Cable in Europe:
Delivering the Future Today
EXECUTIVE SUMMARY

The European Cable industry consistently supports the development of the European information and knowledge society by providing very high speed broadband products and a huge range of TV content. With ongoing high level investments into networks and product developments, the European Cable industry has evolved as a driving force in developing the European entertainment and communication network markets:

■ Cable provides European citizens with very high speed access to the digital space having been originally established only in order to provide access to an ever growing number and variety of TV channels.

■ The European Cable industry now provides multiplay offers, including high speed broadband access, telephony and a variety of new television-based services. A whole range of home entertainment services such as Video-on-demand (VoD) complement Cable’s multi-play portfolio. What was once a focus on “single-play” TV access has flourished into a multitude of offerings that make up “triple-play” services whilst some markets will even be seeing the emergence of “quadruple-play” which includes the addition of mobile voice and/or mobile broadband services.

■ While it used to be characterised by just uni-directional TV networks, Cable now is the leading provider of Next Generation Access (NGA).

Overall, the European Cable industry serves about 72m households and generates a turnover of €18.2 bn (€17.5bn for EU 27) with an average capital expenditure (CAPEX) rate of 25%. The cable industry’s turnover is consistently reinvested into further network build-out at rates that are above average when compared to other network service providers. This investment allows for greater levels of R&D whose innovation yields better services for increasingly sophisticated user habits across Europe.

This study shows how the European Cable industry contributes to reaching political and economic objectives of growth and employment set out by EU policy makers as well as technology-specific initiatives such as i2010. Broadband development and competition, growth & employment, innovation & investment, as well as media pluralism are important contributions that put the Cable industry at the heart of the European project.

Considering the Cable industry’s role for the European economy and in helping Europe take a global leadership role in the knowledge-based economy, the study also addresses policy scenarios which will prove to be crucial challenges for the industry to address. This study will also show that while the Cable industry is relatively small when compared to other network competitors, it possesses a remarkable capacity for stimulating competitive levels of investment and the resulting market developments in choice of products and services available across European networks – an advantage for greater Europe and its increasingly connected citizens.

Introduction to the European Cable Market

About 72m households across Europe (EU-27 plus Switzerland and Norway) are subscribers of Cable operators. A further 51m households are in Cable’s footprint, in reach of existing Cable networks and could opt to subscribe to the broadband, telephony and TV packages offered by Cable. Indeed, in addition to the totalling of “cable subscribers”, it is common to see industry figures that refer to totals of “homes passed” which is an industry standard for describing Cable’s technical reach of existing and potential customers. The Cable industry
has the potential to tap into “homes passed” and grow its subscriber base by continuing to invest in its networks in order to make offers more attractive to this dormant pool of potential customers.

Although this study looks at the European Cable market as a whole, it should be noted that the actual Cable market is far from homogenous. Europe’s cable markets differ significantly depending on structure, development stage and levels of competition and constitute what we call a “Europe of Regions”.

A comparison of the market structures reveals eight distinct clusters:

- **Benelux and Switzerland** show intense infrastructure competition supported by extensive Cable networks.
- The **Scandinavian** markets feature both high TV and broadband penetration rates.
- The fragmented **German** market shows strong broadband growth after a late start.
- Fixed-mobile substitution even for broadband is a reality in the **Mobile Broadband markets** of Austria, Portugal and Ireland.
- The **French** market has taken a leap directly into a fibre world having started later but “leapfrogging” on other infrastructure configurations.
- The **UK and Spain** began as **Triple Play** markets, where communication usage continues to drive TV take-up – and mobile follows suit.
- The **Central & Eastern European** markets are characterised by high growth, strong competition and hybrid networks.
- **Malta** is a unique **Quadruple Play** market, where the Cable operator started its own mobile network.

**Cable Basics: Product, Business Model and Network**

The standard offering of Cable operators today is described as “**Triple Play**”:

- High speed broadband offers, providing download speeds of up to 120 Mbps at an affordable price
- TV services, including TV access and Pay TV packages, Video-on-Demand (VoD), High-Definition TV (HDTV), Catch-up TV and Digital Video Recorders (DVR)
- Telephony access, often offered as a flat rate package and bundled with broadband

Some advanced operators are already making moves towards “**Quadruple Play**” with the addition of mobile voice and broadband services to their portfolio to provide one-stop-shop entertainment and communication solutions to their subscribers.

While the product offering continues to evolve over time, the **core business model of Cable operators has remained stable**. The main revenue source is subscription fees for the different services, complemented by equipment rental and sometimes feed-in fees from broadcasters. The main cost components are content costs, network operations and other business services. Depending on the stage of the market, **between 20% and 28% of the revenues are continually reinvested into the networks**. These high CAPEX figures demonstrate the continued attention to investment and innovation required to remain...
competitive in a rapidly evolving market with consumers wanting for ever more advanced services.

Large parts of state-of-the-art Cable networks are no longer covered only with (coaxial) cables, but also with optical fibre, resulting in so-called hybrid fibre coax (HFC) networks. In order to further increase capacity, European Cable operators are investing heavily into EuroDOCSIS 3.0 (see page 24) as well as in bringing fibre closer to the home, partly anticipating large fibre roll-outs by competing telecommunication players. This technology is allowing Cable players to extract increasingly higher levels of performance from a rich infrastructure network throughout Europe.

**Broadband Development and Competition**

European Cable operators are instrumental in creating sustainable infrastructure competition. Broadband penetration in active Cable markets is not only significantly higher than in DSL-dominated countries (on average plus 30% penetration in Western Europe, plus 50% in CEE countries), but high penetration rates are also reached much more quickly. This is particularly true for many of the CEE countries which would not have been able to reach their current broadband penetration rates without the heavy investments of Cable operators.

Cable offers superior speed levels to the residential user. In many countries, Cable operators now offer speed levels that are two to five times higher than the best residential offer of the telco incumbent. In doing so, Cable operators act as catalysts for greater European network investment and actually help to stimulate the investments of other telecommunication players. They thereby create an economically positive situation in which investment levels are becoming a means of competing with other service providers. In particular, the ongoing roll-out of EuroDOCSIS 3.0 by European Cable operators is forcing their fixed-line peers to react and further invest in fibre networks. No service-based competitor, be it a reseller or an LLU-based alternative carrier, has shown the same competitive impact as Cable. This casts the cable industry as one with significantly positive leverage on Europe’s drive to innovate in the information society.

The overall impact of the Cable industry on the European Broadband market emerges as rather remarkable given its relatively limited size and reach. In most European countries the telco incumbent alone has a turnover of five to six times higher than the whole national Cable industry. In some countries this ratio is even 10-18 times higher.

**Growth and Employment**

Outperforming the overall economy even in times of recession, the Cable industry consistently contributes to growth and sustainability of the European Economic Area. Since 2000, Cable revenues have grown by 10% p.a. (CAGR 2000-2008) reaching €17.7bn in 2008. Even in times of economic slowdown, Cable operators stayed on their growth trajectory regarding both revenue and network investment. This pattern is not expected to change in the current downturn.

By the end of 2008 the Cable industry directly employed about 84,000 people, 43% more than 5 years earlier. Another 94,000 jobs at European Cable suppliers and in the broadcasting sector can be directly linked to the Cable industry putting the total combined employment impact at 178,000. The Cable industry has created 53,000 additional jobs since 2003, of which 25,000 are directly with Cable operators. These jobs can be
characterised as “sustainable” in the sense that as Cable is a local service and infrastructure business, the jobs are not the sort which can be off-shored.

Most of the Cable industry’s expenditures directly benefit the European economy. All in all, Cable operators spent €12bn on the purchase of goods and services in 2008 – of which European suppliers earned approximately €8.2bn.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cable Operators</th>
<th>Suppliers</th>
<th>Broadcasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>58.4</td>
<td>25.3</td>
<td>40.5</td>
</tr>
<tr>
<td>2004</td>
<td>63.4</td>
<td>28.1</td>
<td>43.1</td>
</tr>
<tr>
<td>2005</td>
<td>68.6</td>
<td>30.5</td>
<td>46.9</td>
</tr>
<tr>
<td>2006</td>
<td>74.4</td>
<td>33.5</td>
<td>49.5</td>
</tr>
<tr>
<td>2007</td>
<td>79.2</td>
<td>36.7</td>
<td>53.1</td>
</tr>
<tr>
<td>2008</td>
<td>83.7</td>
<td>38.8</td>
<td>54.9</td>
</tr>
</tbody>
</table>

1) “Cable operators” includes jobs generated directly by cable operators as well as at outsourcing partners
Source: Solon

Investment and Innovation

Between 2003 and 2008, Cable operators have invested more than €22bn in the upgrade and build-out of networks and the introduction of new product platforms. This equals an average CAPEX of approximately 25% of revenues, which is significantly higher than the spending levels of incumbents (15%) and alternative DSL operators (19%). As Cable operators continue to tune their networks for new TV and communication services, annual investments are expected to remain at the currently high levels and part of the general business model.

Investments currently focus on expanding the NGA infrastructure by rolling out EuroDOCSIS 3.0 and bringing fibre closer to the home, which will collectively help to accelerate Cable internet downstream speed to up to 400 Mbps. With very high speed networks and new product platforms, Cable operators create room for new content offers satisfying customers’ demand for a more individualised TV experience. Innovative video
services being introduced by Cable operators include VoD, Catch-up TV and HDTV, all of them enriching the lives of Cable users.

**EuroDOCSIS 3.0 Roll-Out in Europe**

DOCSIS stands for *Data over Cable Service Interface Specification* and is a standard developed by CableLabs which defines interface requirements for cable modems involved in high-speed data distribution over Cable networks.

EuroDOCSIS 3.0, the European third generation of this standard, will continue to revolutionise what high-speed Cable broadband can deliver to consumers over the next years. Being rolled out in every major European Cable network, EuroDOCSIS 3.0 provides very high bandwidths of up to 400 Mbps to end-customers. In doing so, it renders Cable to be a strong competitor to fibre networks. As it does not require any rewiring, digging and intrusive civil works projects, it comes at a much lower cost than fibre, making it the most quick and efficient means to provide very high speed access to the consumer.

Source: Cable Europe, Solon

**Based on upgraded all-IP networks**, new telematic services and “Networked Home” applications will soon help Cable customers to manage the increasing number of entertainment and information devices at home. Convergent services will combine TV, broadband and telephony features into innovative products. Means of content delivery will be increasingly blurred while the actual content is brought into tight focus for the European consumer. The move towards mobile services will make the services of Cable operators also available “on the go”.
The Cable industry’s drive for constant innovation has a knock-on effect on related technology industries. It contributes to a healthy European hardware manufacturing industry with firms such as Philips, Pace, Kathrein, Thomson, ADB as well as to a vibrant software industry with players including NDS, Kudelski, Irdeto and Conax.

Media Pluralism and Digitisation

With large platforms for the distribution of a steadily increasing number of TV channels and innovative TV products (i.e. EPG, HDTV, DVR, VoD, Catch-up) supporting novel content delivery methods, Cable operators play the important role of agents of media pluralism. Their broadcast and copyright fees are essential contributors for financing broadcasters.

Cable operators are actively pushing the digitisation of TV customer bases. In 2008 the number of digital TV subscribers increased by 32% to 17.8m, i.e. 28% of all European Cable subscribers are already using digital TV services.

Increase in channel availability resulting from digitisation also contributes to intercultural exchange as international channels are an integral part of offered packages, while the growing offering of special interest programming supports diversity. Local TV production is especially supported by the increased availability of VoD platforms. The experience of many Cable operators shows that local productions dominate both transactions and revenue generated by VoD.

Future Challenges: Maintaining the Edge

Being the first real NGA providers with seamless Triple Play offers, Cable operators have created an important role in the European information society market. Going forward, the Cable players will need to maintain a competitive edge and continue to retain and grow their subscriber base with excellent service and innovative products. In the recent 2009 European Cable Survey [19] CEOs prioritised three strategic directions:

- **Service**: Providing excellent customer experience along the whole customer lifecycle - from sales to customer service and retention
- **Network**: Implementing EuroDOCSIS 3.0 and FTTH
- **Products**: Further expansion of the product offering including new communication and content services, move to mobile and digitisation.

Only Cable operators that excel across all dimensions will be able to maintain their competitive advantage, especially in the face of upcoming IPTV or over-the-top offerings, which both have started to eat into the base of Cable operators.

However, further market consolidation might change this picture completely. Following the consolidation of the Cable markets, both DSL and mobile operators have started to look at Cable as a way to create their own high speed access to the end-customer – without the need for renting LLU from the incumbent.

Policy Recommendations

European policy makers and regulators are crucial to the Cable industry. Both decision makers and the industry attach great importance to the roll-out of high speed broadband services with the range of both policy and commercial initiatives that naturally flow from such
infrastructure development. Cable operators remain relatively heavily regulated regarding content distribution. In the light of strongly growing TV access competition and the emergence of over-the-top content provision, several areas of media regulation do seem to need modernisation in order to keep up with the industry itself.

Considering the importance of Cable for the economy as a whole and in particular for Europe to take the lead in the knowledge-based economy, the following policy areas stand out as needing to be addressed in order to support continued growth, investment and competition by the Cable industry.

- **Supporting Cable as leading Next Generation Access network**: Infrastructure policy and the regulatory framework function best when incentivising investment in NGAs and enabling real infrastructure competition. NGA policy should be technologically-neutral, encouraging investment and innovation by all technologies including Cable. It must recognise that Cable is still the contender and thus should not be overregulated by symmetrical or technology-specific regulation.

- **Public Involvement in Broadband Markets**: Providing European citizens with pervasive broadband access is one of the most important policy goals in making the EU the most dynamic and competitive knowledge-based economy in the world. State aid can play an important role in achieving this goal. Yet, state aid for network build-out must acknowledge and secure already existing NGA competition. It should focus on the development of networks in areas with a persistent lack of commercial initiative and refrain from any interference where competition works. Also, non-monetary measures such as further consolidation of the national Cable can help in fostering broadband penetration.

- **From Must-Carry to Must-Offer**: Must-carry regimes were created to ensure diversity within the scarce resources of analogue TV. By limiting the economic freedom of Cable operators, must-carry is a major policy intervention. Bad implementation carries significant risks for Cable operators. The EU must make sure that European legislation is properly implemented and that the must-carry approach will not be extended to other national legislation. Digitisation increasingly shifts market power towards broadcasters and may even require a shift from Cable’s “must-carry” to broadcaster’s “must-offer”.

- **Revision of Copyright Management System**: The current European copyright framework is characterised by a high degree of inefficiency and partially impedes the EU from achieving overarching goals including the further development of the internal market, competition and fast digitisation. The EU should help to install a new, more efficient copyright clearance system which would help all market players to streamline transaction and management costs. A new holistic approach to copyright clearing should allow one-stop clearance of all content exploitation forms, both on the horizontal (i.e. multiterritory) and the vertical (i.e. one negotiation partner only) level.

- **Transition to Digital TV**: The digital switch over is one of the most important challenges of Europe’s Cable operators. Hampered by a whole range of reasons, digitisation so far has been a rather cumbersome process. Due to the complexity of the migration process, Cable operators clearly favour to continue on the market-driven path to digitisation. The EU should support any measure that helps to foster the migration. At the same time it must be ensured that no regulation is imposed, which has the potential to revitalise
analogue Cable access and hamper Cable operators in innovation, investment and further development of its TV platform.

- **Re-allocating the Digital Dividend**: The re-distribution of radio frequencies following the Digital Switchover of terrestrial TV needs careful preparation. New mobile services offer many advantages to the public. Yet, these wireless technologies potentially interfere with existing Cable services and customer equipment. A careful preparation of the frequency re-allocation must ensure that potential negative effects are eliminated.

- **Financing Public TV**: The audiovisual landscape in Europe is changing rapidly. TV Advertising revenues are coming down, resulting in distribution conflicts between public and commercial TV providers. Recent legal initiatives in selected EU member states force public TV stations to withdraw from the advertising market. To bridge the emerging funding gap, broadband providers and commercial TV providers are imposed to finance public broadcasters with a new tax. European policy makers must ensure that the newly emerging funding systems for public TV do not disproportionately burden a single market participant and thus hamper investment and innovation.

- **Strengthening Digital Confidence**: To sustain the dynamics of the digital economy, it is essential to continue building the trust users put into digital and online services. Policies addressing Digital Confidence should reflect a holistic view of all areas: Network integrity, privacy and data protection, piracy and theft avoidance. The need for new laws is limited. The information society as a whole needs to foster leadership by educating their citizens, minimising digital threats and actively cooperating with regulators to create a trustworthy digital environment.
INTRODUCTION TO THE EUROPEAN CABLE MARKET

Cable Industry at a Glance

The European Cable TV industry has changed significantly over the last decade. Cable operators have developed from publicly or municipally owned companies offering basic analogue TV access to multi-service providers delivering entertainment, information and communication services to about 72m customers in Europe. Each of these “unique subscribers” takes at least one of the Cable services, be it TV, broadband or telephony. Of these, about 68m households are in EU-27 countries, another 4m in Switzerland and Norway. However, the potential of the Cable industry is even larger. An additional 51m households are already passed by existing Cable networks, increasing the total reach of the industry to 123m households.

Household Infrastructure Split (EU-27)

<table>
<thead>
<tr>
<th>Service</th>
<th>EU-27 Households</th>
<th>Market Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>107.5</td>
<td>36%</td>
</tr>
<tr>
<td>Broadband</td>
<td>107.6</td>
<td>17%</td>
</tr>
<tr>
<td>Telephony</td>
<td>219.3</td>
<td>6%</td>
</tr>
</tbody>
</table>
| Source: Eurostat, Screen Digest, Solon

Europe of the regions

Although this report will mainly refer to numbers and trends from the European Cable industry as a whole, the European Cable landscape is by no means homogeneous. The markets differ significantly with regard to market development stages, level of competition in TV and broadband market as well as the organisation of the customer relationship. Applying the traditional criterion used to describe the Cable industry, i.e. the share of households using Cable as primary access, the European Cable industry can be separated into eight distinct groups:
The Benelux and the Swiss markets were amongst the very first countries to deploy Cable. The first networks were built between 1965 and 1971, while in most other European Cable markets digging did not start before the mid 80s. With Cable having been fully rolled-out very early, neither terrestrial nor satellite TV ever gained large market shares. Using their broad reach, most of the Benelux operators were also at the forefront of internet deployment resulting in both an overall high broadband penetration and a high Cable market share. Leveraging their excellent customer base, most of the Benelux operators are pacemakers with regard to innovative TV services such as Web TV, VoD and HDTV. Recently, IPTV has hit these markets, lowering the TV market shares of the Cable industry. This first cluster currently has on average 69% broadband penetration of households, with Cable accounting for 39% of these broadband households.

European Cable Market Categorisation
EU-27, Switzerland and Norway

1. Benelux/Switzerland
2. Scandinavia
3. Germany
4. Mobile broadband markets
5. France
6. Triple play markets
7. CEE
8. Other markets

The Scandinavian Cable markets form the second cluster. Driven by very strong housing cooperatives interested in offering an optimal TV reception to their tenants, Cable operations in these countries also started quite early. Still today, the customer relationship is split. While housing associations are the main clients for basic TV access, additional TV products, broadband and telephony are sold directly to the end user. Due to the difficult geography of these countries, market shares never reached the high levels of the smaller Benelux countries. Yet, with TV market shares in the range of 55-65%, Scandinavian markets still belong to the strong Cable markets. Early upgrade combined with an innovation-friendly population has generated a strong broadband takeup in these markets.
countries. Scandinavian countries have the highest total broadband penetration with on average 70% of households having broadband access; the average Cable broadband market share amounts to 23%.

The German Cable operators form a cluster of their own. Having only started in the mid 80s, Cable TV market share still has reached a considerable level of about 50%. As in the Scandinavian markets, housing associations are often the main client for basic Cable access. Besides the four market leaders, capturing about 87% of the German Cable market, thousands of smaller Cable operators exist, often solely servicing a few housing associations. Due to ownership and financial issues, serious upgrade activities did not start until 4-5 years ago. As a result, Cable broadband penetration has long been

### Current Share of Cable TV Access and Year of First Cable Launch

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>1965</td>
<td>88%</td>
</tr>
<tr>
<td>NL</td>
<td>1971</td>
<td>85%</td>
</tr>
<tr>
<td>BE</td>
<td>1969</td>
<td>81%</td>
</tr>
<tr>
<td>LU</td>
<td>1965</td>
<td>73%</td>
</tr>
<tr>
<td>DK</td>
<td>1970</td>
<td>64%</td>
</tr>
<tr>
<td>SE</td>
<td>1985</td>
<td>55%</td>
</tr>
<tr>
<td>FI</td>
<td>1987</td>
<td>55%</td>
</tr>
<tr>
<td>NO</td>
<td>1984</td>
<td>51%</td>
</tr>
<tr>
<td>DE</td>
<td>1984</td>
<td>51%</td>
</tr>
<tr>
<td>PT</td>
<td>1994</td>
<td>40%</td>
</tr>
<tr>
<td>IE</td>
<td>1976</td>
<td>40%</td>
</tr>
<tr>
<td>AT</td>
<td>1956</td>
<td>56%</td>
</tr>
<tr>
<td>FR</td>
<td>1986</td>
<td>16%</td>
</tr>
<tr>
<td>UK</td>
<td>1986</td>
<td>14%</td>
</tr>
<tr>
<td>ES</td>
<td>1988</td>
<td>10%</td>
</tr>
<tr>
<td>HU</td>
<td>1979</td>
<td>12%</td>
</tr>
<tr>
<td>RO</td>
<td>1991</td>
<td>48%</td>
</tr>
<tr>
<td>BG</td>
<td>1991</td>
<td>46%</td>
</tr>
<tr>
<td>EE</td>
<td>1988</td>
<td>45%</td>
</tr>
<tr>
<td>SI</td>
<td>1986</td>
<td>41%</td>
</tr>
<tr>
<td>LV</td>
<td>1991</td>
<td>41%</td>
</tr>
<tr>
<td>SK</td>
<td>1989</td>
<td>36%</td>
</tr>
<tr>
<td>LT</td>
<td>1989</td>
<td>34%</td>
</tr>
<tr>
<td>PL</td>
<td>1987</td>
<td>33%</td>
</tr>
<tr>
<td>CZ</td>
<td>1988</td>
<td>23%</td>
</tr>
<tr>
<td>MT</td>
<td>1992</td>
<td>76%</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon
negligible with a market share of less than 5% of the German broadband market. This, however, is about to change. In 2008 the largest three German Cable operators together generated more broadband net adds than the largest alternative DSL carrier and are catching up with the incumbent Deutsche Telekom.

The next cluster consists of Austria, Portugal and Ireland. At first sight, the only characteristic these markets have in common is their moderate Cable TV market share of about 40%. Strong differences exist with regard to new product penetration. Broadband market shares reach from a high 35% in Austria to a low 16% in Ireland. Yet, these markets all have one thing in common. Mobile broadband has been highly successful in these markets, forcing Cable operators to adapt and augment their service offering accordingly.

Having long been a very regionalised and fragmented, the French Cable market has not reached strong penetration rates. Sub-scale networks did not allow for large upgrade activities. Only recently after the full consolidation of all Cable operators into a single player, the catch-up race has begun. In order to reverse its disadvantage against the very strong DSL operators with their high IPTV take-up, the French Cable operator has started with a large scale fibre roll-out and thus will set the pace for the years to come. However, due to its limited reach Cable currently only accounts for 5% of broadband households in a dynamic French broadband market with a penetration of 57% of households.

The UK and Spain markets are characterised by a low Cable TV market share and very high Cable broadband and telephony take-up. These “Triple play” markets show an average broadband penetration of 55%, with Cable having a 21% share of broadband households. To face market competitiveness, Cable operators in both countries started very early to offer communication services in addition to TV access and thus have very modern networks. Today, Cable subscribers in these markets each subscribe to at least two of the three services, TV, broadband or telephony. Usage of innovative services is strong, such as VoD and HDTV as well as very high speed access supported by EuroDOCSIS 3.0. Both Spain and UK are amongst the first European Cable markets to see the emergence of “Quadruple Play”, Triple Play plus mobile services. To protect themselves from high churn rates resulting from very competitive markets, operators place strong emphasis on marketing & sales as well as on customer management.

The Central and Eastern European countries form the largest cluster. Cable TV market shares are in mid range. General broadband penetration ranges from 20-54% of households in CEE markets and grows strongly. Cable broadband is a key growth driver and on average shows market shares of 40%. Competition in these markets tends to be fierce with Cable overbuild (a home connected to two and more Cable networks) quite common, as in Poland or Bulgaria. Also the strong competition from various satellite operators in CEE is noteworthy, as it is not unusual to see between two and five different satellite operators competing in one single country. Finally, many of the CEE Cable operators not only rely on Cable as means to access the end consumer, but have set up hybrid platforms including also LAN access or satellite Pay TV platforms. It may well be that this approach is at the forefront of developments to come in Western Europe.
Another category of its own is Malta. Despite or even because of its small size it has been a testing market for many attractive and innovative Cable services. The Maltese operator Melita serves 76% of all homes in Malta and Gozo with its TV offer. It not only provides broadband to a high share of its homes, but also was the first Cable network to also build its own 3G network and offer fully integrated Quadruple services.

Finally, a few markets have developed only a limited Cable coverage such as Cyprus, Greece or Italy.
CABLE BASICS: PRODUCT AND NETWORK TRENDS

Cable operators have gone a long way from their very first steps as pure-play TV platforms to service-oriented multi-play entertainment providers. The base for this development has been technological excellence. Upgrading and digitising the networks as well as making them bidirectional have been the core drivers of the development in the late 90s to the start of the new century. By 2006 triple play packages including TV access and Pay TV, internet and telephony had become the standard Cable offering.

But the real revolution is just starting. By rolling-out EuroDOCSIS 3.0 and bringing fibre close to the home, Cable – not fibre – will be the first Next Generation Access network to reach the mass market. Very high speed levels well above 100 Mbps at affordable prices will support a broad range of services. Video over IP, photo sharing, remote services, video conferencing and streaming will soon be standard applications for Cable broadband subscribers. With the increased convergence of TV and broadband platforms towards “all IP”, seamless service platforms are created. At the same time, Cable operators reach out to mobile and complement their offering with voice and broadband “on the go” – thus providing the subscriber with excellent service wherever he or she goes.

Before moving to impacts of the industry, this section provides a good understanding of the Cable industry. What is the core offering? How does the business model work? What does a Cable network look like?

Evolution of Cable: From Single-Play to Multi-Play

Source: Solon
Product offering

Broadband Internet: Highest Speeds at Affordable Prices

By offering high speed broadband services at competitive prices, Cable is a key driver for broadband penetration and has spurred competition in the telecommunications market. Indeed, countries with a strong Cable industry and fair penetration rate of Cable broadband show a significantly higher broadband penetration than other countries (see chapter “Broadband Development and Competition”). The first European Cable internet offers were launched in 1996 - today, more than 18m households subscribe to broadband access via Cable, accounting for 17% of all European Broadband subscribers. In 2008 already a fourth of all Cable operators’ revenues was generated by broadband access. Revenues moved from only €1.6bn in 2003 up to €4.5bn. Although the strongest growth period is over, growth rates are expected to remain in the high single-digit region for the next few years.

With high speed offers at very affordable prices Cable operators are the prime contenders of the telco incumbents in many markets. But high speed access is only the base for a whole range of services that will increasingly blur the boundaries between broadband and TV. New services to be embraced by Cable subscribers are web TV, video portals, VoD-offers, video telephony and video conferencing in addition to a broad array of internet security packages that are already a core part of every broadband access package.

Several Cable operators not only offer consumer services, but also serve the business segment, focussing on small and medium enterprises. So far, smaller companies show lower broadband affinity than larger ones and often do not take full advantage of broadband opportunities. By offering highly affordable communication services, Cable helps to reduce the barriers of using the internet in the SME sector.

TV: Access to a Rich World of Content

The second pillar of Cable operators is high-quality TV service with a great variety of entertainment and information content. With about 66m TV subscribers in 2008 (62m in EU-27, 4m in Norway and Switzerland), Cable is the most important TV access infrastructure in Europe, serving 36% of all European TV households. Even in the age of Triple Play, the majority of Cable industry revenues are generated by TV products: €10.3bn, i.e. 58% of the total Cable revenue. Growth has been strong with a cumulated 37% over the past six years. Moreover, TV revenues are expected to continue growing strongly with annual growth rates in the range of 5-7%.

The typical Cable TV offering consists of various attractive TV packages complemented by innovative enhanced services such as HDTV (high definition TV), Video-on-Demand (VoD), Digital Video Recorders (DVR) or Catch-up TV. Based on technically digitised networks, Cable operators actively push the take-up of digital subscriptions amongst their customer base, thereby allowing for a high-quality TV experience and a steadily increasing number of available TV channels.

Different access packages may be combined with mid-price Pay TV packages. Within these packages, all types of viewer interests are served with attractive thematic channels covering family, kids, nature, sports, travel, culture, information and a whole range of other topics. In addition to the packages offered directly by the Cable operators, Premium Pay TV content
(i.e. premium movies and series as well as sport events) is usually supplied to Cable by 3rd party Pay TV providers such as Canal+, Canal Digital, BSkyB, Sky Deutschland or Viasat.

With its inherent backchannel capacity, Cable is well positioned to introduce and push increasingly interactive and personalised TV services, whereas alternative infrastructures such as Satellite and DTT have to rely on more complex hybrid solutions combining their broadcast TV with mobile or DSL networks.

With the advent of both enhanced digital platforms (e.g. DTT, digital terrestrial TV) and new TV platforms, like IPTV, mobile TV and over-the-top offers, the competitive environment of Cable operators is changing significantly. In the past, with analogue terrestrial TV and Satellite, competition for the home was the dominant mode of competition. With DTT, IPTV and over-the-top, the new mode is competition in the home. Rather than relying on a single TV access per home, consumers increasingly use several transmission platforms in parallel to suit their entertainment needs:

- DTT is increasingly used as secondary TV platform (i.e. distribution for additional TV sets) or for mobile usage especially in those countries with a strong Cable market share. As a primary TV platform it is mainly used by consumers who are content with a limited, low-cost TV offer.

- IPTV is usually offered via DSL by telco incumbents and alternative networks in an attempt to differentiate their broadband access from Cable. IPTV has been highly successful in countries such as France where IPTV penetration has already surpassed a low Cable penetration. But also markets with a strong Cable penetration such as Belgium feel the growing competitive pressure.

- Mobile TV still is a supplement rather than substitute to TV access in the home. Roll-out is expected to continue and customer uptake to increase after a slow start.

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**From Single to Multi TV Accesses in the Home**

*Example for secondary, parallel platform usage*

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**Source:** Solon
As digitisation of TV platforms abolishes the scarcity of bandwidth, platforms are competing for attractive content, thereby shifting market power to broadcasters. Thus, it can be expected that content providers will attempt to bypass the dedicated distribution platforms altogether. Transmission platforms will need to cope with the fact that premium channels may also be sold directly to the consumer with marketing and subscriber fulfillment carried out by the channel itself. The attempt to integrate several parts of the television value chain gains particular relevance in case the content provider, supported by a strong broadband penetration, completely bypasses the conventional transmission platforms (“over-the-top”). Such development will be highly dependent on broadband penetration and connection speed.

Over-the-top may represent a certain substitution threat for linear TV, but so far is mainly used by younger users. The usage of over-the-top content focuses on the active consumption of video portals and rather short video clip formats (15-30 min). The competitive advantage of Cable lies in providing a relaxed lean-back experience and well selected high quality content (high quality multi-channel offers, HDTV) with good personalisation services (DVR, VoD) supported by a reliable customer care.

Telephony: VoIP at its Best

Fixed-line telephony services have become an integral part of Cable operators’ communications service offer and are usually marketed as bundles with broadband access. In many cases Cable telephony is based on Voice-over-Internet Protocol (VoIP) technology, but also on classical telephony infrastructures (i.e. “copper twisted pair”) as in Spain or in the UK.

At the end of 2008, more than 14m households in the European Union used Cable telephony services. Cable telephony generated close to €3bn in revenues. Growth in Cable telephony is not only expected to continue, but even to increase from about 4% p.a. in the past years to about 8% p.a. until 2013.

Mobile Services: From Triple to Quadruple Play

After having conquered the fixed-line telephony and broadband market, mobile emerges as the next frontier to be crossed by European Cable operators.

By providing mobile broadband, Cable operators can offer their clients broadband everywhere with very high speed access in the home and mobile access “on the go”. Many European Cable operators have started to offer mobile broadband access in cooperation with mobile operators using resale models or by setting up Mobile Virtual Network Operators (MVNO). Some operators have started to realise own networks or ponder applying for mobile frequencies. Today the usual mobile access offer consists of laptop connectivity, but in the future a whole new range of mobile services is possible.
Bundling and Customer Service: From Product Centric to Consumer Centric

By entering the telecommunication market and differentiating their TV offer, Cable operators are building and strengthening their direct customer relationships in order to better sell their services. Products are increasingly tailored to individual customers’ entertainment and communication needs. The Cable industry was at the forefront of establishing Triple Play bundles, combining TV, internet and telephony services. Some operators already offer “Quadruple Play” including mobile voice and data services based on cooperations with mobile operators. Home entertainment services like VoD or interactive applications as well as home networking and telematic services will soon complement Cable’s multi-play offer.

The creation of a strong, direct customer relationship is a significant step towards becoming consumer-centric mass market organisations. Cable clients can rely on a TV and broadband operator that not only provides content but also actively manages the network access. In case of network and service issues this is a real advantage to the non-managed platforms of DTT, over-the-top and Free TV Satellit. Active customer service including call centers, web platforms and field service enhances the contact between the operators and their clients. Customer service is a main concern of Cable operators, which invest heavily in these services.

Cable Business Model

Looking at the business model of most Cable operators, the financing streams have a clear direction: from the subscriber to the operators, who then pay for content and other suppliers and invest into further network and service platform build out.
Revenues: Service Subscriptions are Key Drivers

Subscription revenues from TV, internet and telephony services are the main revenue source of the Cable industry. Additional revenues are generated by rental of equipment to subscribers and, in a few markets, by so-called feed-in fees from Free TV providers. Here Cable operators are remunerated for broadcasting Free TV channels and thereby allowing those channels to reach the audience required to generate advertising revenues.

Costs: Content, Personnel and Network Investment are Core

The largest set of costs for Cable operators are content costs. Pay TV providers receive content fees for TV channels included in Pay TV packages. Additionally, copyright agencies collect fees for copyright-protected content that is broadcasted through Cable operators’ networks.

Further important suppliers for the Cable industry are other telecommunications providers, manufacturers of network and customer premises equipment as well as marketing and sales service providers.

Besides securing day-to-day operations, Cable operators have been constantly re-investing a significant share of their revenues in the modernisation and upgrade of their networks. Overall investment levels have been quite stable over the past years with an EU-27 investment average of approximately 25% of revenues.

Key Players and Financing Streams

A detailed analysis of Cable operators’ expenditures and their impact on the European economy can be found in the chapter on “Growth and Employment” starting page 31.
Cable Network Basics

When Cable TV networks were originally deployed, they were designed as shared media simultaneously delivering the same content (i.e. TV and radio signals) to a large number of viewers. By contrast, phone networks are so-called one-to-one networks with a dedicated line per household.

As TV signals were only transmitted in one direction (broadcast) and no feedback from the viewer was required, “classic” Cable TV networks did not provide a return path (backchannel) from the user to the network. This unidirectional approach was sufficient for basic TV access, but impeded the exploitation of the high bandwidth capable networks for telecommunication services. To open their networks for broadband and telephony, Cable operators have massively invested in modernising their networks since the mid-1990s. Upgrades included the implementation of backchannel capacity and the integration of optical fibre into the coaxial Cable network infrastructure. Today, large parts of state-of-the-art Cable networks are no longer covered only with coax cables, but also with optical fibre, resulting in so-called hybrid fibre coax (HFC) networks. Optical fibre usually reaches up to the node (Fibre to the Node, FTTN), which is then linked to the subscribers home via coaxial cable.

Bandwidth capacity of Cable networks is superior to the existing telephone/DSL infrastructure. Yet, capacity in the coax part of the network still has to be shared among all households using the same fibre node and amongst TV, broadband and telephony services. In order to increase the individual capacity for bandwidth-intensive applications, European Cable operators currently focus their investments on using the available bandwidth more efficiently (digitisation, introduction of EuroDOCSIS 3.0) and decreasing the size of clusters served by one fibre node. The fibre node is the point of connection between the fibre and the coax part of the network. With these so-called cluster splits, the Cable industry continuously brings fibre closer to the home, partly anticipating large fibre roll-outs of telecommunications players. Unlike those deployments requiring high up-front investments, Cable operators can opt for a continous, demand-driven approach of ongoing investments.
EuroDOCSIS 3.0 Basics and European Roll-Outs

DOCSIS stands for Data over Cable Service Interface Specification and is a standard developed by CableLabs in the US. It defines interface requirements for cable modems involved in high speed data distribution over an existing Cable TV system. The first version of DOCSIS, released in 1997 to define high speed internet standards, was complemented in 1999 with Quality of Service requirements (DOCSIS 1.1) and with IP Telephony standards in 2001 (DOCSIS 2.0).

The latest version of this standard, DOCSIS 3.0 (or EuroDOCSIS 3.0 in Europe), was released in 2006 and represents a significant progress for Cable operators, making much higher bandwidths available to end-customers at a lower per household cost than FtTH build. Now, speed levels of more than 160 Mbps downstream can be reached which is a significant increase on DOCSIS 2.0 (32 Mbps). Further channel bonding could allow maximum speeds up to 400 Mbps using the same base HFC infrastructure. Moreover, DOCSIS 3.0 will also allow much higher upstream speeds, currently up to 120 Mbps, and such symmetry of speeds will become increasingly important.

Compatibility along versions has also been ensured in each version of the standard, i.e. End user equipment designed for one standard version can be used in another, be it an older or a more recent version of DOCSIS.

Source: Cable Europe, Solon
BROADBAND DEVELOPMENT AND COMPETITION

Broadband access is a key pillar of the EU’s Lisbon strategy aiming to make the EU ‘the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment’ [8].

The Cable industry is one of the most powerful drivers of the European broadband market. Often being the first to offer real infrastructure-based competition, Cable operators have spurred competition in the telecommunications industry. As Cable networks allow for high bandwidths at moderate prices, affordable cable broadband offers are forcing fixed-line operators to follow suit with network investments enabling competitive high speed broadband access.

Broadband connectivity is not only crucial for the development of the information society, but also significantly impacts the general economy. Both, number of visits and time spent on the internet are positively correlated with increasing broadband penetration, allowing for the expansion and development of online activities [14]. Economic impacts of broadband include process improvements, increased specialisation in knowledge-intensive activities and development of innovative markets. Within a recent study, written on behalf of the European Commission, broadband-related growth in Europe is estimated to support the creation of at least 345,000 jobs between 2006 and 2015 and €636 bn of economic activity. In the best case, broadband uptake could even result in 2,112,000 additional jobs and €1,080 bn of economic activities [13].

Impacts of Infrastructure-based Competition

With broadband competition shifting from a service-driven to an infrastructure-based level, Cable operators have significantly impacted the European broadband landscape. Competition in the telecommunications market is recognised as boosting service uptake and, with infrastructure-based competition, is likely to provide the most long-term benefits to consumers.

Broadband Uptake

The speed of broadband uptake varies across Europe, with Western European countries generally showing higher penetration rates than CEE countries. Infrastructure competition is a key driver for broadband penetration in addition to GDP per capita, technological knowledge and affinity.

In Western Europe, markets with strong infrastructure competition from Cable (Netherlands, Belgium) or both Cable and FTTH (Denmark, Sweden) show the highest broadband penetrations. The average broadband penetration in countries with a significant share of Cable internet is at 59% close to 30% higher than in markets with a relatively low involvement of Cable operators in the broadband market (average broadband penetration of 46%).

For CEE broadband markets, Cable is of even greater importance. In most CEE markets, Cable accounts for more than 20% of broadband households. Penetration in strong Cable markets surpasses take-up in DSL-dominated markets by 50%. While the average broadband penetration in “Cable markets” equalled 44% end of 2008, it only reached 29% in “DSL markets”. Without the investments of Cable operators, CEE markets would not have
been able to reach their current penetration levels and Europe’s digital divide would be even larger.

Broadband penetration in markets with infrastructure competition, driven by cable, is not only higher than in markets with limited infrastructure competition, it also reaches higher penetration considerably earlier. While in 2008, close to 90% of all Western European markets with strong cable broadband activity already reached penetration rates of at least 40%, only 63% of DSL-focused markets had surpassed this mark. In CEE markets the 40%-mark has so far only been attainable with a strong Cable broadband activity.

Cable-driven broadband markets are at least two years ahead of their DSL/LLU driven counterparts. Markets dominated by DSL have only started catching up after Local Loop Unbundling (LLU) regulation and ULL pricing was revised. Incumbent telecommunication operators were then forced to allow their competitors to connect their own backbone network to the customer access network, the so-called “last mile”, which is owned by the incumbent. ULL operators have then to rent the “last mile” from incumbents. Cable-driven broadband
markets are approximately 2 years ahead in broadband penetration than their DSL/ULL driven counterparts.

Markets with more than 40% Broadband Penetration

% of markets

The current development of the German broadband market shows that it is never too late to implement Cable infrastructure based competition. Although comparatively late, the broadband initiatives of the Cable operators were necessary to revitalise the increasingly maturing broadband market. Accounting for more than one third of total broadband net additions, Cable operators have given the German broadband market a new momentum.

The existence of sustainable Cable infrastructure-based competition thus not only supports higher penetration rates, it also reduces the need to heavily regulate these markets.

Performance and Pricing

Structural differences between DSL and Cable networks and full infrastructure control generally enable Cable operators to provide better price-performance ratios than DSL providers – especially compared to operators that have to pay for “last mile” access.

Supported by the implementation of EuroDOCSIS 3.0, Cable operators will continue to spearhead the introduction of real high speed broadband services. Whereas in 2007, more than 80% of European Cable broadband users subscribed to download rates higher than 2 Mbps, only 56% of DSL subscribers exceeded the 2 Mbps threshold [12].

The quest for speed continues. Europe’s Cable CEOs now expect that by 2012 40% of their subscriber base subscribes to speed levels of 10-50 Mbps, 20% even subscribing to very high speed levels of 50 Mbps and more [19].
Network Investments

Cable customers are not the only ones to benefit from Cable’s very high speed offers. By establishing very high speeds, the Cable industry has given the broadband market a new momentum and forces fixed-line operators to follow suit with network investments and fibre roll-outs. Although DSL infrastructure may be sufficient for many of today’s applications, it will not be able to fulfil future bandwidth needs of new, video-based services. Simultaneous use of multiple high-bandwidth applications is already testing ADSL2+ to its limits.

Even if we consider that current usage scenarios requiring bandwidths of more than 16Mbps (i.e. watching multiple SD or HD TV streams at the same time) do not constitute the majority of usage in Europe, the popularity of high-bandwidth applications will increase significantly over the next few years. Only VDSL, Cable and FTTH will then be able to provide sufficient bandwidth to deliver multiple high-bandwidth applications.

Even without further upgrades, most Western European Cable providers can already offer downstream speeds of up to 32 Mbps. After implementing the new EuroDOCSIS 3.0 standard, speeds could reach the extraordinarily high speed of up to 400 Mbps (using further channel bonding). In order to keep up with the bandwidths available via Cable, fixed-line operators will have to invest in their legacy networks and roll-out of high-speed next generation networks.

In addition to their own significant investments in next generation networks, Cable operators act as a catalyst for network investments by other telecommunications players, making the Cable industry one of the most important drivers in the roll-out of a future-focused high-speed broadband infrastructure.
The great impact of the Cable industry on the European Broadband market is noteworthy when taking into account its comparatively limited revenue size. Fixed-line incumbents still account for 71% of telecommunications revenues whereas Cable operators’ share is marginal with communications revenues of €7.4bn in 2008 or 2% of total telco revenues.
The limited economic power of the Cable industry becomes especially obvious when comparing the revenues generated by the national Cable industries, with the local turnover of the respective incumbent. In most European markets the incumbent alone generates five to six times the revenue of the total cable industry (which in most cases consist of 2 and more operators), in some countries even 10 to 18 times.

Revenue Comparison: Telco Incumbent vs. Cable Industry
€bn, revenue multiple, 2008

<table>
<thead>
<tr>
<th>Telco Incumbent</th>
<th>Cable Industry</th>
<th>Incumbent : Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>26.9</td>
<td>3.2</td>
</tr>
<tr>
<td>France</td>
<td>23.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Spain</td>
<td>20.8</td>
<td>1.7</td>
</tr>
<tr>
<td>UK</td>
<td>19.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Netherlands</td>
<td>10.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Switzerland</td>
<td>5.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Belgium</td>
<td>5.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Poland</td>
<td>4.1</td>
<td>0.9</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Norway</td>
<td>3.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Sweden</td>
<td>3.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>2.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Romania</td>
<td>0.9</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Source: Company information, Screen Digest, Solon,

Compared to the telecommunications industry, most Cable operators are relatively minor players in the converging communications and entertainment markets yet still have a remarkably positive influence on overall market development in Europe.
GROWTH AND EMPLOYMENT

Cable as Major Growth Driver


European GDP and Cable Revenue Growth
Indexed to 2000, EU-27

![Graph showing European GDP and Cable Revenue Growth]

Source: Eurostat, Screen Digest, Solon

Cable helps stabilising the overall economy. Even in challenging times, e.g. during the last economic slowdown 2001-2003, the Cable industry shows stable strong growth rates and ongoing high investments. Approximately 25% of revenues (EU-27 avg.) have been invested each year by Cable operators. Cable’s resilience to negative macroeconomic developments may be explained by its subscription-based revenue model with long-term contracts, its ever increasing product attractiveness with good quality-price ratio as well as by the convenience in usage.

The Cable industry currently seems to corroborate this trend. Despite the economic slowdown, Cable operators’ outlook for the coming years remains positive: For 2009 and 2010, forecasts expect further revenue growth of 6%-8%. It is very likely that Cable operators will be well placed to help stabilise the European economy in times of global recession.

Employment Impact

In 2008, close to 84,000 people in the European Union were employed by Cable operators, either directly or at outsourcing partners. The actual impact of the Cable industry however is much larger. Another 94,000 jobs at European Cable suppliers and in the broadcasting sector can be linked to the Cable industry. It really serves as a job motor: A good third of the overall 178,000 cable-related jobs, i.e. 53,000, has just been created over the past five years. The Cable operators alone have increased their employment by close to 45%.
The development of Cable operators towards customer-centric service providers has had direct impacts on employment in the Cable sector. As new services like digital TV, broadband internet and telephony require additional personnel for marketing and sales, customer service and network operations, a significant number of jobs has been created, resulting in a declining ratio of subscribers per employee over the last years. Moreover, employment growth in the European Cable industry is sustainable because Cable, as a local infrastructure business, can hardly be off-shored.

The following analysis of employment impacts of the European Cable industry is based on industry data provided by Screen Digest, Solon industry benchmarks such as Solon European Cable Survey and detailed analyses of Cable operators. Data for industries linked to Cable were taken from Eurostat and the European Audiovisual Observatory. The analysis takes different development stages among European Cable markets into account, reflected in different productivity and investment ratios.

**Impact on Direct Employment**

In 2008, European Cable operators directly employed 60,000 people. Outsourced operations accounted for additional 23,700 employees, especially in customer care, construction and logistics. Since 2003, the size of the European Cable workforce has increased by nearly 45%, corresponding to the creation of 25,300 new jobs over the last five years. Total Cable employee compensation (including outsourcing) reached €2.3bn in 2008.
Impact on Indirect Employment

Besides employment at Cable operators, a significant number of jobs at Cable suppliers and in the broadcasting industry can be linked to the Cable industry. This indirect employment translates into 94,000 additional European jobs.

Nearly 70% of Cable operators’ annual revenues are spent on suppliers – either for day-to-day operations or for ongoing investments. Excluding personnel expenses and outsourcing, Cable operators spent more than €12bn to purchase goods and services in 2008.

Supplying industries to the Cable industry include:

- **Content production**: As the most important suppliers of Cable operators, content providers such as TV channels, studios or radio stations, are closely linked to the Cable industry. On average, content costs amount to 17% of European Cable revenues, corresponding to payments of more than €3bn in 2008. Of these about two-thirds are spent on content produced in Europe (i.e. €2bn).

### Supplier Revenues of EU-27 Cable Operators and Resulting EU-based Workforce

€bn, # of Employees, 2008, EU-27

<table>
<thead>
<tr>
<th>Cable-related Supplier Revenues</th>
<th>Corresponding EU-Workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>3.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2.3</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1.6</td>
</tr>
<tr>
<td>Construction</td>
<td>1.2</td>
</tr>
<tr>
<td>Marketing &amp; Sales</td>
<td>0.8</td>
</tr>
<tr>
<td>Other</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Solon

- **Manufacturing**: A large share of Cable’s capital expenditures goes to the manufacturing industry providing network and customer premises equipment (CPE). Equipment required for build-out and upgrade of networks includes fibre-optic and coaxial cables as well as head-end equipment. CPE manufacturers mainly supply set top boxes and cable modems. In 2008, the European Cable industry invested about €2.3bn in network and subscriber equipment, thereof €1.2bn with European suppliers.
Telecommunications: To ensure worldwide connectivity for their internet and telephony subscribers, Cable operators have to connect their network infrastructure with national and international telecommunication networks. Telecommunication providers receive payments for interconnection and peering services as well as for backbone rental if the Cable network operator uses third-party infrastructure. In 2008, total financial flows to other telecommunication providers amounted to approximately €1.6bn, of which 80% (€1.3bn) stay within Europe.

Construction: Construction services are required to upgrade existing Cable networks as well as to build-out additional networks. Digging and laying new Cable in public ground or at the customer premises, is highly labour-intensive and thus generates many new jobs. In 2008 about 11,200 construction jobs were supported by the Cable industry generating earnings of €1.2bn.

Marketing & Sales: Marketing & Sales expenditures consist mainly of payments to advertising agencies and sales commissions. Over the past few years many Cable operators have reinvented themselves. New brands and corporate designs now present many Cable operators as consumer-centric entertainment companies. New products and services had to be pushed into the market. As a consequence marketing and sales spending increased significantly. In 2008 it amounted to about 5% of revenues, i.e. spendings of €0.8bn.

Other: Other industries receiving payments by Cable operators include amongst others insurance, utilities (e.g. electricity), services (e.g. legal and consulting) and real estate (office rental) as well as other equipement providers. On average Cable operators spend slightly more than 17% of revenues to “other industries”. This corresponds to €3.1bn per year, of which 60% are with European suppliers.

Most of European Cable industry’s expenditures directly benefit the European economy. Taking the varying share of non-European suppliers into account, Cable-related revenues of European suppliers amounted to approximately €8.2bn in 2008, i.e. 68% of total Cable expenditures. These expenditures translate into close to 39,000 additional jobs at European suppliers.

Content fees are however not the only source of revenues TV providers gain from Cable operators. As both advertising and licence fee revenues of TV providers strongly depend on audience reach provided by Cable, corresponding revenues can also be directly linked to the Cable industry. As the most important European TV infrastructure, Cable supplies 36% of all European households with TV access. Without the reach provided by Cable networks, current advertising and licence fee revenues of TV stations would not be possible. With its wide coverage, the European Cable industry thus supports further 55,000 jobs in the broadcasting industry.

Excluding second level effects caused by economic activities of employees linked to the Cable industry, total employment in the EU associated with European Cable operators is estimated to 178,000 jobs in 2008. Compensation of these employees amounts to approx. €5.3bn. Over the last five years, the Cable industry has created 53,000 additional jobs in the EU, having a significant positive impact on overall employment. Employment in the Cable industry increased by 7% p.a., significantly outperforming the overall EU-27 economy, where the number of jobs only grew by 1.6% p.a. between 2003 and 2008.
INVESTMENT AND INNOVATION

Cable operators have a strong track record of continuously reinvesting significant shares of their revenues. Depending on the market, 20-28% of Cable revenues are spent on the upgrade and build-out of networks and the introduction of new product platforms, amounting to a total infrastructure investment of more than €22bn between 2003 and 2008.

Investments of the European Cable Industry

<table>
<thead>
<tr>
<th>Year</th>
<th>€bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>2.9</td>
</tr>
<tr>
<td>2004</td>
<td>3.2</td>
</tr>
<tr>
<td>2005</td>
<td>3.5</td>
</tr>
<tr>
<td>2006</td>
<td>3.9</td>
</tr>
<tr>
<td>2007</td>
<td>4.3</td>
</tr>
<tr>
<td>2008</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Source: Solon

Investment Levels in Comparison

The investment level of Cable operators is significantly higher than the level of other broadband operators, e.g. LLU-based DSL providers or resellers. Cable operators steadily invest around 25% of revenues each year, while alternative operators invest about 19% and incumbents even only approx. 15% of their revenues p.a.

Investment levels of Cable operators, Incumbents and Altnets

<table>
<thead>
<tr>
<th></th>
<th>% of annual revenue, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>25%</td>
</tr>
<tr>
<td>Altnets</td>
<td>19%</td>
</tr>
<tr>
<td>Incumbents</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Solon Benchmarking Database, Analyst reports, Company information
As infrastructure-based providers which own the access infrastructure, the minimum Cable operators have to invest for each new broadband user is about €300. This investment provides for backchannel capacity by installing two-way-ready equipment and upgrading the in-house wiring. However, when Cable operators deploy a whole new network, costs rise significantly.

In contrast, LLU operators only need to invest about €235 per new subscriber; DSL resellers can offer broadband with almost no own network investment. Alternative DSL resellers and LLU providers still often cite similar investment figures as Cable operators — but actually most of this investment is spent on customer acquisition and not on network build out.

<table>
<thead>
<tr>
<th>Investment required per new subscriber for Cable, FTTH and DSL</th>
<th>€/new subscriber, example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Investment drivers</strong></td>
<td><strong>Investment / user (€)</strong></td>
</tr>
<tr>
<td>Ntl. Backbone</td>
<td>Region- nal Ring</td>
</tr>
<tr>
<td><strong>Cable</strong></td>
<td>Own infrastructure</td>
</tr>
<tr>
<td>1) Either own infrastructure or infrastructure that is rented from someone else, e.g. the incumbent</td>
<td></td>
</tr>
<tr>
<td>2) MDF= Main Distribution Frame</td>
<td></td>
</tr>
<tr>
<td>3) FTTH total investment / HP excludes digging work which could add another €1000 / HP on top</td>
<td></td>
</tr>
<tr>
<td>Source: JP Morgan, Solon</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implementation of backchannel</td>
</tr>
<tr>
<td></td>
<td>DOCSIS 3.0 roll-out and capacity increase</td>
</tr>
<tr>
<td></td>
<td>Bi-directional upgrade: One-off/installation: €55, Access: €210, CPE: €60-60</td>
</tr>
<tr>
<td></td>
<td>DOCSIS 3.0 roll-out: €50-60 for network + €60 for new modem (only new BB users)</td>
</tr>
<tr>
<td></td>
<td>Total: €395 for bidirectional upgrade, €110-120 for DOCSIS 3.0</td>
</tr>
<tr>
<td><strong>FTTH</strong></td>
<td>Own infrastructure</td>
</tr>
<tr>
<td></td>
<td>Optical components</td>
</tr>
<tr>
<td></td>
<td>Fibre optic cable</td>
</tr>
<tr>
<td></td>
<td>In-building installation</td>
</tr>
<tr>
<td></td>
<td>In-house connection</td>
</tr>
<tr>
<td></td>
<td>One-off/installation: €450</td>
</tr>
<tr>
<td></td>
<td>Access: €300</td>
</tr>
<tr>
<td></td>
<td>CPE: €200</td>
</tr>
<tr>
<td></td>
<td>Total: €1000</td>
</tr>
<tr>
<td><strong>DSL (LLU)</strong></td>
<td>Own infrastructure</td>
</tr>
<tr>
<td></td>
<td>Local exchange infrastructure (MDF)</td>
</tr>
<tr>
<td></td>
<td>Installation</td>
</tr>
<tr>
<td></td>
<td>One-off/installation: €55</td>
</tr>
<tr>
<td></td>
<td>Access: €140</td>
</tr>
<tr>
<td></td>
<td>CPE: €60</td>
</tr>
<tr>
<td></td>
<td>Total: €235</td>
</tr>
</tbody>
</table>

Cable’s investment levels are only equalled by providers using their own infrastructure, especially when pushing FTTH. Yet, Cable investments into NGA networks are more efficient than investments into FTTH, since upgraded Cable networks deliver bandwidths equivalent to FTTH with significantly lower investment levels. While FTTH providers need to invest at least €1,000 into every new household they supply with very high speed levels¹ Cable operators need not even spent half of that (approx. €425) when installing a new DOCSIS 3.0 access.

The incremental investment into EuroDOCSIS 3.0 (see page 24) is even lower once the Cable access is already bidirectionally upgraded. In this case the additional costs per user

¹ Excluding additional investments that may occur if digging is needed to install fibre
just add up to €50-€60 (€10 for the EuroDOCSIS 3.0 channel, €40-€50 for capacity increase via cluster splits and additional fibre). Only new broadband subscribers require an additional investment of approximately €60 for a EuroDOCSIS 3.0-capable modem, while existing customers can reuse their old modems.

**Upcoming Investment Cycles**

In the coming years, investments of Cable operators are expected to remain at a high level. Future investments will focus on high-bandwidth access via EuroDOCSIS 3.0 and Next Generation Access networks. Technically, most Western European Cable providers are currently able to offer downstream speeds of up to 50 Mbps, and a few have even started to provide more than 100 Mbps.

EuroDOCSIS 3.0 trials have taken place all over Europe. Most Western European Cable operators and selected CEE players have announced significant roll-outs for 2009 – and expect to finalise full migration in 2012. In addition, European Cable industry is also investing in full fibre infrastructure. In several European markets, Cable operators are among the first players to deploy FTTH.

Infrastructure-based competition from Cable operators is one of the most important stimuli for DSL players to invest in high speed infrastructure and roll-out fibre, making Cable a strong driver for total telecommunications network investments.

**Cable as Innovator**

EuroDOCSIS 3.0 with its increased capacity and speed levels of up to 400Mbps the basis for a broad variety of innovative services, be it higher broadband speed levels, high quality Voice over IP or various new TV services.

By the end of 2010 speed levels of 50-100 Mbps will be the standard that will continue to increase over the following years as Cable brings fibre closer to the home. Today, Cable telephony, which is usually based on Voice over IP approaches, has the same quality as the classical dedicated telephony. Integrated in an all IP environment, it will offer a whole new range of features in the near future.

By providing high speed networks and new product platforms, Cable operators create room for new content offers and can satisfy their customers’ needs for a more personalised TV experience. Lean-forward TV consumption is replacing the traditional basic broadcasting lean-back attitude. Viewers increasingly want to actively decide what kind of content they want to watch – and at what time.

By providing enhanced video services, Cable operators also open up new options and revenue streams for broadcasters, thus driving content investment and new formats. Innovative TV services introduced by European Cable operators over the past years include:

- **EPG**: Advanced electronic program guides help users to conveniently navigate, select and discover content by different characteristics, i.e. time, title or genre. EPGs act as interface between user and operator and provide easy-to-use access to features such as digital video recorders, VoD and various interactive services. By now an attractive EPG

---

2 A detailed analysis of broadband access models and the investments required can be found in Solon’s study on *Western European Broadband Markets* [18]
is a "must-have" feature for every Cable operator.

- **DVR**: Digital Video Recorders extend the standard functionality of TV by integrating a mass storage device into the set top box. Content can be recorded and replayed anytime. Advanced DVRs include features like pause, rewind or real-time time-shift TV, where users can start to view recorded content before the original broadcast is finished.

- **VoD**: Video-on-demand services offer network access to video content libraries including up to 5,000 hours of content (movies, TV shows, and documentaries). Depending on the underlying business model, content is either offered for free, by subscription or can be purchased in individual transactions. VoD's "Watch what you want when you want" value proposition is highly appreciated by customers. Cable operators report up to 3.5 average monthly takes per user. Currently, Cable VoD services are available to approximately 7m European households. This number is expected to increase by 31% p.a. to reach 27m in 2013 [16].

- **Catch-up TV**: Catch-up TV is a new feature of non-linear TV. Content is made available to end-customers to be accessed on-demand for a usually defined amount of time after it was originally broadcasted. This feature is particularly relevant for sport, seasonal TV shows and series. Catch-up TV thus provides a higher flexibility than linear broadcast TV. Such feature may be offered as part of a simple VoD product or as a stand-alone product.

### Innovative TV Services of European Cable Operators

**Examples**

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Personalisation</th>
<th>Interactivity</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DVR</strong></td>
<td>Games</td>
<td>TV Websites</td>
<td>HD</td>
</tr>
<tr>
<td></td>
<td>Digitext</td>
<td>On demand</td>
<td>Quality</td>
</tr>
<tr>
<td></td>
<td>TV E-mail</td>
<td>Prime</td>
<td>Quality</td>
</tr>
</tbody>
</table>

Source: Solon

- **HDTV**: Resolution of High-Definition TV is five times higher than for Standard-Definition TV (SD), thus allowing for a high-quality TV experience. Despite a growing penetration of HD-capable TV sets, HD uptake in Europe has so far been below expectations. However, Cable operators have recently started pushing the uptake of HDTV with
attractive pricing; many of them are even offering HDTV programming for free. Accordingly, Screen Digest expects Cable to be the most important driver for HD penetration and become the largest European HD platform by 2012 [16]. In some advanced European markets 60% of new set top boxes distributed to consumers already include both HD and DVR functionality.

Interactive Services: Cable’s inherent backchannel capacity allows for the introduction of interactive services. Viewers can, for example, use their remote control to actively participate in quizzes and game shows, access customised information, sing karaoke or take language classes. As TV is generally a living room concept, Cable operators currently mostly focus on services that are “close” to the living room, like interactive TV or playing, yet further applications such as communications (e-mails, forums) are also feasible.

Additionally, Cable operators are investigating or even pursuing further options to broaden their communication service portfolio:

Mobile broadband: Mobile broadband is the next growth driver in the telecommunications industry, as the demand of end-customers to be connected “on-the-go” increases steadily. Mobile broadband is available on laptops, netbooks, PDAs or other handheld devices. By integrating mobile broadband into their portfolio, Cable operators provide a one-stop-solution covering the whole range of entertainment and communication services. Although mobile broadband usage appears to be mostly secondary usage, a certain part of the new customer base will use mobile broadband to substitute their fixed line access. Cable operators thus need to launch such services to protect their existing customer base as well.

First mobile broadband services, which can be combined with mobile telephony products, have already been launched by some Cable operators in Europe. Business models are mostly either resale offers or the creation of MVNOs in cooperation with a mobile operator. A few operators nevertheless launched their own network or (will) participate in future spectrum auctions.

Telematic services / Networked home: Modern households are using an increasing number of different entertainment and information devices based on different technologies and serving multiple purposes. In cooperation with device manufacturers, Cable operators are currently developing solutions that will allow to interconnect the different devices and create new intelligent home networks:

- Placeshift video solutions will enable users to freely manage digital content, irrespective of the content source or their current location – at home, at work or on-the-go.
- Devices such as heating systems or washing machines could be remote-controlled via Cable infrastructure, making users’ everyday life easier and more flexible. Telematic, demand-driven control of heating or air conditioning systems could help to reduce unnecessary energy consumption.
- Convergence features: Move towards integrated all-IP platforms will support a whole new range of convergent services combining TV, broadband and telephony features such as internet on TV, TV-telephone mailbox (with potential storage on DVR) or caller ID displayed on TV.
Constant innovation not only supports the Cable industry as such but also supports healthy European companies in both hardware manufacturing (customer premises equipment, TV platforms) and software (conditional access systems, middleware) including global market leaders such as Philips, Pace, Cisco, Motorola, Kathrein, Thomson and ADB or NDS, Kudelski, Irdeto and Conax respectively.
MEDIA PLURALISM AND DIGITISATION

Media pluralism is an essential pillar for the right to information and freedom of expression established in the European Charter of Fundamental Rights. By making a substantial contribution to the financing of the broadcasting industry and providing access to an – ever growing – variety of information and entertainment sources, the Cable industry is an important agent of media pluralism in Europe. Moreover, Cable operators are actively pushing the digitisation of their customer base thereby providing capacity for additional TV channels as well as innovative TV products.

Strong Link to the Broadcasting Industry

The fate of broadcasters and transmission platforms (such as Cable or satellite) is intertwined as both industries are mutually dependent. On the one hand, transmission platforms need content to provide their customers with an attractive and broad offering. On the other hand, all major revenue sources of TV stations, regardless of their underlying business model, are based on audience reach that can only be provided by transmission platforms such as Cable. Subscription fees, which are the main revenue source for Pay TV stations, are directly related to the number of subscribers. For Free TV channels, both generated advertising revenues and licence fees are closely correlated with the channels’ audience. Cable, as the most important European TV infrastructure reaching 36% of all TV households, is one of the strongest enablers of the European broadcasting industry.

1) Many Public Free TV are not allowed to generate profit and thus try to generate revenues that match expenditures (adjusting licence fees)
Source: Solon

Compared to the revenue share attributable to Cable, distribution costs for broadcasters are marginal. Only 5-10% of broadcasters’ revenues are spent on signal transmission, large parts thereof on delivering the signal via Satellite to the designated transmission platform, e.g. Cable. By far the largest part of revenues is spent on programming. Nearly 50% of content expenditures are used to acquire broadcasting rights; the remaining 50% are invested in original programming, benefitting the European content creation industry [2].
Again, as in the broadband segment, the rather small Cable industry supports a significantly larger industry by providing networks and transmission space. While European Cable operators generated about €10bn in 2008 with their TV offers, the revenues of the TV industry were about seven times as large. Already in 2006 [2], a revenue of €70bn was generated with licence fees, advertising, Pay TV and other broadcast services. The licence fees, which fund European public TV stations, are with €17.6bn in itself significantly higher than the TV revenues of Cable operators. Pay TV revenues add up to €19.2bn and advertising revenues to €27.7bn.

Copyright: Funding Creativity

Unlike Satellite and DTT platforms, Cable not only transports content but – by paying copyright fees - also contributes to financing the original creators of TV content. The cable-related copyright system has been laid out in the SatCab Directive (83/83/EEC).

With the copyright fees for Cable distribution, Cable operators are paying for the right to distribute the programme or other content via their Cable network towards the end user. In order to avoid the inefficiency of single relationships with reach right holder, fees for content distribution are generally negotiated collectively with the various copyright societies. These societies, which usually represent only a specific set of rights and content types, then collect and redistribute the fees to the actual right holders. One exception is made in this system. Broadcasters may handle the content distribution rights for Cable redistribution themselves – thus enabling one-stop-shop-negotiations covering both the content and the distribution of the channel.

The funding of content creation via Cable content distribution fees helps to create and sustain the diversity and pluralism of the European media industry. Cable thus supports the right to information and freedom of expression enshrined in Article 11 of the Charter of Fundamental Rights.
Cable TV Digitisation

Besides providing a better image and sound quality than analogue television, digital broadcasting allows for a much more efficient use of the available broadcast spectrum. As digital signals can be processed and compressed more efficiently, digital TV requires less frequency than analogue broadcasting. One analogue TV channel can host 12 or more digital TV channels, 3 digital HD channels or 42 Mbps IP-bandwidth. The freed capacity can be used to offer a wider choice of television channels and introduce new services (e.g. HDTV or VoD) as well as to increase the bandwidth available for broadband services.

Cable operators are actively pushing the digitisation of their TV customer bases. In 2008, the number of digital TV subscribers increased by 32% to 17.8m. 28% of all European Cable subscribers are currently using digital TV services. Finland and Luxembourg have already completed the analogue switch-off, and in the UK only 4% of Cable subscribers are still receiving analogue signals. Digital penetration is expected to increase continuously over the next years. By 2013, more than three quarters of Cable subscribers are expected to have digital TV subscriptions [16].

Digitisation of Cable Subscribers

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.7%</td>
<td>11.1%</td>
<td>15.9%</td>
<td>21.9%</td>
<td>28.8%</td>
<td>36.8%</td>
<td>46.1%</td>
<td>57.1%</td>
<td>67.6%</td>
<td>78.3%</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

In order to speed up digitisation, Cable operators provide their customers with incentives to switch to digital TV. Despite the higher quality of digital broadcasting, digital TV subscription is often offered at prices equalling or even undercutting analogue access. Digital TV subscription packages usually come with a significantly higher number of channels than the analogue access packages. Some operators have even started to reduce the analogue TV subscription packages in cooperation with media, politics and content providers. Customers deciding for digital services can, for instance, try Pay TV packages for free or get access to free VoD libraries. Moreover, digital set top boxes are often provided without incurring additional costs.

Strong push for digitisation: 75% of Cable subs with digital TV subscription by 2013

Incentive for digitisation: more channels at same costs, free set top box
Digitisation in Cable creates room for a steadily increasing number of national and international TV channels, radio stations and enhanced video services. Cable operators use the high channel capacity of digital Cable to provide large and diverse channel bouquets. The channel variety offered on Cable is significantly higher than for digital terrestrial TV. On average, European digital Cable subscribers can access more than 100 different channels, whereas DTT viewers are restricted to an average number of 20 channels.

<table>
<thead>
<tr>
<th>Country</th>
<th>DTT # of channels</th>
<th>Digital Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>4</td>
<td>121</td>
</tr>
<tr>
<td>Belgium</td>
<td>119</td>
<td>153</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>34</td>
<td>n/a</td>
</tr>
<tr>
<td>Cyprus</td>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>Denmark</td>
<td>6</td>
<td>128</td>
</tr>
<tr>
<td>Estonia</td>
<td>3</td>
<td>n/a</td>
</tr>
<tr>
<td>Finland</td>
<td>4</td>
<td>118</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>3</td>
<td>184</td>
</tr>
<tr>
<td>France</td>
<td>83</td>
<td>159</td>
</tr>
<tr>
<td>Germany</td>
<td>6</td>
<td>115</td>
</tr>
<tr>
<td>Greece</td>
<td>n/a</td>
<td>111</td>
</tr>
<tr>
<td>Hungary</td>
<td>89</td>
<td>111</td>
</tr>
<tr>
<td>Ireland</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Italy</td>
<td>4</td>
<td>111</td>
</tr>
<tr>
<td>Latvia</td>
<td>6</td>
<td>n/a</td>
</tr>
<tr>
<td>Lithuania</td>
<td>84</td>
<td>n/a</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>74</td>
<td>107</td>
</tr>
<tr>
<td>Malta</td>
<td>4</td>
<td>128</td>
</tr>
<tr>
<td>Netherlands</td>
<td>80</td>
<td>107</td>
</tr>
<tr>
<td>Poland</td>
<td>8</td>
<td>107</td>
</tr>
<tr>
<td>Portugal</td>
<td>6</td>
<td>119</td>
</tr>
<tr>
<td>Romania</td>
<td>65</td>
<td>119</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5</td>
<td>119</td>
</tr>
<tr>
<td>Slovenia</td>
<td>19</td>
<td>n/a</td>
</tr>
<tr>
<td>Spain</td>
<td>7</td>
<td>n/a</td>
</tr>
<tr>
<td>Sweden</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>UK</td>
<td>63</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: European Audiovisual Observatory, Solon

Cable customers can choose from a variety of content offers. The basic digital package includes all major national public and private channels. Mid-tier packages with up to 120 channels provide access to an even wider choice of channels usually including additional general interest as well as thematic channels.

Channel bouquets include stations focusing on sports, music, news, children, health, culture/education and travel. A large number of foreign language programmes further increases content diversity and is of great importance for immigrant communities as well as for subscribers interested in foreign cultures and languages.
To create their personal TV experience, Cable customers can complement the basic or mid-tier channel bouquet with Premium Pay TV packages. Although some operators offer Premium Pay TV on their own, Premium content such as blockbusters or live sports is more often supplied by Pay TV providers. Premium Pay TV packages are often available on all TV distribution platforms, the Cable industry being one of the most important cooperation partners for Pay TV providers like Canal+, Sky Deutschland or Viasat.

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**Comparison of Channel Line-Ups per Operator (selected EU countries)**

# of channels, as of Apr. 2009

<table>
<thead>
<tr>
<th>Digital Basic Channels</th>
<th>Mid-tier Channels (up to)</th>
<th>Thereof International Channels</th>
<th>Premium Pay TV supported by:</th>
<th>VoD</th>
<th>DVR</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>72</td>
<td>40</td>
<td>Prime BeTV</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>22</td>
<td>67</td>
<td>34</td>
<td>Canal+ TV 1000</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>120</td>
<td>100</td>
<td>13</td>
<td>Canal+</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>76</td>
<td>84</td>
<td>41</td>
<td>Premiere(1)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>36</td>
<td>45</td>
<td>20</td>
<td></td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>60</td>
<td>69</td>
<td>15</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>81</td>
<td>45</td>
<td>46</td>
<td>Canal+ HBO Cinemax</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
<td>23</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>54</td>
<td>36</td>
<td>Canal+ TV 1000 Viasat</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>45</td>
<td>120</td>
<td>2</td>
<td>BSkyB</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>59</strong></td>
<td><strong>72</strong></td>
<td><strong>27</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) No direct cooperation, only availability agreement
Note: Countries shown are represented by a leading Cable operator
Source: Company Information, Solon
VoD platforms fulfil the consumers need for individualised video usage. Besides offering on-demand access to blockbusters and serials, VoD provides an excellent basis for the distribution of local content. The experience with existing VoD platforms shows that VoD is a strongly used means for accessing otherwise hard to get of local productions. At Telenet, for example, local content dominates both VoD transactions and revenue. Rich VoD libraries are an efficient means for the distribution of low scale special interest content. They are much cheaper to realise than a fully fledged TV programm stream and therefore easier to finance and monetise. Local productions will benefit strongly from the trend towards increased VoD usage.

With its efforts to establish digital services and increase content diversity, the European Cable industry is making an important contribution to the promotion of media pluralism. Moreover, many Cable operators also contribute to intercultural understanding and exchange since they offer a great variety of international channels.
FUTURE CHALLENGES

Over the past years, Cable operators created a unique position as the first NGA providers offering the whole world of Triple and even Quadruple Play services. Going forward Cable operators will continue to work hard on maintaining the edge and consistently surprising their clients with excellent service and innovative products.

In the recent 2009 European Cable Survey [19] CEOs prioritised three strategic directions:

- **Service**: Provide an excellent customer experience along the whole customer lifecycle - from sales to customer service and retention,
- **Network**: Implement EuroDOCSIS 3.0 and FTTH,
- **Products**: Further expansion of the product offering including new communication and content services, move to mobile and digitisation.

### Top Issues for European Cable CEOs

<table>
<thead>
<tr>
<th>Issue</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer value optimization</td>
<td>4.7</td>
</tr>
<tr>
<td>Expansion fixed-line telco services</td>
<td>4.5</td>
</tr>
<tr>
<td>Customer service excellence</td>
<td>4.5</td>
</tr>
<tr>
<td>Bandwidth expansion / Docsis 3.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Marketing &amp; sales excellence</td>
<td>4.1</td>
</tr>
<tr>
<td>Efficiency improvements</td>
<td>4.1</td>
</tr>
<tr>
<td>Introduction of mobile broadband</td>
<td>3.6</td>
</tr>
<tr>
<td>Expansion of content offering</td>
<td>3.5</td>
</tr>
<tr>
<td>Development of business offering</td>
<td>3.2</td>
</tr>
<tr>
<td>New video revenues</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Ranking from 1 – no relevance to 5 - highly important  
Source: Solon European Cable Survey 2009

**Service: Providing Excellent Customer Experience**

A major competitive advantage of Cable, especially vs. DTT, is a well managed platform. If problems arise with their service, Cable subscribers have someone to turn to. In a world of complex service offerings and increasing competition, excellent customer care is one of the prime differentiators.

However, Cable operators have realised that good customer care is often only the first step. The key in creating trusting and lasting customer relationships is actually providing best-in-class customer experience along the entire customer life cycle. This starts with excellence in...
marketing and sales processes, continues with customer care and personalised upsale-offers and ends with churn management and retention. Knowing this, Cable operators invest heavily in creating customer-friendly, if not customer-centric organisations.

Network: Using DOCSIS 3.0 and Fibre to Win the Race towards Higher Bandwidths

The race towards higher bandwidths is one of the main growth drivers of Cable operators. With the ongoing Europe-wide EuroDOCSIS 3.0 roll-outs, Cable operators have ensured a mid-term competitive advantage. DSL players are fighting back with FTTH trials or complete roll-outs (e.g. in France). In reacting to this, Cable has the huge advantage that it must not move to FTTH within a single step, but can adjust its network demand-driven cluster by cluster. The more capacity subscribers demand, the closer fibre will be brought to the client, with the final step in this evolution being FTTH networks. Cable CEOs confirmed this strategy in the 2009 Solon Cable Survey [19] – by showing that cluster size will be reduced significantly over the next few years and fibre moves closer and closer to the home.

Products: Leverage the Network Reach and Further Increase Broadband Penetration

The largest potential Cable operators have in leveraging their networks is narrowing the "access gap". While European Cable networks pass 123m homes, only 72m homes are actually Cable subscribers. Further 51m households could potentially use Cable services, but have so far decided against it. Many of these households are located in more rural areas, where Satellite is often the TV access technology of choice.

By addressing the access gap, Cable operators can significantly contribute to the quick roll-out of very high speed internet services also in rural areas. The national broadband policies should consider supporting the leverage of existing Cable networks, rather than focussing on building new FTTH networks.

Products: Move to Quadruple Play

Many Cable operators (e.g. operators in Belgium, France, Portugal, the Netherlands, Sweden, UK) have already launched mobile services, be it voice, broadband or a combination of both. Most operators currently operate under "resale" or MVNO business models. Some operators are even contemplating to become fully fledged Mobile Network Operators by using future frequency auctions to acquire a licence and build the own network.

Independent of the business model chosen, the sheer number of mobile service launches shows the ever increasing trend towards "Quadruple Play" pursued both by Cable operators and telcos. Quadruple Play offerings increase the chances of up-selling to the existing customer base and help to prevent churn by retaining subscribers with a "one-stop telecommunication" solution.

Products: Digitisation – Between Following and Creating Market Demands

Managing the digitisation of the existing TV customer base has been on the “To Do“ list of European Cable operators since close to a decade. While networks are already digitised, the main task now lies in convincing the TV customers to replace their analogue with a digital subscription.
In the early years of digitisation, penetration was driven by the access to Premium Pay TV content. Now, consumer focus is on high transmission quality, choice and innovative services. Cable operators consequently employ several strategies to improve market demand:

- Capitalise on the demand for superior video quality arising from a growing penetration of HDTV ready and wide-screen TV sets by offering an attractive HDTV channel line up. Already now more than 50% of the new set top boxes handed out to subscribers are HD capable, a share that will rise to about 90% within the next two years [19].

- “Sponsor” subscriber migration, incentivising the customers to switch with attractively priced packages or subsidised set top boxes.

- “Encourage” subscribers to switch by slowly reducing the number of available analogue channels.

The last strategy has proven to be the most difficult. The excellent analogue offering of many Cable operators is an important reason for low migration speeds. Customers just seem to be happy with their analogue bouquets containing 30+ channels. Decreasing the analogue bouquet therefore could at least theoretically be a valid option for fostering migration.
Yet, a forced migration endangers the customer relationship and potentially eases the move towards competitors. Also larger Free TV broadcasters are hesitant to give up the shielded analogue offering with only a few peers for a digital-only bouquet with a high number of channels competing for eyeballs. To limit the number of subscribers “lost” in digital switch-over, accelerated digitisation must be realised in close cooperation with all related market parties: Operators, broadcasters and media authorities.

The Battle for the Living Room: Competition in the Home

Cable used to have a comfortable market situation. Market shares between Cable, satellite and terrestrial TV were mostly stable. Cable was even able to win over from terrestrial TV. Once a household had decided on a TV access technology, it often stuck to it for a long time. As a consequence, the different TV access technologies were complementary rather than substitutes. Competition was something that mainly happened within the broadband market – and here Cable acted as the contender.

With both incumbents and alternative DSL providers moving towards IPTV, this changes radically. Every DSL line that reaches the household in addition to an existing Cable access effectively creates competition in the home. France is renowned for its IPTV and Triple Play offers, but IPTV is also gaining relevance in a lot of other markets such as Sweden, Belgium or the Netherlands, where this new offering increasingly puts Cable operators under pressure. The market effects are noticeable. In the formerly strong Cable markets Netherlands and Belgium the Cable market share dropped by 10% within only a year and a half. The competitive pressure will rise further as fixed-line operators move to FTTH and search for applications that justify the high speed levels provided.

Broadband access as such, be it Cable, DSL or FTTH, is also the basis for another competitive threat: “Over-the-top” services. Via broadband more and more users directly access the online video offers of content providers – without subscribing to a designated TV platform. Examples are internet portals from big TV corporates (news, documentaries, old episodes of shows), stand-alone internet content-providing platforms (e.g. Hulu, which provides numerous movies, TV shows, documentaries) or other internet content portals (e.g. YouTube). Over-the-top is increasingly gaining relevance both in usage and in reach, driven by legal content platforms providing high quality content.

In the near future, content providers could try to bypass distribution platforms and focus on online over-the-top content distribution. Subscribers would not need TV distribution from usual distribution platforms anymore, but rather access video content online only, most of the time on-demand. This would put Cable operators (and other distribution platforms) under considerable pressure, as it turns their access offer into a “dumb pipe”.

Yet, Cable is in a strong position to manage this new competitive threat. By providing high speed access combined with attractive content bundles and innovative, on-demand TV services, all supported by excellent customer service, Cable operators provide comfortable access to both content and high speed.
Cable Market Structure – Consolidation across Networks

The national Cable market structure varies significantly among the respective European countries. Some markets have already seen intense consolidation waves resulting in one single or two dominant Cable operators, e.g. in France or in the Netherlands respectively. Other markets are still very fragmented either with smaller, regionally limited players as in Spain or Germany or with operators competing in same regions with a lot of overbuild as in Bulgaria or in Poland. In both situations, smaller Cable operators may be too weak to sustain competition against telcos as their limited budgets do not allow for extensive upgrade and marketing activities. Further consolidation, as already realised in many other markets, would significantly strengthen the competitiveness of these operators.

The next wave of consolidation could even overcome the technological boundaries. In many CEE countries hybrid networks are already quite common. In Western Europe, DSL and mobile operators are slowly starting to look at Cable in their quest of getting an own, direct high speed access to the end user. A few Altnets have started to take over Cable networks, taking advantage of their direct customer relationships and thereby bypassing the “last mile” of the incumbents. Integration with mobile operators would result in full Quadruple Play operators. This would highly increase their competitiveness against other market players.

Overall, the Cable markets will continue to change constantly, adjusting to the customer needs and market environments. One thing however will remain a constant. Based on technological excellence, Cable operators will be driving the market with ever innovative products in the competitive market of service offerings.
CONCLUSION AND RECOMMENDATIONS

Over the past years the European Cable industry has undergone tremendous changes. Once just providing analogue TV access, Cable now attracts its subscribers with high speed internet access, attractive content offers and good customer service at very affordable prices. However, the Cable industry’s subscribers are not only the only ones who are benefitting. With its total annual revenue of €18bn in 2008, Cable is an industry that consistently contributes to the economic wealth of Europe. The most important contributions are:

■ **Broadband Competition:** European Cable operators are instrumental in creating sustainable infrastructure competition. Broadband penetration in active Cable markets is not only significantly higher than in DSL-dominated countries (+30% in Western Europe, +50% in CEE countries); high penetration rates are also reached much faster. The superiority of Cable also shows in the speed levels offered to the residential user. In many countries Cable operators now offer speed levels that are at least twice as high as the best residential offer of the telco incumbent at the same price. The ongoing roll-out of EuroDOCSIS 3.0 by European Cable operators forces their fixed-line peers to react and quickly invest in fibre networks. No service-based competitor, be it a reseller or a LLU-based alternative carrier, is able to show the same competitive impact as Cable operators are.

■ **Growth and Employment:** Over the last decade, European Cable revenues have grown at an impressive rate of 10% p.a. Even in times of economic slowdown, Cable operators stayed on their growth trajectory both regarding revenue and network investments. This pattern is not expected to change in the current downturn. By the end of 2008 the Cable industry directly employed about 84,000 people, 43% more than five years earlier. An additional 94,000 jobs are located at the suppliers of Cable operators, be it broadcasters, equipment suppliers or construction companies. All these jobs are here to stay, as Cable is a local service and infrastructure business which cannot be off-shored.

■ **Investments and Innovation:** European Cable operators on average invest about 25% of their revenues into further network build-out and new service platforms. This is significantly more than the spending levels of incumbents (15%) and alternative DSL operators (19%). As operators are preparing their networks for future TV and communication services, the investment level will stay high. Investment currently focusses on expanding the NGA infrastructure by rolling-out EuroDOCSIS 3.0 and bringing fibre closer to the home. Based on upgraded networks, a broad variety of new services is being introduced from very high speed internet, high-quality Voice over IP and mobile broadband to a whole range of new TV products, all of them enriching the lives of Cable users.

■ **Media Pluralism:** With their large, bidirectional platforms for the distribution of a steadily increasing number of TV channels and innovative TV products (i.e. EPG, HDTV, DVR, VoD, Catch-up), Cable operators are important agents of media pluralism and cultural diversity. Their broadcast and copyright fees are essential contributors for financing broadcasters and content creation. Especially in smaller countries, a diversified national TV landscape would not exist without the financial support of Cable operators.

European policy makers and regulators have supported the Cable industry and especially the roll-out of high speed broadband services with a whole range of initiatives. Investment incentives and a regulation, which increasingly supports infrastructure competition rather than service competition, are the indispensable foundation of Cable operators’ success in the...
broadband market. At the same time, Cable operators are still heavily regulated regarding content distribution. In the light of strongly growing TV access competition and the emergence of over-the-top content provision, several areas of media regulation need to be adjusted to the changing market dynamics: Copyright management, public TV funding and must-carry.

It is essential that European policy makers develop a profound understanding of the market dynamics European Cable operators are unleashing. Considering the importance of Cable for the economy as a whole and in particular for Europe to take the lead in the knowledge-based economy, the following policy areas are especially important to be addressed in order to support continued growth, investment and competition by the Cable industry.

**Telecommunication Policy**

**Supporting Cable as Leading Next Generation Access Network**

Cable operators are the leading NGA suppliers and investors. Over the course of the past two decades, Cable operators in Europe have continuously reinvested a significant part of their revenues and emerged as the prime contender to telco dominance in Europe.

Strong infrastructure competition by Cable does not only provide end consumers with a better choice and lower prices, but also works as catalyst for the overall development of Next Generation Access networks:

- A successful Cable industry increases overall take-up in very high speed rather than substituting xDSL and fibre
- Competing NGA networks create real competitive pressure bringing further price reductions and product innovation

If Cable ceases to invest in NGA, investment by access competitors will also slow down. It is therefore essential that Cable operators can sustain their current investment levels.

Infrastructure policy and the right regulatory framework are key drivers in maintaining an attractive investment climate for Cable. A supportive regulatory framework considers the following aspects:

- Create a regulatory regime that spurs investment in NGAs and provides real infrastructure competition with a chance to work,
- Develop a NGA policy that encourages, not discourages, investment and innovation by Cable. It must recognise that Cable is still the contender and thus should not be overregulated by symmetrical, or technology-specific regulation.

Overall, national and European regulation should take a broad, longer term approach to regulation of infrastructure competitors and finally move away from the service-driven approach of the past.

**Public Involvement in Broadband Markets**

Providing European citizens with pervasive broadband access is one of the most important policy goals in making the EU the most dynamic and competitive knowledge-based economy
in the world. Within many EU countries this goal is or will be supported by public funding of NGA infrastructure.

A precondition of well guided funding support for NGAs is the acknowledgement of already existing NGA competition:

- Wherever broadband services are provided competitively, state aid should be carefully examined in order to not distort competition

- Public funding must rather focus on the development of networks in those areas that, due to market failures, are characterised by a persistent lack of commercial initiative by any private infrastructure providers to invest into NGA infrastructure. However, in such cases, state aids should be proportionate to the market failure they intend to correct. For example, instead of crowding out private initiative by building a full network to the end-customers from scratch, state aid could take the form of funding a trunk network to towns with a lower population density so that private investors could find it profitable to deploy their access networks there. In these regions, Cable companies might be willing to team up with public authorities to invest in new networks on the basis of technology neutral tendering procedures

The role of the EU in this context is to provide a regulatory framework that stimulates competition, and ensures that public funding of broadband network projects in member states meet EU state aid criteria. The EU should also support further consolidation within the Cable market, as already now broadband penetration is noticeably higher in countries where Cable has reached a considerable scale, than in countries where Cable is still relatively fragmented.

### Media and Content Policy

**From Must-Carry to Must-Offer**

Must-carry regimes help to ensure variety and diversity within the scarce resources of TV networks. Yet it must be noted that it represents a major regulatory intervention and should therefore be applied very carefully.

For the Cable industry must-carry regimes are a matter of crucial importance, as they carry significant risks if they are badly implemented:

- Used in excess, must-carry can distort the market balance between Cable and broadcasters by shifting the negotiation power to those channels who have guaranteed access to Cable networks.

- The costing of the transport of must-carry channels is often left to free negotiation between broadcasters and Cable operators. This may create a bias as, whatever the outcome of the negotiation may be, the Cable operator cannot refuse the deal.

- In some member states, Cable operators which are subject to must-carry rules are also required to pay copyright fees to collecting societies and broadcasters.

The EU and its representatives must make sure that the European legislation is properly implemented at the national level. It also should be ensured that the must-carry approach will not be extended to other national legislations such as telecommunications and audiovisual laws.
On the other hand, it must be considered that, due to digitisation and growing TV competition in the home, the market power is quickly moving away from distribution platforms to content providers and consumers. This market shift will potentially reduce the need for platform specific regulations such as must-carry, while making the opposite, a shift towards a “must offer” principle, necessary. This is especially the case in some countries where Cable TV is not the primary access TV platform. In these situations, the must offer principle is even more justified in order to avoid abuses of some broadcasters, such as the refusal to offer their free-to-air channels to the Cable platforms.

Revision of Copyright Clearance System

The current European copyright framework is characterised by a high degree of inefficiency and partially impedes the EU from achieving overarching goals including the further development of the internal market, competition and fast digitisation.

In the current system especially Cable operators are subject to high transaction efforts and opportunity costs as a result of uncertainties caused by copyright regulations pertaining to the clearance of cable distribution rights. Therefore an improved, less costly and more consistent and transparent rights management and clearance system across Europe is needed.

The EU should help to install a new, more efficient copyright clearance system which would help all market players to streamline their transaction and management costs. Key to this new system is competition between collecting societies which should increase the efficiency of the system and help to drive the i2010 Agenda forward. However, it is also key to avoid the accumulation of market power with only two to three large copyright societies in Europe.

The European Commission should formulate a recommendation to all member states related to a consistent application of the existing legislative framework, calling for:

- A balanced implementation of Articles 9 and 10 of the Satellite and Cable Directive; that:
  - guarantees a “single face to the customer” by forcing rightholders to negotiate only via collecting societies (Art. 9) and
  - enables one-stop-shopping with audiovisual media service providers or with the producers of audiovisual media content, by allowing them to clear all necessary rights themselves with third parties and/or collective rights management organisations with a view to offering “all-rights-included” products to aggregators of audiovisual media services. (Art.10)
- A technology-neutral, cross-border “all-rights-included” copyright clearing (“One-stop-shop”).
- Transparent reporting of licence and monetary flows on the part of collecting societies
- Competition among collecting societies in Europe or, in the absence thereof, strict ex ante control based on the model provided by the regulatory framework for electronic communications.
- A more market-oriented pricing process.

Furthermore, the European Commission could consider a new holistic Clearance Directive providing a new system for the clearance of rights including:
■ The clearance of all kinds of service content exploitation forms, i.e. fixed, mobile, online, Cable, DTT etc.

■ Combined with the clearance on both the horizontal, i.e. multiterritory, level and the vertical level, i.e. one actor in the value chain to clear at once all exploitation forms.

Transition to Digital TV

The transition to digital TV is one of the most important challenges of Europe’s Cable operators. In many countries digitisation has proven to be a rather cumbersome process. This is due to multiple reasons varying from market to market and from the different players involved:

■ Larger broadcasters, being usually one of a few channels included in the analog access packages, fear a loss of audience, once the transition to digital access with dozens of channels is made.

■ Consumers are hesitant to give up the convenience of the analogue Cable access:
  ▪ No set top boxes needed, analogue Cable available plug-and-play for all TV sets in all rooms
  ▪ No need to have two remote controls for both the set top box and the TV set

■ Regulators in some countries hesitate to ease “melting down” of analogue offerings – as they are aware of consumer and broadcaster preferences.

Considering the still strong interest of consumers in analogue Cable access, a forced migration would result in dissatisfaction and heavy churn. Rather than setting a fixed switch-off date, Cable operators therefore clearly favour a market-driven approach to digitisation.

In fact, despite their publicly announced digitisation plans, even many national regulators rather support the analogue Cable offering than fostering a quick migration. Extensive analogue must-carry regimes are one example. Another example is the current development in the Netherlands. The decision of the Dutch regulator to regulate access to the standard analogue TV capacity for third parties is a backward looking measure, which stimulates competitors to offer identical analogue TV services. In Spain, private broadcasters are denying Cable operators the right to broadcast some of their free-to-air DTT signals. As a result, digitisation is slowed down and investments into high speed internet undermined.

The EU should encourage steps that are taken to support the migration, and condemn discriminatory behaviour of content providers. At the same time they must ensure that no regulation is imposed, which has the potential to revitalise the analogue Cable access and hamper Cable operators in innovation, investment and further development of the TV platform.

Re-allocating Digital Dividend

The digital switch over of terrestrial TV imposes the challenge of correctly re-allocating the frequencies that will be freed up as a consequence of this move. New mobile services will offer a wide range of advantages to the general public but, as with other wireless technologies, there may be potential for interference with existing services and customer equipment. This should be fully assessed prior to the introduction of new services.
Financing Public TV

The audiovisual landscape in Europe is changing rapidly. Advertising revenues, which long have supported both public and commercial TV providers, are coming down as a result of economic crisis, resulting in distribution conflicts. Recent legal initiatives in France and Spain have forced public TV stations to withdraw from the advertising market, thus supporting the re-distribution of advertising revenues towards commercial TV. To bridge the emerging funding gap, broadband providers, be it telcos or the Cable industry, and commercial TV providers are force to finance public broadcasters with a new tax. The (comparatively high) level of this tax is arbitrarily decided and does not seem to be proportional to the objective sought.

Wrong and discriminative national regulation could lead operators to limit investment and raise their tariffs. To the extent that these levies constitute an additional and unjustified burden on telecoms and Cable operators, they will certainly have a very negative impact on the deployment of new networks and the generalisation of the Information Society.

European policy maker must make sure that the newly emerging funding systems for public TV do not disproportionately burden single participants and thus hamper investment and innovation.

Strengthening Digital Confidence

As the digital space grows and becomes increasingly complex, many users, consumer or enterprises, have developed concerns relating to its security and integrity.

To sustain the current dynamics of the digital economy, it is essential to continue building the trust of consumers and suppliers in digital and online services. Digital Confidence is a key growth enabler for the digital economy.

Policies and practices should not be driven by single issues but rather reflect a holistic view of all Digital Confidence areas:

- **Network Integrity and Quality of Services**: Operators should be incentivised to provide secure and resilient technology platforms and provide excellent customer experience.

- **Privacy and Data Protection**: Incentives should be given to develop consumer education initiatives. Already today many Cable operators have created user education programmes often addressing younger users, parents and teachers.

- **Piracy and Theft Avoidance**: First and foremost, content rights management (CRM) has to be driven by the content industry. Yet, Cable operators are open to support these measures with state of the art conditional access- and CRM-systems.

In most of the addressed areas there is limited need for new laws. Industry should rather develop leadership in Digital Confidence by educating consumers, controlling digital threats and actively cooperating with regulators to create a trustworthy digital environment.
COUNTRY PROFILES

In the following pages, 18 countries have been profiled. Fourteen countries, representative of “Cable clusters” described earlier, were chosen out of EU-27 members. These countries’ Cable subscribers amount to approximately 88% of total unique Cable subscribers in the European Union.

On the other hand, although Norway and Switzerland are not members of the EU, profiles of these countries’ Cable industries were included to complement this study. The Swiss market, together with Belgium and the Netherlands, is one of the strongest Cable markets in Europe, while the Norwegian market is notable for its rapid shift from analogue to digital.
Austria

Household Infrastructure Split
m HH, market share in %, 2008

Cable Coverage
- 1.8m Homes Passed
- 1.6m Unique Cable Subscribers

Source: Screen Digest, Solon

Cable Industry

<table>
<thead>
<tr>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>€597</td>
</tr>
<tr>
<td>Investments</td>
<td>~ €140m</td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~ 1,460</td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>29%</td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>34%</td>
</tr>
</tbody>
</table>

Competition & Key Players

- Number of Cable operators >200
- Key players (market shares unique subscribers)
  - UPC Austria 56%
  - Liwest 10%
  - Salzburg Cable 8%

Innovation

- HDTV ✔
- Catch-up TV ✔
- DOCSIS 3.0 2009
- DVR ✔
- VoD ✔
- Mobile ✔
Belgium

Household Infrastructure Split
m HH, market share in %, 2008

Cable Coverage
- 4.4m Homes Passed
- 3.8m Unique Cable Subscribers

<table>
<thead>
<tr>
<th></th>
<th>Cable</th>
<th>Non-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>3.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Broadband</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Telephony</td>
<td>0.7</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues 2008</td>
<td>€1,127m</td>
<td>69%</td>
</tr>
<tr>
<td>Investments 2008</td>
<td>~ €265m</td>
<td></td>
</tr>
<tr>
<td>Investments as % of revenues</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~ 3,640</td>
<td>21%</td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>

Competition & Key Players

- Number of Cable operators: 19
- Key players (market shares unique subscribers)
  - Telenet: 68%
  - Voo (Tecteo/Brutele): 30%

Innovation

- HDTV
- Catch-up TV
- DOCSIS 3.0 2009 - 10
- DVR
- VoD
- Mobile (Voice)
Czech Republic

Household Infrastructure Split
$m HH, market share in %, 2008

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable</th>
<th>Non-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>0.8%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Broadband</td>
<td>1.1%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Telephony</td>
<td>0.1%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry

- Revenues 2008: €234m, 228%
- Investments 2008: ~€65m
  - Investments as % of revenues: 28%
- Employees (direct incl. outsourcing): ~1,530, 83%
- Degree of digitisation (% of basic Cable TV subscribers): 38%
- Broadband penetration (% of unique Cable subscribers): 40%

Competition & Key Players

- Number of Cable operators: 62
- Key players (market shares unique subscribers):
  - UPC: 67%
  - Moravianet: 2%

Innovation

- HDTV ✓
- Catch-up TV ✗
- DOCSIS 3.0 ✗
- DVR ✓
- VoD ✗
- Mobile ✗
Denmark

Household Infrastructure Split
m HH, market share in %, 2008

Cable Coverage
- 1.8m Homes Passed
- 1.7m Unique Cable Subscribers

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable</th>
<th>Non-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>1.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Broadband</td>
<td>0.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Telephony</td>
<td>0.1</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry 2008

- Revenues 2008: €635m, 75% growth
- Investments 2008: ~€125m
  - Investments as % of revenues: 20%
- Employees (direct incl. outsourcing): ~1,720, 43% growth
- Degree of digitisation (% of basic Cable TV subscribers): 11%
- Broadband penetration (% of unique Cable subscribers): 36%

Competition & Key Players

- Number of Cable operators: 1,500
- Key players (market shares unique subscribers):
  - YouSee: 67%
  - Telia Stofa: 13%

Innovation

- HDTV ✓
- Catch-up TV ✗
- DOCSIS 3.0 ✓
- DVR ✓
- VoD ✓
- Mobile ✗
Finland

Household Infrastructure Split
m HH, market share in %, 2008

Cable Coverage
- 1.8m Homes Passed
- 1.4m Unique Cable Subscribers

Telephony
- 0.0
- 1.7
- 1.7

Broadband
- 0%
- 1.4
- 1.6

TV
- 14%
- 1.3
- 1.1
- 2.4

Source: Screen Digest, Solon

Cable Industry

<table>
<thead>
<tr>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>€270m</td>
</tr>
<tr>
<td>Investments</td>
<td>~ €50m</td>
</tr>
<tr>
<td>Employees</td>
<td>~ 620</td>
</tr>
<tr>
<td>Degree</td>
<td>100%</td>
</tr>
<tr>
<td>Broadband</td>
<td>18%</td>
</tr>
</tbody>
</table>

Competition & Key Players

- Number of Cable operators: 40
- Key players (market shares unique subscribers):
  - Welho: 23%
  - DNA: 19%
  - Elisa: 18%

Innovation

- HDTV ✓
- Catch-up TV ×
- DOCSIS 3.0 ✓
- DVR ✓
- VoD ✓
- Mobile ✓ (BB)
### France

#### Household Infrastructure Split

<table>
<thead>
<tr>
<th></th>
<th>TV</th>
<th>Broadband</th>
<th>Telephony</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>14%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Non-Cable</td>
<td>21.3</td>
<td>17.9</td>
<td>27.2</td>
</tr>
</tbody>
</table>

**Cable Coverage**
- 9.4m Homes Passed

**Source:** Numericable, Screen Digest, Solon

#### Cable Industry

- **2008**
  - Revenues: €1,300m (78% growth)
  - Investments: €365m
  - Investments as % of revenues: 28%
  - Employees (direct incl. outsourcing): n.a.
  - Degree of digitisation (% of basic Cable TV subscribers): n.a.
  - Eligible homes to 3-Play, HDTV and VoD offers: 8.3m

#### Competition & Key Players

- Number of Key Cable operators: 1
- Key players (market shares unique subscribers):
  - Numericable: 99.6%

#### Innovation

- HDTV
- Catch-up TV
- DOCSIS 3.0
- DVR
- VoD
- Mobile (Voice)
## Germany

### Household Infrastructure Split

**m HH, market share in %, 2008**

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable Coverage</th>
<th>Non-Cable Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>19.7</td>
<td>18.7</td>
</tr>
<tr>
<td>Broadband</td>
<td>19.7</td>
<td>21.6</td>
</tr>
<tr>
<td>Telephony</td>
<td>37.1</td>
<td>38.5</td>
</tr>
</tbody>
</table>

Source: Screen Digest, DLM, Solon

### Cable Industry

<table>
<thead>
<tr>
<th>Metric</th>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues 2008</td>
<td>€3,240m</td>
<td>53%</td>
</tr>
<tr>
<td>Investments 2008</td>
<td>~ €790m</td>
<td></td>
</tr>
<tr>
<td>Investments as % of revenues</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~ 5,910</td>
<td>13%</td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>9%</td>
<td></td>
</tr>
</tbody>
</table>

### Competition & Key Players

- Number of Cable operators: > 1,000
- Key players *(market shares unique subscribers)*
  - Kabel Deutschland: 44%
  - Unitymedia: 25%
  - Kabel Baden-Württemberg: 11%

### Innovation

- HDTV: ✔
- Catch-up TV: ×
- DOCSIS 3.0: 2009-10
- DVR: ✔
- VoD: ✔
- Mobile: ✔
## Cable Industry

<table>
<thead>
<tr>
<th>Metric</th>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues 2008</td>
<td>€573m</td>
<td>111%</td>
</tr>
<tr>
<td>Investments 2008</td>
<td>~ €155m</td>
<td></td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~ 3,520</td>
<td>62%</td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>27%</td>
<td></td>
</tr>
</tbody>
</table>

## Competition & Key Players

- Number of Cable operators: 420
- Key players (market shares unique subscribers):
  - UPC: 32%
  - T-Kábel: 18%
  - Fibernet: 8%
  - ViDaNet: 4%

## Innovation

- HDTV: ✓
- Catch-up TV: ☒
- DOCSIS 3.0: ✓
- DVR: ✓
- VoD: ☒
- Mobile: ☒
Ireland

Household Infrastructure Split
m HH, market share in %, 2008

<table>
<thead>
<tr>
<th>Cable Coverage</th>
<th>1.0m Homes Passed</th>
<th>0.6m Unique Cable Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>0.5 40%</td>
<td>0.8 6%</td>
</tr>
<tr>
<td>Non-Cable</td>
<td>0.6 0%</td>
<td>0.5 2%</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry

- Revenues 2008: €222m, 51%
- Investments 2008: ~€52m
- Investments as % of revenues: 23%
- Employees (direct incl. outsourcing): ~450, 24%
- Degree of digitisation (% of basic Cable TV subscribers): 56%
- Broadband penetration (% of unique Cable subscribers): 18%

Competition & Key Players

- Number of Cable operators: 1
- Key player (market shares unique subscribers):
  - UPC Ireland: 100%

Innovation

- HDTV Rollout 2009
- Catch-up TV
- DOCSIS 3.0
- DVR
- VoD 2009-10
- Mobile
Netherlands

**Household Infrastructure Split**
*m HH, market share in %, 2008*

<table>
<thead>
<tr>
<th></th>
<th>Cable Coverage</th>
<th>Broadband</th>
<th>Telephony</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Homes Passed</td>
<td>Unique</td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>6.7m</td>
<td>5.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Broadband</td>
<td>6.6m Unique</td>
<td>2.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Telephony</td>
<td>6.6m</td>
<td>1.5</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Source: Screen Digest, NL Kabel, Solon

**Cable Industry**

- **Revenues 2008**: €2,110m (90% growth)
- **Investments 2008**: ~€469m
  - Investments as % of revenues: 22%
- **Employees (direct incl. outsourcing)**: ~3,500 (28% growth)
- **Degree of digitisation (% of basic Cable TV subscribers)**: 35%
- **Broadband penetration (% of unique Cable subscribers)**: 38%

**Competition & Key Players**

- **Number of Cable operators**: 26
- **Key players (market shares unique subscribers)**
  - Ziggo: 56%
  - UPC: 35%
  - Delta: 3%

**Innovation**

- HDTV
- Catch-up TV
- DOCSIS 3.0
- DVR
- VoD
- Mobile
### Household Infrastructure Split

**Norway**

*in HH, market share in %, 2008*

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable Coverage</th>
<th>Broadband Coverage</th>
<th>Telephony Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>48%</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Broadband</td>
<td>21%</td>
<td>0.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Telephony</td>
<td>3%</td>
<td>1.3</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Source:** Screen Digest, Solon

### Cable Industry 2008

- **Revenues 2008**: €399m, 88%
- **Investments 2008**: ~€78m, 19.5%
- **Employees (incl. outsourcing)**: ~1,051, 45%
- **Degree of digitisation (% of basic Cable TV subscribers)**: 72%
- **Broadband penetration (% of unique Cable subscribers)**: 30%

### Competition & Key Players

- **Number of Cable operators**: 950
- **Key players (market shares unique subscribers)**:
  - Canal Digital Kabel TV: 49%
  - Get: 37%

### Innovation

- **HDTV**: ✓
- **Catch-up TV**: ×
- **DOCSIS 3.0**: ✓
- **DVR**: ✓
- **VoD**: ✓
- **Mobile**: ×
Poland

Household Infrastructure Split
$m HH, market share in %, 2008

Cable Coverage
- 5.3m Homes Passed
- 4.7m Unique Cable Subscribers
- Cable Coverage:
  - TV: 4.4%, 33%
  - Broadband: 1.3%, 24%
  - Telephony: 0.4%, 3%
- Unique Cable Subscribers:
  - 4.4m
  - 4.0m
  - 3.4m

Source: Screen Digest, Solon

Cable Industry

<table>
<thead>
<tr>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues 2008</td>
<td>€891m</td>
</tr>
<tr>
<td>Investments 2008</td>
<td>~ €240m</td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~ 6,760</td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>11%</td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>27%</td>
</tr>
</tbody>
</table>

Competition & Key Players

- Number of Cable operators: 635
- Key players (market shares unique subscribers):
  - UPC: 23%
  - Vectra: 16%
  - Multimedia Polska: 13%
  - ASTER Group: 9%

Innovation

- HDTV ✓
- Catch-up TV ✗
- DOCSIS 3.0 ✗
- DVR ✓
- VoD ✓
- Mobile ✓
- (Voice)
Portugal

### Household Infrastructure Split

*in HH, market share in %, 2008*

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable</th>
<th>Non-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>1.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Broadband</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Telephony</td>
<td>0.7</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

### Cable Industry 2008

- Revenues 2008: €753m, Growth '03-'08: 71%
- Investments 2008: ~ €170m
  - Investments as % of revenues: 23%
- Employees (direct incl. outsourcing): ~ 1230, Growth '03-'08: 55%
- Degree of digitisation (% of basic Cable TV subscribers): 38%
- Broadband penetration (% of unique Cable subscribers): 48%

### Competition & Key Players

- Number of Cable operators: 5
- Key players (market shares unique subscribers):
  - Zon TV Cabo: 65%
  - Cabovisa: 27%

### Innovation

- HDTV ✔️
- Catch-up TV ✔️
- DOCSIS 3.0 ✔️
- DVR ✔️
- VoD ✔️
- Mobile ✔️
Cable in Europe: Delivering the Future Today

Romania

Household Infrastructure Split
$m HH, market share in %, 2008$

Cable Coverage
- 6.7m Homes Passed
- 4.0m Unique Cable Subscribers

<table>
<thead>
<tr>
<th></th>
<th>Cable</th>
<th>Non-Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephony</td>
<td>1.1</td>
<td>6.2</td>
</tr>
<tr>
<td>TV</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Broadband</td>
<td>0.7</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry

2008 | Growth '03-'08
---|---
Revenues 2008 | €715m | 315%
Investments 2008 | ~ €193m | 91%
  Investments as % of revenues | 27%
Employees (direct incl. outsourcing) | ~ 5,880 |
Degree of digitisation (% of basic Cable TV subscribers) | 5%
Broadband penetration (% of unique Cable subscribers) | 17%

Competition & Key Players

- Number of Cable operators | 614
- Key players (market shares unique subscribers)
  - RCS & RDS | 43%
  - UPC | 28%

Innovation

- HDTV | ✔
- DVR | ✔
- Catch-up TV | ✗
- VoD | ✗
- DOCSIS 3.0 | ✗
- Mobile | ✗
Spain

Household Infrastructure Split
m HH, market share in %, 2008

Cable Coverage
- 10.6m Homes Passed
- 2.6m Unique Cable Subscribers

Source: Screen Digest, Solon

Cable Industry 2008 Growth '03-'08
- Revenues 2008 €2,242m 75%
- Investments 2008 ~ €526m
  - Investments as % of revenues 23%
- Employees (direct incl. outsourcing) ~ 9,000 17%
- Degree of digitisation (% of basic Cable TV subscribers) 73%
- Broadband penetration (% of unique Cable subscribers) 66%

Competition & Key Players
- Number of Cable operators 4
- Key players (market shares unique subscribers)
  - ONO 71%
  - Euskatel 15%
  - R 9%
  - Telecable 5%

Innovation
- HDTV ✓
- Catch-up TV ✓
- DOCSIS 3.0 ✓
- DVR ✓
- VoD ✓
- Mobile ✓
Sweden

Household Infrastructure Split
m HH, market share in %, 2008

<table>
<thead>
<tr>
<th>Cable Coverage</th>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7m Homes Passed</td>
<td>2.4</td>
<td>56%</td>
</tr>
<tr>
<td>2.4m Unique Cable Subscribers</td>
<td>1.8</td>
<td>19%</td>
</tr>
<tr>
<td>Broadband</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>2.6</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>Telephony</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>3.8</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>4.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry

- Revenues 2008: €563m, 67%
- Investments 2008: ~€110m
  - Investments as % of revenues: 20%
- Employees (direct incl. outsourcing): ~2,570, 32%
- Degree of digitisation (% of basic Cable TV subscribers): 38%
- Broadband penetration (% of unique Cable subscribers): 25%

Competition & Key Players

- Number of Cable operators: 70
- Key players (market shares unique subscribers):
  - Com Hem: 73%
  - Tele2: 10%
  - Canal Digital: 10%

Innovation

- HDTV ✓
- Catch-up TV ×
- DOCSIS 3.0 2009
- DVR ✓
- VoD ×
- Mobile ✓ (BB)
Switzerland

Household Infrastructure Split
$m HH, market share in %, 2008

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable Coverage</th>
<th>Non-Cable Coverage</th>
</tr>
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<tbody>
<tr>
<td>TV</td>
<td>2.9m Homes Passed</td>
<td>0.4m Unique Cable Subscribers</td>
</tr>
<tr>
<td>Broadband</td>
<td>0.8m</td>
<td>1.7m</td>
</tr>
<tr>
<td>Telephony</td>
<td>0.3m</td>
<td>3.1m</td>
</tr>
</tbody>
</table>

Source: Screen Digest, Solon

Cable Industry 2008

- Revenues 2008: €948m, Growth ‘03-’08: 80%
- Investments 2008: ~€223m
  - Investments as % of revenues: 24%
- Employees (direct incl. outsourcing): ~2,630, Growth: 26%
- Degree of digitisation (% of basic Cable TV subscribers): 24%
- Broadband penetration (% of unique Cable subscribers): 26%

Competition & Key Players

- Number of Cable operators: 248
- Key players (market shares unique subscribers)
  - Cablecom: 53%

Innovation

- HDTV: ✓
- Catch-up TV: ✗
- DOCSIS 3.0: ✗
- DVR: ✓
- VoD: ✓
- Mobile: ✓ (Voice)
United Kingdom

Household Infrastructure Split
$m HH$, market share in %, 2008

<table>
<thead>
<tr>
<th>Service</th>
<th>Cable Coverage</th>
<th>Broadband</th>
<th>Telephony</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>3.6%</td>
<td>3.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Broadband</td>
<td>22.1%</td>
<td>12.5%</td>
<td>21.5%</td>
</tr>
<tr>
<td>Telephony</td>
<td>25.7%</td>
<td>16.2%</td>
<td>25.6%</td>
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</table>

Source: Screen Digest, Solon

Cable Industry

<table>
<thead>
<tr>
<th>Metric</th>
<th>2008</th>
<th>Growth '03-'08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>€4,004m</td>
<td>17%</td>
</tr>
<tr>
<td>Investments</td>
<td>~€780m</td>
<td></td>
</tr>
<tr>
<td>Investments as % of revenues</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>Employees (direct incl. outsourcing)</td>
<td>~12,680</td>
<td></td>
</tr>
<tr>
<td>Degree of digitisation (% of basic Cable TV subscribers)</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>Broadband penetration (% of unique Cable subscribers)</td>
<td>78%</td>
<td></td>
</tr>
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</table>

Competition & Key Players

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cable operators</td>
<td>2</td>
</tr>
<tr>
<td>Key players (market shares unique subscribers)</td>
<td>~100%</td>
</tr>
</tbody>
</table>

Innovation

- HDTV ✓
- Catch-up TV ✓
- DOCSIS 3.0 ✓
- DVR ✓
- VoD ✓
- Mobile ✓
# APPENDIX

## Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADSL</td>
<td>Asymmetric Digital Subscriber Line</td>
</tr>
<tr>
<td>B2B</td>
<td>Business to Business</td>
</tr>
<tr>
<td>bn</td>
<td>Billion</td>
</tr>
<tr>
<td>CA</td>
<td>Conditional Access</td>
</tr>
<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
</tr>
<tr>
<td>CC</td>
<td>Customer Care</td>
</tr>
<tr>
<td>CEE</td>
<td>Central and Eastern Europe</td>
</tr>
<tr>
<td>CPE</td>
<td>Customer Premises Equipment</td>
</tr>
<tr>
<td>CRM</td>
<td>Content Rights Management</td>
</tr>
<tr>
<td>DOCSIS</td>
<td>Data Over Cable Service Interface Specification</td>
</tr>
<tr>
<td>DSL</td>
<td>Digital Subscriber Line</td>
</tr>
<tr>
<td>DTT</td>
<td>Digital Terrestrial Television</td>
</tr>
<tr>
<td>DVR</td>
<td>Digital Video Recorder</td>
</tr>
<tr>
<td>e.g.</td>
<td>Example given</td>
</tr>
<tr>
<td>EPG</td>
<td>Electronic Program Guide</td>
</tr>
<tr>
<td>FTTH</td>
<td>Fibre-to-the-Home</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>HDTV</td>
<td>High Definition TV</td>
</tr>
<tr>
<td>HFC</td>
<td>Hybrid Fibre Coax</td>
</tr>
<tr>
<td>HH</td>
<td>Households</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>i.e.</td>
<td>id est</td>
</tr>
<tr>
<td>IWF</td>
<td>Internet Watch Foundation</td>
</tr>
<tr>
<td>k</td>
<td>Thousand</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>m</td>
<td>Million</td>
</tr>
<tr>
<td>Mbps</td>
<td>Megabits per second</td>
</tr>
<tr>
<td>n/a</td>
<td>not available</td>
</tr>
<tr>
<td>NGA</td>
<td>Next Generation Access</td>
</tr>
<tr>
<td>NGN</td>
<td>Next Generation Network</td>
</tr>
<tr>
<td>p.a.</td>
<td>per annum</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>--------------</td>
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</tr>
<tr>
<td>pp.</td>
<td>Percentage points</td>
</tr>
<tr>
<td>SDTV</td>
<td>Standard Definition TV</td>
</tr>
<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
</tr>
<tr>
<td>LLU</td>
<td>Local Loop Unbundling</td>
</tr>
<tr>
<td>VDSL</td>
<td>Very High Speed Digital Subscriber Line</td>
</tr>
<tr>
<td>VoD</td>
<td>Video-on-Demand</td>
</tr>
<tr>
<td>VoIP</td>
<td>Voice over IP</td>
</tr>
<tr>
<td>QAM</td>
<td>Quadrature Amplitude Modulation</td>
</tr>
<tr>
<td>www</td>
<td>world wide web</td>
</tr>
</tbody>
</table>
Bibliography


Project Leader: Dr. Dorothea von Wichert-Nick

Dorothea von Wichert-Nick is Principal at Solon Management Consulting. Her project work includes M&A support as well as new business development (strategy development, internet, telephony, implementation) for Cable operators, telcos, media companies and their investors. Dorothea is the driving force behind the biannual Solon European Cable Survey, the largest strategic and benchmarking study of European Cable. Finally, Dorothea is board member at CTAM Europe, the Marketing organisation of European Cable operators

Team:

The preparation of this study was supported by Eva Anderl, and Francois-Nicolas Kielwasser

Solon Management Consulting

Solon is the leading consultancy for the European Cable TV industry. Services range from the development and implementation of corporate strategies to M&A transaction support. Clients include Cable operators, telecommunication and media companies, as well as banks and private equity funds.

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