innovation” of the linear TV market as known today

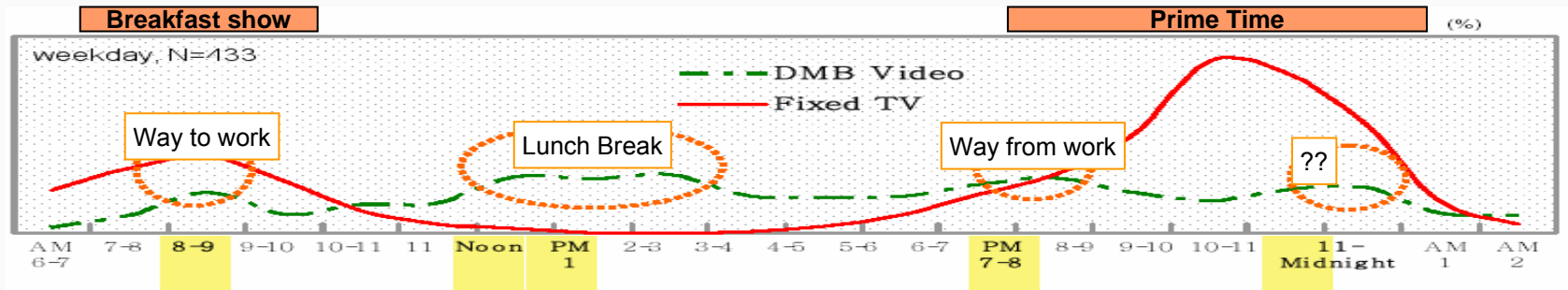
We expect more TV screens as a result of the emergence of TV systems adapted to new usages :

- The installed base of TV-enabled Mobile devices is set to dramatically increase due to cellphone subsidization policies and competition between the cellular operators
- Development of “Portable TV” onto the PC addressing the nomadic viewers is set to increase with the advent of selected “web TV” services
- The number of TV screens per households is set to increase as a result of mass adoption of Home Media Networks

Evolution of the TV – more time watching TV

We expect more time spent watching TV due to better fit between devices and context of usage :

- Place shifted TV : Early commercial experiences in Europe and US with watching TV via the mobile demonstrates that this usage is complementary to watching TV in the living room :



Source: TU Media

- Time shifted TV : Early commercial experiences with PVR based time shifted TV in USA, UK and Germany demonstrate that PVR increases the time spent watching TV

We expect that TV will evolve towards an even better entertainment experience, mainly driven by the emergence of HDTV :

All prerequisites for market development growth exist :

- The HDTV market creation is driven by a strong eco-system of content providers that have a long tradition of TV innovation and can leverage both strong brands and massive customer bases
- TV Production in HDTV is set to grow exponentially with leading channels investing
- The penetration of “HD ready” screens is growing exponentially

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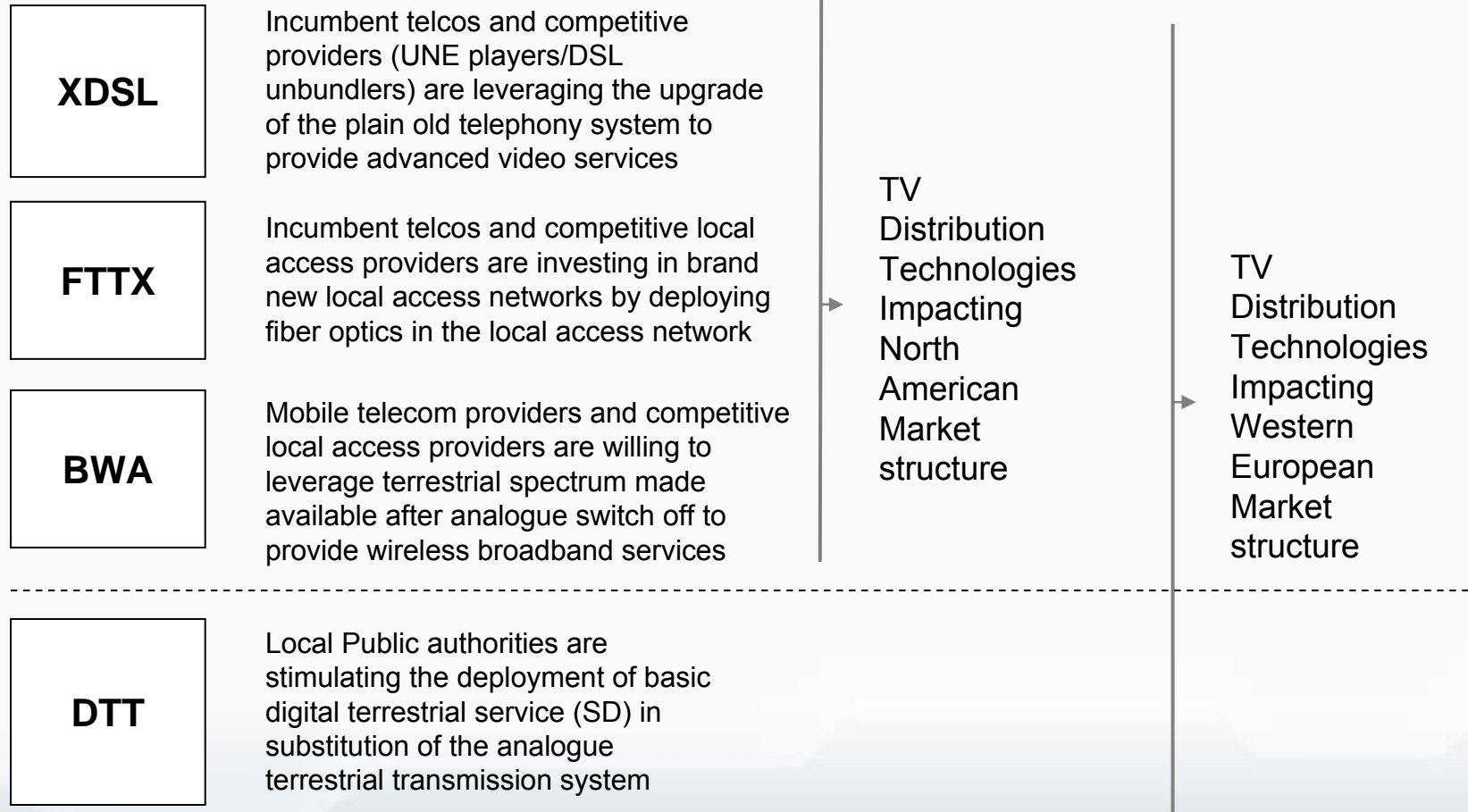
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We expect to see the TV competitive landscape evolve in 3 directions :

- We expect the SD TV distribution market competitive intensity to increase as a consequence of the development of alternative terrestrial TV distribution infrastructures :
- We expect the competitive intensity to reduce when HDTV becomes the standard :
- We expect The convergence of the economics of the telecom and media markets : resulting from the cross subsidization models such as the 'triple/quadruple' plays to impact the distribution models

Competitive Landscape – competing technologies

On top of the historical cable technologies , four upcoming technologies are likely to be deployed and to impact the competitive structure of the video distribution



Competitive Landscape – cable TV distribution

The Cable industry presents a very different strategic threat in Europe and in USA, hence its impact on the evolution of the TV distribution market is expected to be dramatically different :

	Europe	USA
Reach	<ul style="list-style-type: none"> • Limited reach in large countries • Limited penetration of homes passed • Still in transition from analogue 	<ul style="list-style-type: none"> • 89 % homes passed • 79 % homes connected • virtually 100% 'digital' ready
Financial Strength	<ul style="list-style-type: none"> • Debt loaded due to network investment or MandA activities • opex loaded by SAC and Churn levels 	<ul style="list-style-type: none"> • recovering from 100 Bn USD investment plan over 10 years • Leveraging the economics of 3ple play in SAC and in retention programs
HD readiness	<ul style="list-style-type: none"> • Very Limited due to bandwidth limitation • lack of availability of CPE 	<ul style="list-style-type: none"> • Network capable but limited by simulcast
Technology Plan	<ul style="list-style-type: none"> • Priority on development of High speed Data and voice services to support 3ple play • Limited investment in Docsis 3.0 • Leveraging satellite or DSL to address patchy nature of network coverage 	<ul style="list-style-type: none"> • Leveraging of Docis3.0 to provide fiber like data connectivity to the Household • Leveraging return path of cable network in the provision of "on demand" /PVR based TV services
Conclusion :	<ul style="list-style-type: none"> • Cable in Europe will remain a moderate threat to DTH in most large European countries due to its lack of market power (coverage and financial) • Further consolidation expected in large Countries France / Germany but not set to dramatically impact the DTH market 	<ul style="list-style-type: none"> • Cable in USA is set to remain the dominant TV and broadband access infrastructure • Emergence of IP downstream transmission capacity of up to 100mbps is expected to stimulate hybrid (IP-unicast/DVB TV-broadcast) transmission models enabling cable to match the telecom operator unicast approach .

Competitive Landscape – Telco TV distribution

The incumbent Telco players' motivations to get into Video are not dramatically different in Europe and in USA...they are purely defensive :

- The telco core business (providing communications services to the HH) is threatened by competitive players leveraging the broadband access into voice services and leveraging TV as a differentiator over the incumbent 'dry' broadband access
- The incumbent telcos are losing significant numbers of retail clients due to broadband competition and due to mobile phone substitution for voice services
 - In the USA, the RBOCs lost 44 million access lines on 187 millions between 1997 and 2004. The trend continued in 2005
 - In Europe, mobile substitution for voice and cable substitution for broadband access is reducing the incumbent telco access line to less than 65 % of the households in most exposed countries (Belgium, NL, France)

Competitive Landscape – Telco TV distribution

The Telecom TV distribution plays will be limited in reach due to several technical and commercial factors :

– **Commercial factors** limiting the telecom operator's ability to provide TV service:

- The telco must retain the broadband internet access relation with the HH to be in a position to provide TV service ...TV market is a subset of the broadband market.
- The household must be ready to pay for TV as the TV distribution model of the telco is usually a pay service

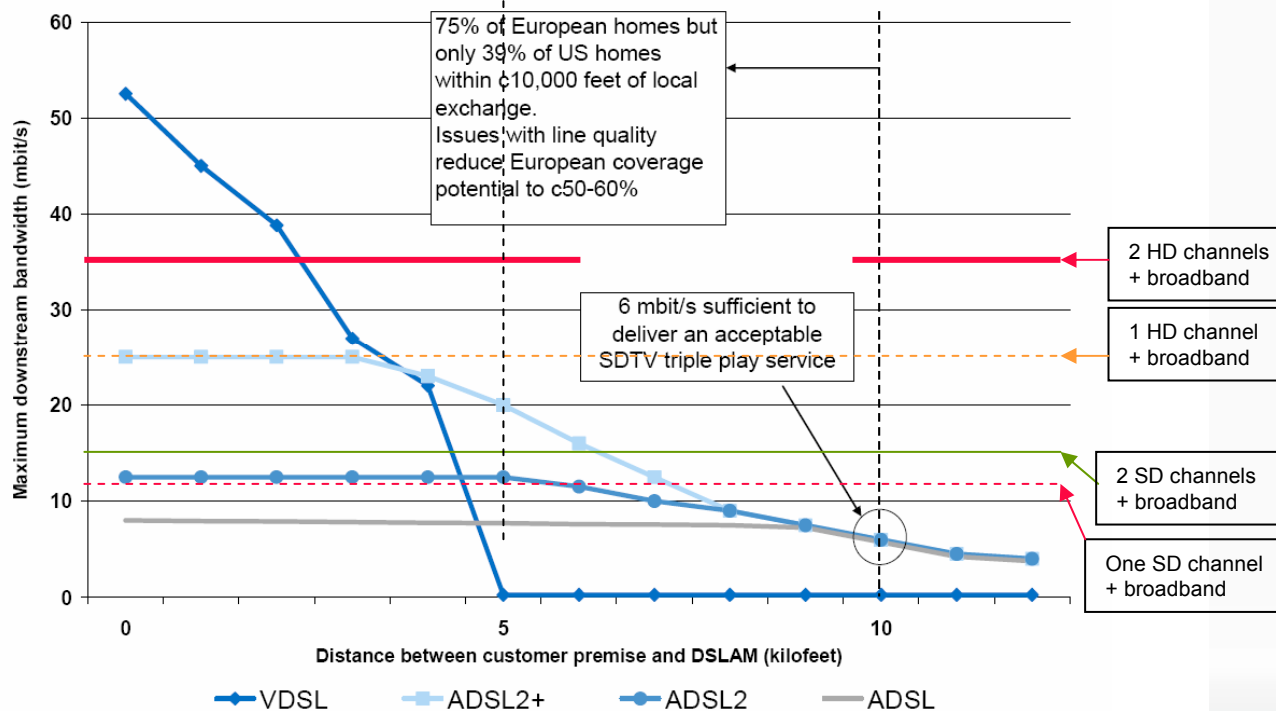
– **Technical factors** required for the telecom operator to provide TV service

- The broadband access provided by the telco must be TV capable. Depending on the technology deployed , the Telco ability to provide simultaneous SDTV services to multiple (2) TV screens and high speed data will be limited
- Assuming that by the end of the decade most of the linear TV will be watched in HDTV format , and that there will be more than one HDTV capable set per household, the only ways for the telco to provide TV signal to the upper end of the TV market would be to either deploy Fiber optics to the curb with VDSL for access or to deploy Fiber to the Home

Competitive Landscape – Telco TV distribution

Telecom operators that are not going for FTTX type of strategies will be faced with a bandwidth crunch as soon as the HDTV kicks in .

Downstream bandwidth (mbit/s) versus loop length (thousands of feet)

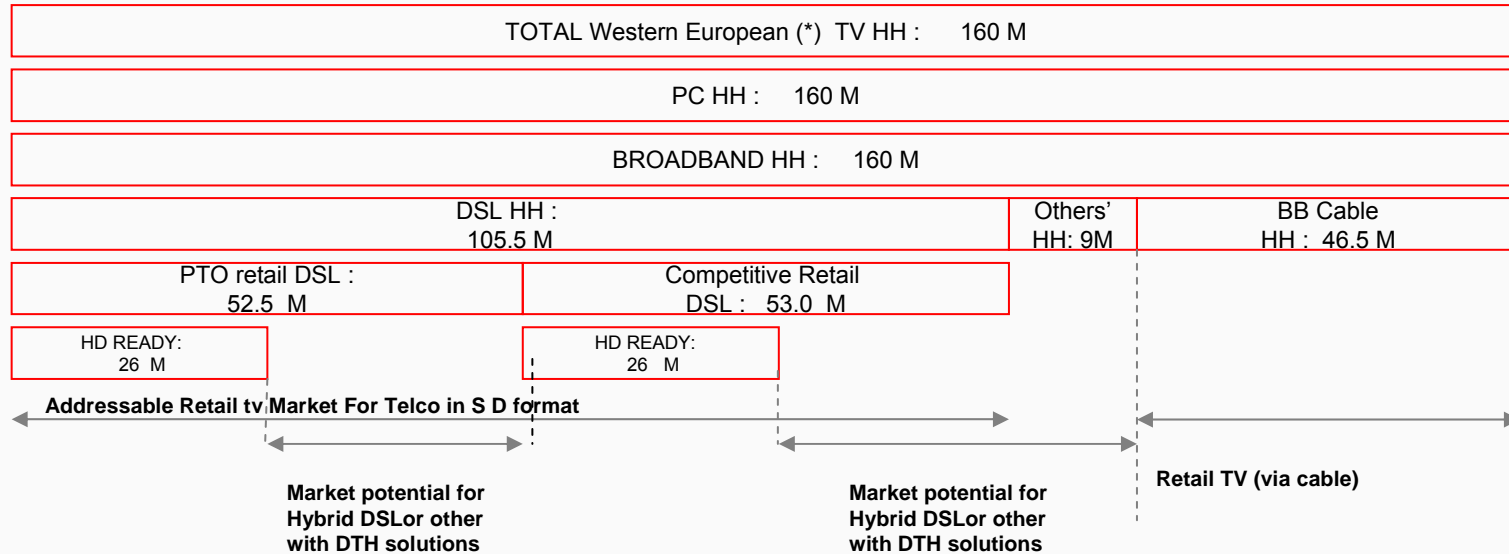


- Technology deployed by the incumbent PTO's accessing Europe will not enable them to provide multiple HDTV streams and high speed connectivity to more than 50% of the households due to the distance between the local exchange and the homes
- Extensive FTTC build out combined with VDSL technology can do the job. Such build out plans are announced in Germany, France and effectively deployed in parts of Benelux and Switzerland.
- US go FTTX but reaching fewer than 35% of homes...by 2010

Source: Goldman Sachs Research estimates based on data from Alcatel and the DSL forum.

Competitive Landscape – Telco TV distribution

In both Europe and North America, the potential reach of the Telco by 2010 to support the distribution of multiple HDTV channels will be limited by their broadband market share and their access technology.



Conclusion :

- We don't expect the Telco TV distribution to present a major threat for the DTH business.
- With the advent of HDTV we see a potential for satellite to promote triple play through hybrid Satellite/DSL technologies

Competitive Landscape – DTT

The DTT is mainly a “politically driven”, “Europe only” phenomenon leading to the analogue switch off by 2012 at the earliest

Reach	<ul style="list-style-type: none">• In theory must be 100 % at completion of plan (2008-2012)• In practice reach is limited to 85% in some countries due to uneconomical nature of full coverage• Still in transition from analogue in most countries except Italy and part of Germany
Financial Strength	<ul style="list-style-type: none">• Debt loaded network operators due to network investment associated with uneconomic coverage of part of population• Unclear business model (pay vs Free to air) has led to economic failure in UK, Spain and Sweden• Complex and highly regulated financial scheme
HD readiness	<ul style="list-style-type: none">• HD will be available when analogue frequencies will be redeemed ie 2008-2012 timeframe at best• HD will capture massive DTT bandwidth and hence will be limited to the supply of 30/40 channels depending on the frequency available for HDTV transmission vs Mobile TV and other Broadband Wireless Services claiming their share of the digital dividend
Technology Plan	<ul style="list-style-type: none">• 2006-2010 Priority is to develop reach for SD transmission to• 2012-2015 Priority is to secure part of the digital dividend to support HDTV and mobile TV service• 2015 -2018 HDTV deployment
Conclusion :	<ul style="list-style-type: none">• DTT in Europe is mainly driven by public policy objectives not by market forces. It is a model of the past based on heavy regulation and linear TV transmission only. This model is ideally set for free to air TV markets to the extent they can survive in the long run.• The Digital Dividends emerging from the analogue switch off will come late in the planning for advanced TV services and are likely to be shared between broadcasters, mobile operators and telecom operators therefore reducing the ability of the DTT infrastructure to compete head on with cable and DTH for the distribution of multiple HDTV signal to the households.

Competitive Landscape - Broadband wireless Access

Broadband Wireless Access technologies are not expected to emerge before the end of the decade.

WiMAX

UMTS/HSDPA

Strengths

- ▶ (U)LL / PTO bypass
- ▶ Nomadic solution / mobility potential
- ▶ Low modem cost potential (Intel Centrino)

- ▶ Network widely deployed
- ▶ Rapid deployment of software upgrade
- ▶ CPEs deploying based on subsidization programs
- ▶ True mobility, enables Quad play
- ▶ (U)LL / PTO bypass

Weaknesses

- ▶ No compliant devices deployed yet
- ▶ Time to deploy and potential environment issues
- ▶ 2 years later than HSDPA/ 10 years later than DSL
- ▶ Resistance management to wireless tech
- ▶ Unclear: Mobile license requirements
- ▶ Best effort few Mbps peak
- ▶ Not suitable for high quality video broadcast (must be complemented)
- ▶ Mobility not (yet) allowed by regulator

- ▶ Network not suited for Broadcast type of usage
- ▶ Best effort few Mbps per user at peak hours
- ▶ Not suited for high quality video broadcast to the living room
- ▶ Must be complemented with DTT or satellite to cover the wide spectrum of usages of linear TV

Potential for SES Group

Offers opportunity for wholesale feed to the Network Head end and opportunity for triple play bundle

Suitability for SES as a complement to provide triple/quadruple play solutions

Competitive Landscape – HDTV distribution

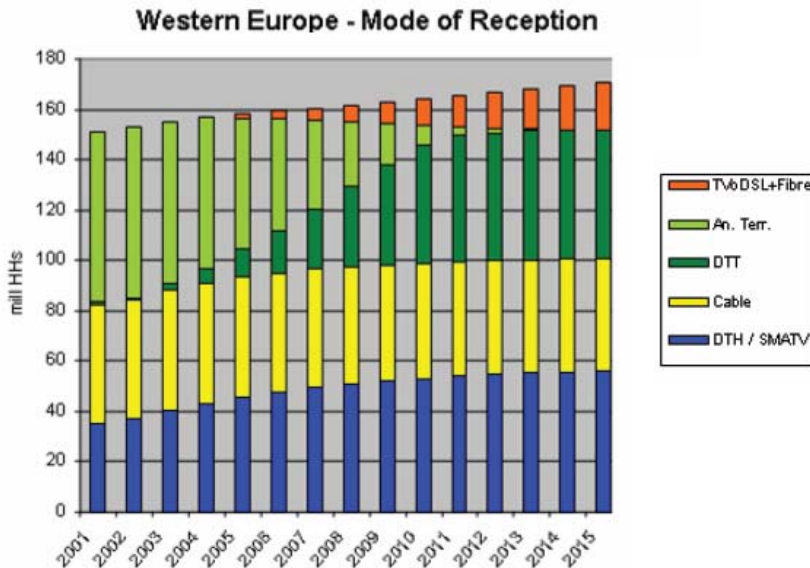
Satellite enjoys unique sustainable commercial advantages associated with its ubiquitous coverage, innovative/media eager customer base, proven service reliability and customer service...combined with a unique delivery cost advantage

	Fiber to the home (Mainly USA)	PTO – XDSL (*) (Mainly Europe)	Cable (both)	DVB-T (Mainly Europe)	Satellite
Addressable market for dual HDTV transmission and Broadband 25 mb	<ul style="list-style-type: none"> concentrated on urban areas ie less than 40 % of the addressable market in NA Time to deploy (2010) 	<ul style="list-style-type: none"> Max 50 % of Western European households by 2010 assuming VDSL is deployed massively with FTTC 	<ul style="list-style-type: none"> Max 40 % of Western European households by 2010 80 % of usa 	<ul style="list-style-type: none"> Max 85 % of households in Western Europe by 2012 Not considered for USA 	<ul style="list-style-type: none"> Virtually 100 % of households in Europe Middle East and North Africa
Main market enablers playing favourably	<ul style="list-style-type: none"> Innovation appeal to technology addicted HH Ultimate lifetime access technology , ideally suited for new build out area Unlimited bandwidth in local access 	<ul style="list-style-type: none"> Ability to “upgrade” a large customer base No change to channel to market Proved service capability Ability to leverage strong market power (branding) Limited Subscriber acquisition costs 	<ul style="list-style-type: none"> Trust of a large customer base (US/UK) Natural triple play player Market power (US) Pre-existing relationship with broadcasters 	<ul style="list-style-type: none"> Political support in most Western Europe Generally supports a free to air model / public TV service model 	<ul style="list-style-type: none"> Large, innovative, media eager customer base Strong relations with key media companies securing access to premium content HDTV capable NOW Quality, reliability and Ubiquity of service
Cost / Home passed (**)	<ul style="list-style-type: none"> ntwrk: 1300-1700 eur/ hh Nta device : 100 euro/hh 	<ul style="list-style-type: none"> ntwrk: 400-600 euro/ hh Nta device : 45 euro/hh 	<ul style="list-style-type: none"> ntwrk: 400-800 euro/ hh Nta device : 45 euro/hh 	<ul style="list-style-type: none"> ntwrk: 100 euros / hh Nta device : 40 euros/hh 	<ul style="list-style-type: none"> ntwrk: 5 euros / hh Nta device : 125 euro/hh
Time to reach 100% Homes with HDTV	US Telcos are not planning to address 100% of the market with fiber access	Countries with massive cable threat will deploy (Ger, Benelux, CH, UK)	USA: 79 % available WE : N/A – coverage to be limited to urban area	US : N/A WE : 2012-2015	100 % reach available in 2006

(*) based on VDSL – technology required to support 2HD channels + burst internet traffic

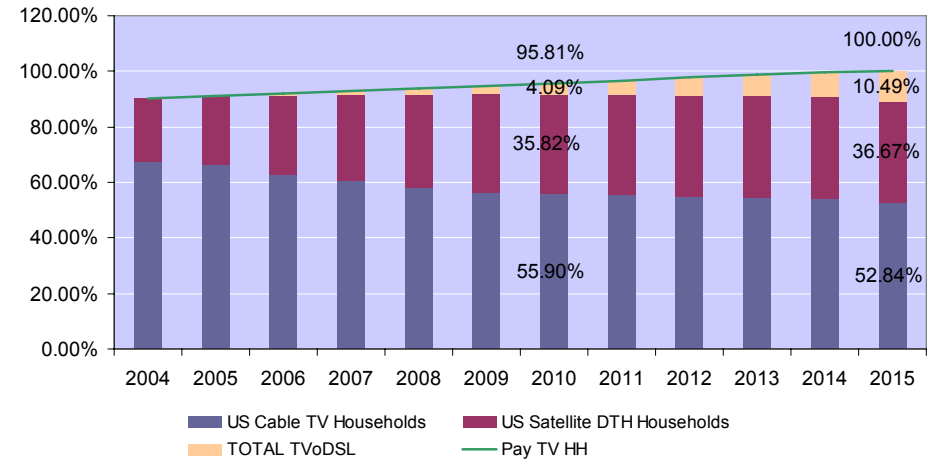
(**) cost of access network build out/home and network terminal access device at customer premises

Competitive Landscape – TV Distribution conclusion



The fragmented nature of the DSL market in Europe is creating an opportunity for Satellite to promote hybrid DTH/DSL solutions to provide a HD TV tripleplay to more than 60 million homes that are unlikely to be served by HD capable terrestrial infrastructure

US Pay TV market split - % of total TV HH's



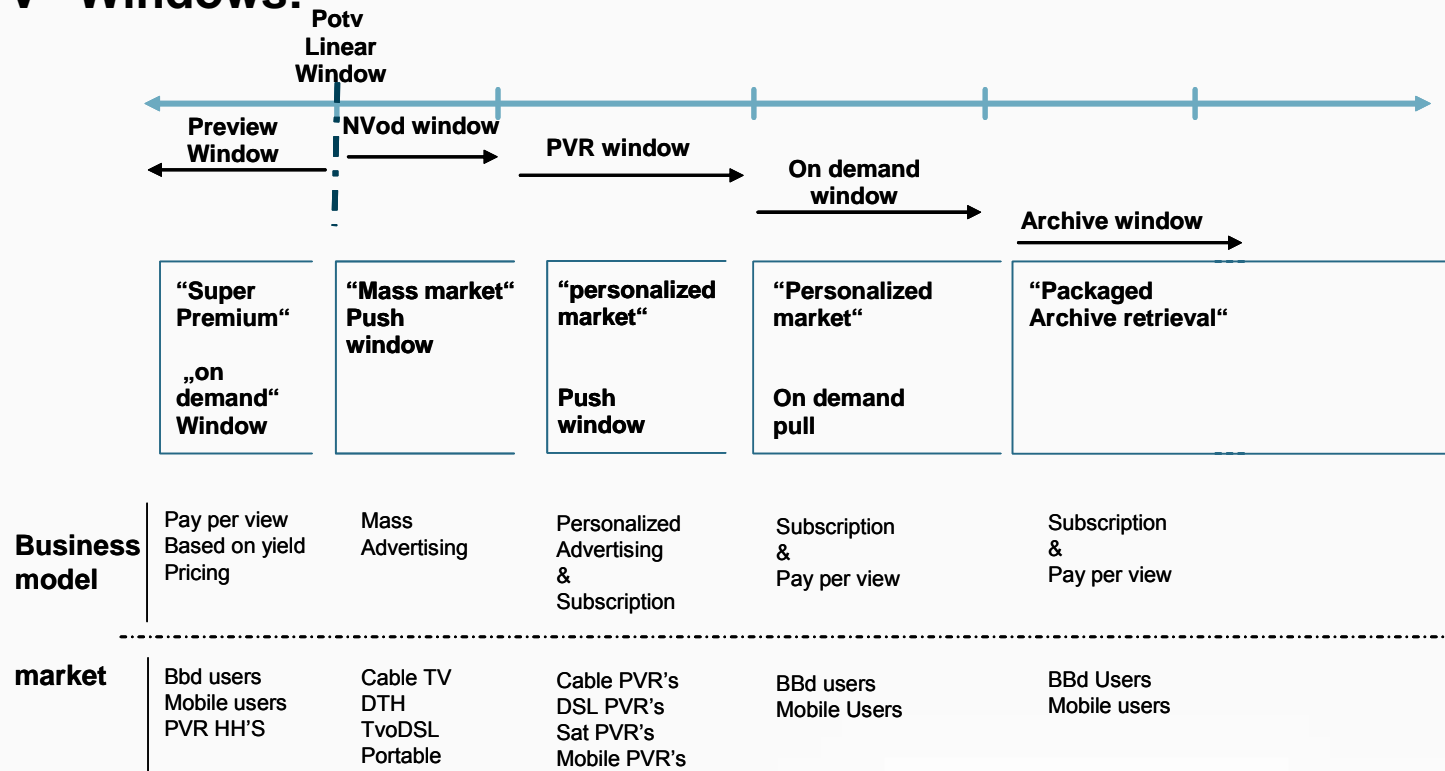
The upcoming IPTV Cable play enabled by docsis 3.0 is confirming the need for satellite to create an IP neighborhood aggregating IPTV channels to feed IP networks edge of both dominant terrestrial transmission systems, Cable and DSL/FTTH.

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Broadcaster's impact – the “TV Windows”

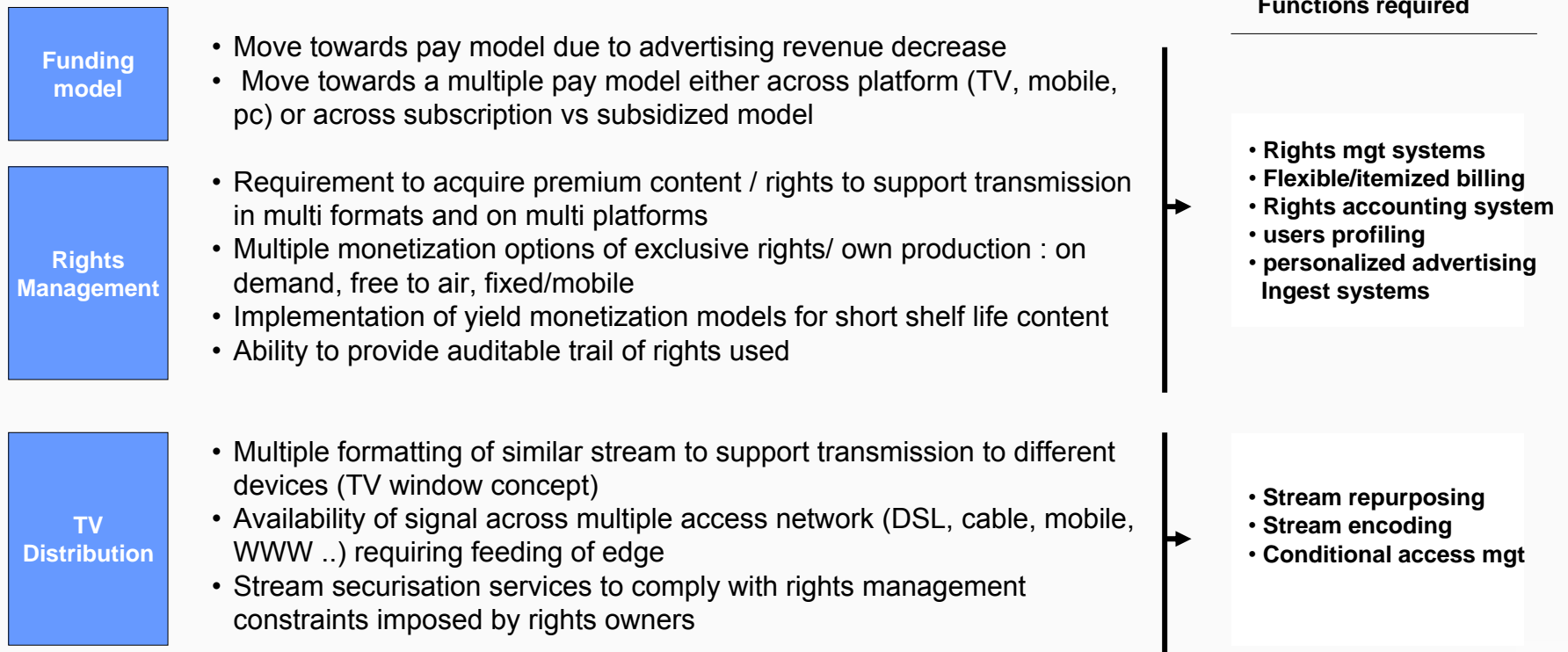
With the multiplication of screens and TV usages, we expect the broadcasters to enter into multiple content monetization models of their own productions / exclusive rights through the introduction of “TV” Windows:



Over the longer run, the TV markets will continue to move towards a pay model, or a hybrid pay/free to air model. Overall it is expected to bring additional revenues to the sector.

Broadcaster's impact – operational complexity

The broadcasters are impacted by a modification of their funding model, complexification of their business :



Only large broadcasters will be able to develop and support the operating costs associated with these functions; smaller broadcasters will be looking for external providers to manage these functions for them.

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Unlike many other satellite operators, SES had anticipated the market evolution and already addressed most of the threats and opportunities associated with the sector's evolution from an infrastructure and service standpoint :

Infrastructure

- Capacity availability to support mass market transition to HDTV in both Europe and in North America
- Extended coverage of Eastern Europe, Asia, India and Africa to support some similar market transition towards digital TV transmission

Media Services

- Acquisition of competences and technologies (APS) to enable SES to partner with its existing customer in the transitioning of analogue linear TV market to multiple TV distribution models in Europe (project Dolphin).
- Development of an IP neighborhood in NA (IP Prime) to support the emergence of IP based distribution plays of the telco (today), the cable (tomorrow)

SES group is ideally positioned to capture market growth across multiple TV markets segments

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- *IPTV-telco TV is a sub market from the broadband market, hence the IPTV market will develop to reach a relevant TV presence by 2015. Starting 2010, the IPTV market development for telecom operators that have not deployed FTTx will be limited due to the inability of their infrastructure to cope simultaneously with multiple HDTV sets and broadband internet access provision.*
- *In the meantime, the broadband market will fragment in Europe and will offer multiple opportunities for SES to combine its strengths with broadband access providers through the provision of hybrid triple play solutions based on combinations of DTH -DSL or DTH-Wimax.*
- *The development of competition between the digital TV player will lead to the emergence of new TV consumption patterns that will make the operations management and the business model of the broadcasters more complex. SES, via its platform services in Western Europe and in North America, is ideally positioned to support its current customer base to navigate the changes ahead.*
- *The rapid development of HDTV, will provide an ideal development context for Satellite between 2010-2020 since most competing infrastructures (DSL, DTT) will not be able to provide similar HD convenience and choice.*