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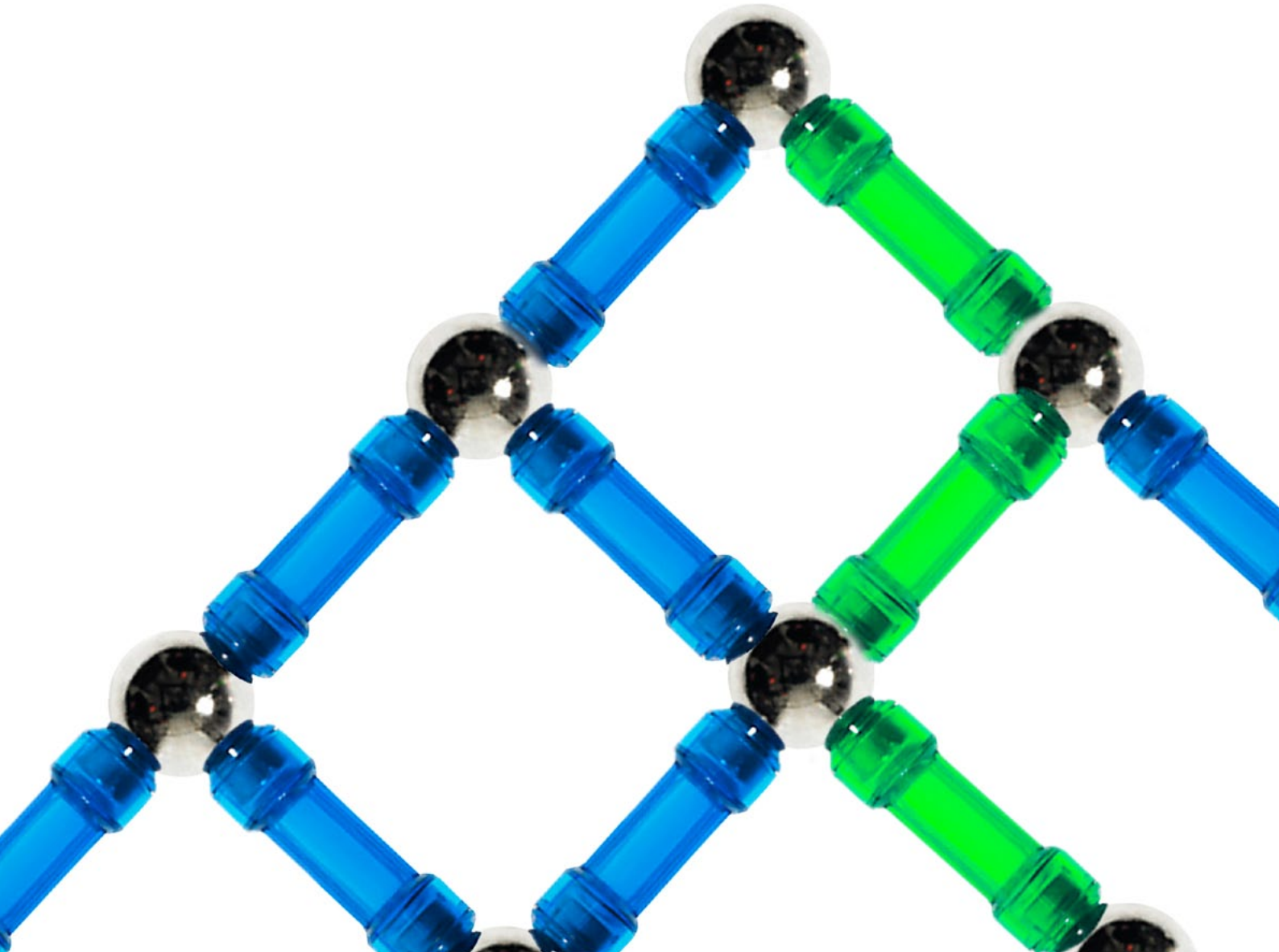
Technology and TV
The continuation of a beautiful friendship



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Introduction

Television's resilience against a background of digital disruption over the last decade has puzzled many in the industry, particularly when contrasted with the fortunes of other "traditional media" sectors. Yet one of the main reasons for television's enduring strengths (albeit not the only one) is that the TV industry has benefited from a continuous series of digital makeovers that have kept the ever broadening television offer relevant and fresh whilst compelling its billions of consumers around the world.

It is easy to overlook just how much technology has changed TV in the last ten years alone, for consumers as well as for suppliers.

In 2000, plasma televisions were the playthings of the super-wealthy; flat panel televisions are now ubiquitous and often vast. A decade back, personal video recorders (PVRs) were on the cusp of launching; they are now in half of all homes in some markets. At the start of the millennium, digital satellite was just a few years young; high definition, now in tens of millions of homes in the European Union, was still several years from launching in major markets; broadcaster on-demand services were wishful thinking, having been trialled widely and then abandoned in the mid 1990s. And as for reality television – well that was just an experiment.

In 2012, television is one of the most pervasive of digital products. In the growing number of countries that have or are nearing completing of digital switchover, the TV and accompanying set top box are the most penetrated of digital devices, with greater ubiquity than PCs. Television is also at the core of many of the conversations pulsing through social networks,[1] instant messaging services, text messaging and e-mail.

And this is not merely a sheen of digital on an analogue industry. Behind the scenes, the TV industry has led "traditional media" in bringing the advantages of digital into the creative process. By taking advantage of the falling cost of hardware and the accelerating innovation from a global supplier base, the TV industry is readier than ever to cement its leadership in digital media.

This report, prepared for the attendees of the IBC Leaders' Summit 2012, has as a major theme, the impact of technology on the television sector. We analyse five of the current major dynamics being debated in the industry: the advance of connected TV; tech companies' investments in TV; the symbiotic relationship between tech and TV; whether television is dead, and if not, why not; new content economics.

Our conclusion: in the relationship between technology and television, while there may be winners and losers, it is certainly not the case that one sector has to win at the expense of another. Tech and TV work symbiotically – if not always deliberately so – and Deloitte's view is that this efficacious co-existence should continue in the medium term.

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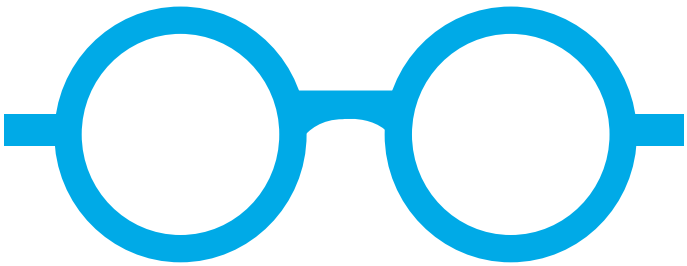
Connected TV:
Evolution not revolution;
additive but not disruptive

Might tech titans become media moguls?

The geeks will not inherit the earth (but will enhance television)



Traditional TV is not dead

New content economics: welcome back to the old world

Connected TV: Evolution not revolution; additive but not disruptive

Connected TV: Evolution not revolution; additive but not disruptive

Over the past decade TV manufacturers have offered a range of technologies, from OLED (Organic Light Emitting Diode) to HD (High Definition) to 3D, to encourage us to purchase new TVs. These features have helped sell sets (to varying extents), as has the offer of ever bigger, thinner and cheaper sets.[2]

The current technological enhancement on offer for TVs is full connectivity:[3] a simple but potentially disruptive upgrade.[4] In gaining two-way connectivity, the usage of TV sets could change radically and permanently. Two-way connectivity puts the TV set on the same level as the computer, tablet or smartphone, all of which are used in a manner distinct from television. On these fully-connected devices far more consumption is interactive; communication is commonplace and, unlike TV, usage is not subject to someone else's schedule.

The emergence of an ever-wider, ever-cheaper range of connected TV sets raises two key questions. Will the two-way connected TV set become mainstream in European homes? And if it does, how might it change behaviour and, as a result, affect current business models?

Deloitte expects fully-connected TV sets eventually to be present in the majority of European households. But this could take five to ten years. Our view is that full connectivity will shift behaviour, but not disruptively. The most common and valued use of two-way connectivity in TV sets is likely to be to access more TV content (including catch-up with programmes missed when first broadcast).[5] New uses of the TV set are likely to be driven by the migration of selected existing interactive behaviours to the TV set. For example, in some households discussing a programme on a social network, or playing along with on-screens contestants, might simply move from one device (say a tablet) to the TV set.

The underlying TV business models are unlikely to be changed significantly by the growing ownership of fully-connected TVs, with principal income sources, such as advertising and pay-TV subscription remaining dominant.

Steady, but slow, adoption of fully-connected TV sets

We foresee two main factors driving mainstream adoption of two-way connectivity in TV sets. One is that over time two-way connectivity is likely to become purchased by default.[6] It will become increasingly hard to purchase a TV set that does not offer two-way connectivity, a similar trend to that observed in the offering of HD TV sets, and prior to that, the availability of flat screen panels. Over the course of a few years, as demand for HD sets steadily grew, manufacturers and retailers steadily cut back on their offering of non-HD devices until there were none available for purchase. A similar dynamic occurred with cathode ray tube (CRT) sets: they steadily disappeared off the shelves of European retailers.[7]

Deloitte's research indicates that currently between ten and 20 per cent of TV sets sold in Europe have full built-in connectivity. As of the end 2012, Deloitte estimates between five to ten per cent of households in Europe will have a fully-connected TV set. Full connectivity, which was initially included as standard only in more expensive TV sets is steadily becoming incorporated by default in less expensive model ranges. Over time, we expect the proportion of sets including full connectivity to rise steadily until it is incorporated in all TV sets, at some point between 2015 and 2020. It may take ten years before three-quarters of European households will have at least one TV set with integrated full connectivity.

Languid adoption is likely to be down to two main interlinked reasons

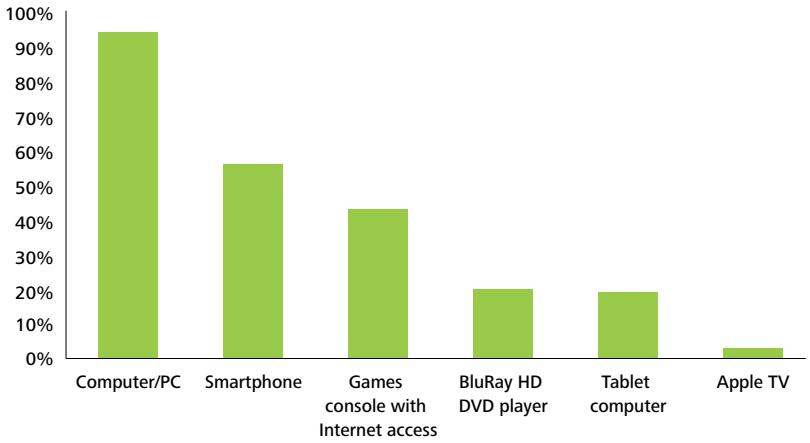
First, the benefits of offering two-way connectivity are largely additive, with the principal long-term use of the connection being to access a greater range of TV programmes. We do not expect video-on-demand (VOD) to make up the majority of viewing. VOD services have been available in various forms for several years, and take-up of TV VOD remains low – representing at most a few percentage points of all TV viewed – in most countries.

Second, Deloitte estimates some 40 to 50 per cent of households in the EU already have all the components required to use TVs in a connected manner.[8] Of these about half are likely to have one of their TVs permanently connected as it is attached to at least one of the following: a connected set top box, a connected games console,[9] a BluRay player or a dedicated streaming device, such as Apple TV[10] (see Figure 1 for penetration of these devices in the United Kingdom). In these households, there may be little imperative to upgrade a TV set simply to have built-in connectivity, as the connected peripheral is likely to be constantly connected to the TV and is not needed for any other function. In these homes, one of the few reasons for wanting to purchase a fully-connected TV would be if the set top box had walled access. A connected set top box provided by a pay-TV company may only allow access to its own content library.

Other households with the components for connected TV are, in the majority, likely to connect via a laptop. Deloitte's estimate is that at least 50 per cent of European households have a relatively modern laptop computer (purchased in the last three years), with sufficient processing power and graphics capability to be able to handle video.[11] Connecting TV sets via a laptop is simple: it just requires a cable, with HDMI (High Definition Multimedia Interface) being the optimal connection.[12]

Even basic laptops sold in Europe now include an HDMI port. As for TV sets, it has become hard to purchase a TV set in Europe without an HDMI port. And the cost of an HDMI cable can be as little as a few Euros. For laptops lacking HDMI, its VGA (Video Graphics Array) or USB (Universal Serial Bus) ports can be used. In short, it is relatively simple to connect laptops to TV sets. Tablet computers and high-end smartphones can also be used to provide connectivity. Deloitte's estimate is that currently about five to ten per cent of European households have access to a tablet, and about fifteen per cent of households have a smartphone capable of delivering high quality video playback.[13] The only challenge in using a laptop, tablet or smartphone to connect a TV is that it means the device might be tied up while its connectivity is being used. For these households, a fully-connected TV would free up usage of their other devices.

Figure 1. Penetration of devices among UK respondents that can be used to connect televisions to the Internet



Question: Which of the following devices do you have access to?

Source: Deloitte/Gfk, UK, June 2012. Sample: all respondents (4,006, nationally representative)

The fact that a large proportion of European households can already use at least one of their TVs in a connected manner, combined with the fact that connected TV is likely to elicit additive rather than fundamental changes to behaviour, suggest a steady rather than stellar adoption of connected TV sets.

Connected TV will principally be used to watch more TV

The most common usage of full connectivity in TV sets is likely to be a moderate increase in viewing of mainstream TV content catalysed by access to catch-up services and a wider portfolio of content.[14] This would be a similar impact to that realised so far in households with a Personal Video Recorder (PVRs) or those with online access to TV programmes on demand, that is occasional usage of the functionality to access the most popular programmes.

We do not expect – again, as evidenced by the way in which PVRs and on-demand portals from broadcasters and other aggregators of recently broadcast TV programmes have been used – that the existence of connected TV will drive a major increase or decrease in TV viewing or a shift away from watching mainstream programmes or changed patterns of usage of the main TV set.

It is notable that in EU markets where a significant base of homes has for several years had the equivalent of fully-connected TV, this option has not radically changed viewing behaviour. In the UK, the BBC's content has been available via video-on-demand for over four years. Usage is rising, with consumption patterns, by time of day, largely the same as those for linear TV.[15] But it remains a fraction of overall viewing, in homes with TVs attached to a two-way connectivity set top box, as well as those without.[16]

For apps that are downloaded to connected TVs, those offering access to additional TV content, for example that provided by broadcasters or specialist providers like Netflix, are likely to be among the most used.

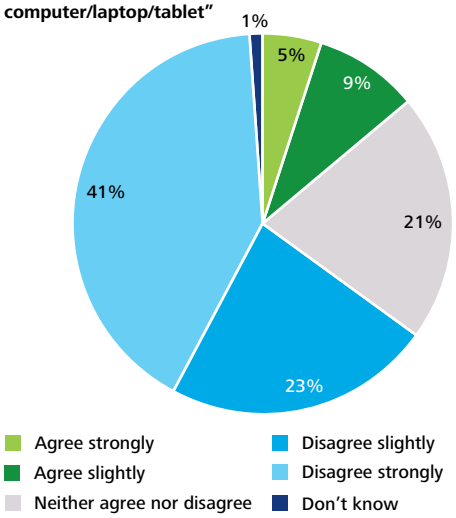
We do not foresee the TV being used in a significant manner for anything but watching TV. Each device – even if capable of multiple functions – tends to be used for a single purpose. Smartphones, for example, are still used predominantly around Europe for text communications and voice calls.

TV sets have historically been optimised for television programmes and Deloitte's view is that incorporating two-way connectivity is unlikely to change that significantly. TV sets are likely to remain the main set on which to watch television even given deepening penetration of other devices, such as desktop PCs, laptops, tablets and smartphones (see Figures 2 and 3).[17] These other devices are only likely to be used when a TV is not available.

We do not expect fully-connected TVs to be used routinely for communications. While a connected TV could readily display an entire family's digital dialogues – be they via social networks, instant messaging or email – it is not likely that every member of the family would want conversations to be visible to others. Displaying work emails on a TV set might breach confidentiality and would likely be of little interest to other members of the family. In single-person households, no information would be shared. But at the same time, an individual may wish to keep work and entertainment separate. Communications are likely to remain on the laptops, tablets and smartphones (also known as second screens).

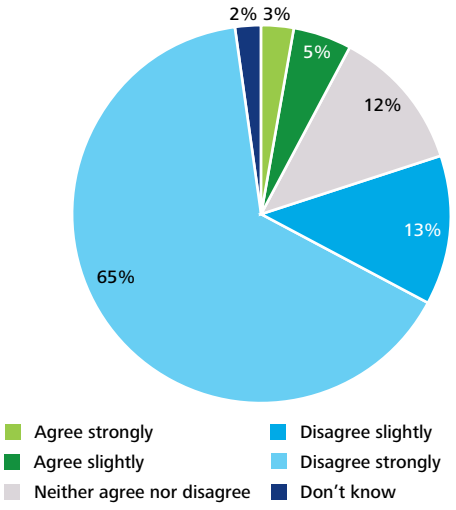
We do expect connected TVs to be used occasionally to download and play games. But this may represent only a small proportion of the TV's overall usage. Hard core gamers are likely to use a console; casual gamers may be happier playing on a tablet or smartphone. Games play may also be limited by the TV sets' processors.

Figure 2. Agreement among UK respondents with: "Given a choice, I would rather watch TV on my computer/laptop/tablet"



Source: Deloitte/GfK, UK, June 2012. Sample: all respondents (4,006, nationally representative)

Figure 3. Agreement among UK respondents with: "Given a choice, I would rather watch TV on my smartphone"



Source: Deloitte/GfK, UK, June 2012. Sample: all respondents (4,006, nationally representative)

Over the top TV is unlikely to usurp incumbent pay-TV providers

In 2012, the offer of 'over-the-top' (OTT) television has been expanded by the arrival of Netflix into the European market, adding to existing offers from LOVEFiLM (owned by Amazon) and blinkbox (owned by UK retailer Tesco). Fully-connected TVs enable these OTT providers to deliver their content direct to the device optimised for TV programmes, rather than to a computer or tablet.

The ability of specialist OTT providers to compete with incumbent pay-TV providers will depend on their ability to acquire a similar set of premium TV and movie rights. Their addressable market will also be constrained by the reach of broadband networks with throughput sufficient to support streaming.

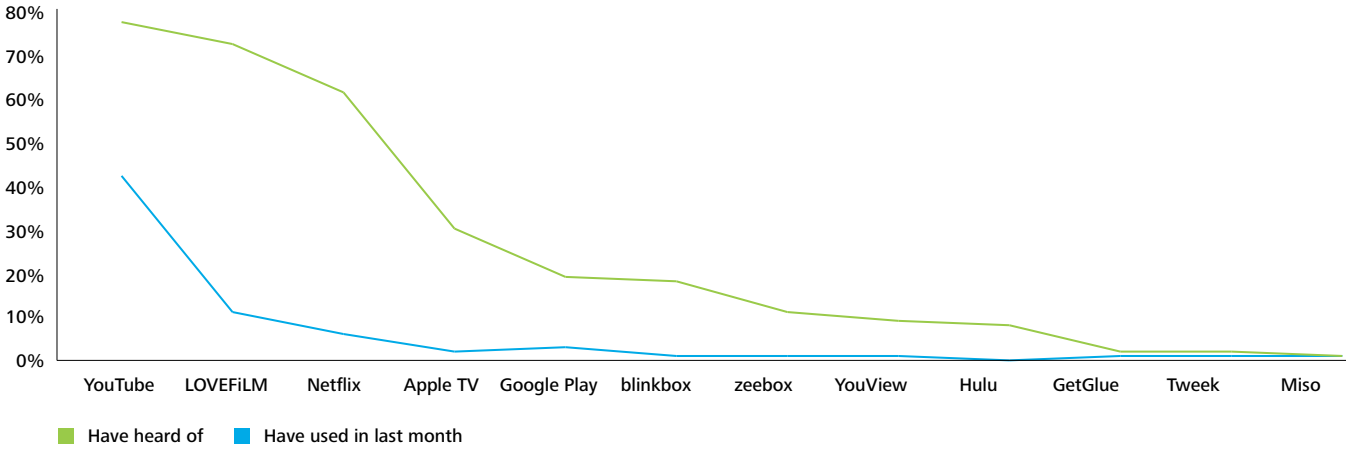
OTT specialists are also likely to have to compete with broadcasters' free online video services, as well as pay-TV operators' OTT offerings. It is important to note that pay-TV operators are likely to bundle OTT access to their content as part of an overall bundle of services provided to subscribers: OTT pure play operators will therefore need to compete with an 'ecosystem', not just an equivalent service.

In the UK, which has a wide range of specialist OTT providers, awareness of the existence of these services is relatively high, but usage, even on a once monthly basis, is much lower than for usage of the main broadcast channels (see Figure 4). Apart from YouTube, at most 11 per cent of respondents to a survey of the UK population reported that they had used any other OTT service in the prior month. By comparison, 50 per cent of respondents reported using the BBC's iPlayer to watch full programmes.[18]

In some regards the rising penetration of connected TV could benefit existing pay-TV providers as it will enable subscribers to access content on a growing number of TV sets without the cost of providing an additional set top box for each TV set. At present the standard way of providing pay-TV services to multiple rooms in a subscriber's household is by supplying an additional, often subsidised, set top box for every room.

Pay-TV providers that offer standalone OTT services may also enjoy some additional economies of scale. For example rights negotiation with third party content owners could cover both traditional subscribers and OTT-only customers.

Figure 4. Awareness of and usage of OTT specialist services in the last month among UK respondents



Question 1: Which of the following TV and video related services have you heard of?
Question 2: Which of the following TV and video related services have you used?

Source: Deloitte/Gfk, UK, June 2012. Sample: all respondents (4,006 nationally representative)

Connected TV and second screens will likely coexist

A significant recent trend has been the rise of second screening, that is using another connected screen (such as a tablet, laptop or smartphone) while watching the television.

Some usages of these second screens may move to the main screen – but only if it makes sense to all those watching the same television set. As discussed earlier in this chapter, social network or instant messaging conversations may want to be kept private and shown only on a second screen. However the viewer's score relative to the on-screen participant's in a TV quiz could be shown side by side on the main screen. Further, someone watching on their own might decide to show a related Twitter feed on a scrolling bar at the bottom of the screen, enabling the viewer to view TV while scanning tweets.

According to Deloitte's research, rising adoption of other connected devices, such as tablets, are unlikely to have a major impact on demand for connected TV.

Connected TV is unlikely to have a major impact on the TV advertising model

Connected TV enables a change to the advertising model, in that adverts could be served on a customised basis to each household, with TV ads addressed for each household being delivered via the online connection. This could enable TV advertising to be significantly more targeted.

However the case for highly targeted TV advertising has not yet been proven, so this would only be a benefit should targeted ads be considered commercially viable.[19]

Broadband reach and performance sets an upper limit on homes that can use connected TV services

In forecasting the reach of connected TV, one needs to bear in mind a number of physical constraints on overall effective penetration. Broadband's reach and speed in each market provides an upper limit on the addressable market for connected TV. In EU 27 countries broadband penetration is 26 access lines per 100 people.[20]

Another limitation, which should steadily be overcome, is the speed of broadband connections. Unlike broadcast, supply of bandwidth is relatively finite. The more successful that VOD becomes among residents in a neighbourhood, the greater the chances of congestion. Even a few instances of buffering of video will rankle, as this will tend to compare poorly to broadcast via digital terrestrial, satellite or cable.

Bottom line

Fully-connected TV sets are very likely to become mainstream in the EU. But the timeframe for this may be over a decade before the majority of homes have at least one fully-connected TV set. And in some cases, customers may acquire full connectivity simply because the TV set purchased included it and not because the TV set was specifically purchased for its connectivity.

For TV manufacturers, the integration of full connectivity may help sell TV sets, but may not catalyse a wholesale replacement of TV sets in the short term. The attraction of connectivity is likely to vary by age, with certain groups (such as younger age groups and wealthier individuals) likely to be more interested in the availability of full connectivity: TV manufacturers should shape their marketing accordingly.[21]

For content makers, one of the benefits of connected TV is that it may encourage new entrants that need TV content into the market. This might in turn encourage bidding wars for the most sought after content. For example, Netflix recently signed a $100 million deal for 22 episodes of the US version of *House of Cards*.[22] The existence of OTT might also enable some of the longer tail content to find an audience. In addition, content makers could use connected TV to enhance the apps available for some of its content – but only a minority of programmes are likely to benefit from the existence of an app, much in the same way that currently only a minority of programmes have a dedicated website.

For free-to-air and pay-TV broadcasters, connected TV offers threats and opportunities. The threat is from new pure-play OTT providers that could compete for pay-TV revenues and for advertising spend. The opportunity for free-to-air and pay-TV players is in becoming an OTT pay-per-view or subscription provider, either in their domestic markets or abroad, or in simply offering an additional service to existing customers.

Connected TV will generate winners and losers, but wins (as well as losses) should generally be moderate rather than fundamental.

Might tech titans become media moguls?

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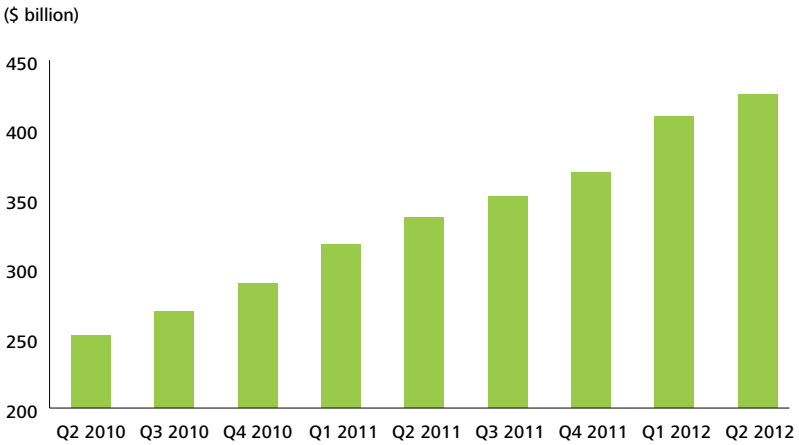
The technology sector is often regarded as world-beating, mostly due to the scale of success at its most successful companies. The largest listed company in the world is a tech company. Of the six corporations that have ever had a market capitalisation of over $500 billion, four were technology companies.[23] The only two companies ever valued by equity markets at more than $600 billion are from the tech sector.[24]

In recent years, the sector has been extremely effective at generating cash, to the extent that the ten technology companies with the strongest cash positions now have $425 billion at hand.[25] [26]

This accumulation of cash has led some to speculate that tech companies could compete with traditional broadcasters by outbidding them for prime time content, in the form of rights or finished programmes, including sport.[27] While sports rights are expensive, they cost in the 'mere' billions, whereas the technology companies collectively have far more disposable income, at least at first glance. The latest English Premier League (EPL) TV rights deal in the UK looks like pocket change at $1.5 billion per annum relative to the tech sectors' collective cash pile.[28]

Figure 5. Aggregate cash holdings for tech companies with ten largest cash holdings as of 1 August 2012 for the period Q2 2010 – Q2 2012 ($ billion)[32]



Source: Deloitte analysis, based on data from company reports, August 2012[33]

Tech companies' ambitions in this respect were signalled by Netflix's $100 million deal for 22 episodes of a new series, *House of Cards*.[29] Netflix, a company whose business model is focused significantly on 'over-the-top' (OTT) distribution of content, outbid a traditional TV company to obtain the rights.[30] Google has launched numerous initiatives in the TV space, including a $350 million investment in marketing and advances for 100 bespoke TV channels and a fibre based pay-TV service in Kansas City.[31]

Will these purchases mark the start of a wave of technology company acquisitions of television rights and programmes? The answer may lie in deconstructing the $425 billion cash pile, analysing the pace of accretion, identifying the motivations specific to the tech sector for generating cash and determining how else tech companies may use their cash. Estimating exactly how much investment may be required to build a global portfolio is also a crucial consideration. All these may give clues to how many tech companies might be willing and able to become global media moguls.

How quickly are cash reserves growing?

Whilst our selected ten technology companies' current $425 billion in cash is the culmination of over a decade of accumulation, the rate has been increasing in recent years (see Figure 5). Over the past four quarters, aggregate cash reserves grew by about $85 billion; in the past eight years reserves grew by $173 billion.

How quickly are individual company cash reserves growing?

The rate of cash accumulation varies significantly by company. Over the past four quarters, four of the companies in our survey were responsible for 80 per cent of cash generation (see Figure 6).

The other companies may feel less disposed, on the basis of their current rate of cash accumulation, to invest some of their cash holdings in media assets.

What might it cost to become a media mogul?

The ten tech companies we have focused on certainly have significant cash holdings, and several, buoyed by the impressive rate at which they increased cash holdings over the past year, may feel inclined to able to invest in acquiring TV rights and programmes.

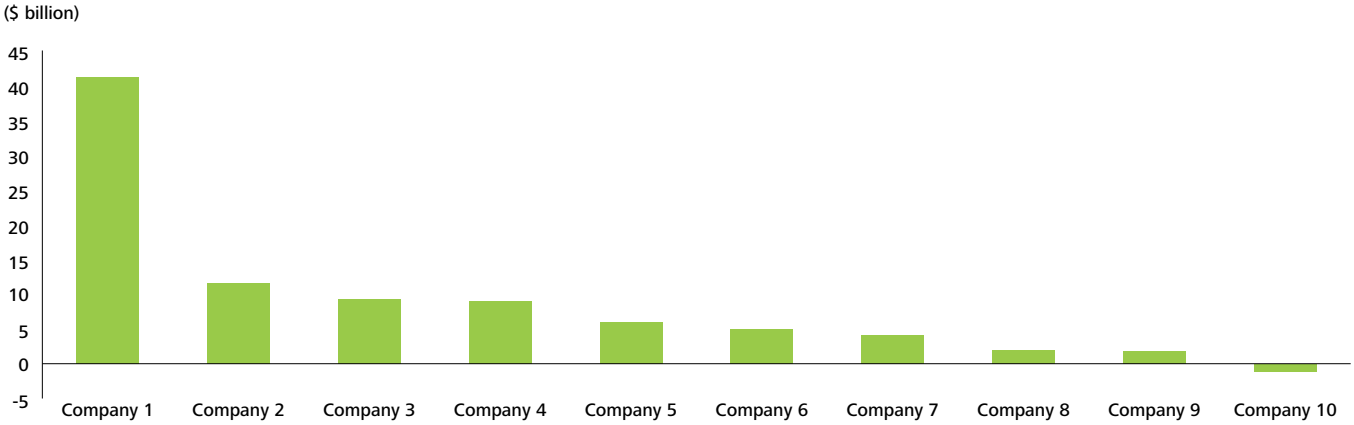
How much might that cost? The cost of individual rights for specific countries appears relatively modest. We have already noted the $1.5 billion annual cost of TV rights for the EPL. A single company may not need to purchase all rights – indeed the EPL TV rights are shared between two companies. But tech companies have a global customer base. The purchase of football TV rights in one country and not in others may alienate some customers in other markets. Adding Spain's football league, for example, to the portfolio of rights could add another $800 million annually in costs.[35]

A specialist sports channel would also want to include some major tournaments, such as the World Cup. The US TV rights for the World Cups in 2018 and 2022 were sold for $450-$500 million.[36] The Spanish language rights for those tournaments were sold for $600 million.[37]

Not everyone loves football. So a sports channel might also need to include a range of sports. The Olympic Games, as many of us will have recently observed, offer a wide range of sports, from cycling to volleyball. How much would this cost for the next round of games? US TV rights for four Olympic Games (2014, 2016, 2018 and 2020) sold for $4.4 billion.[38]

Sport may seem too expensive. So tech companies looking to become major players in TV may wish to consider drama. Again costs can be significant. The cost to create the pilot for *Boardwalk Empire* was estimated at about $20 million.[39] The budget for the first series of *Game of Thrones* was estimated at $60 million, and close to $70 million for the second series.[40] Arguably the costs of these two series were driven up by significant set costs. However comedies, which are largely shot in studio, can also have a high per episode cost, due to the price of talent. Tech companies may wish to note how salaries for the stars of *Modern Family* are contracted to rise from $65,000 per episode for the first two series, to $350,000 per episode in the eighth series. Each season lasts 22 episodes and the principal cast has six main members, so by series eight, principle talent cost alone would be close to $50 million.[41] In addition, there's the cost of writers and set to take into account. Further, for every hit, with its ratcheted cost structure, there are also flops which require funding, pilots which never get converted into a series and scripts which never become pilots.

Figure 6. Increases in cash reserves over last four quarters for ten tech companies with largest cash reserves as of 1 August 2012 ($ billion)



Source: Deloitte analysis, based on data from company reports, August 2012[34]

Given the multi-year costs, investing in a diverse, global portfolio of media rights and/or productions may not be the type of financial commitment that all tech companies would like to make.

What else might the $425 billion be used for?

A tech company is unlikely to want to spend almost the entirety of its cash balance to enter a non-core area like TV rights. Deloitte's estimate is that once all other potential uses of the cash pile are accounted for, the effective cash reserve falls by about half. This still leaves a not insignificant $200 billion, which is sufficient to invest in large swathes of content.

Tech companies are likely to want to set aside funds for the purchase of other tech companies, to fill gaps in their portfolios, or to drive revenue growth. In some cases, the cash portion of the deals can be several billion dollars.[42] Deloitte's estimate is that about 20 per cent of current cash reserves may be earmarked for tech acquisitions.

Investments in new product lines can be expensive: research and development for some tech companies runs into billions of dollars per year.[43] Sales and marketing of technology products can also run into the billions annually.[44] New semiconductor plants currently planned are costed at $5-$7 billion dollars,[45] and next generation greenfield semiconductor plants at 450 mm wafers will likely cost more than $10 billion.[46] Deloitte estimates that about tens of billions of dollars of cash might be set aside for additional R&D.

Tech companies may also wish to use some cash for forward payments on components. Deloitte's view is that about ten per cent of cash reserves may be set aside for this.

Further, the rights that tech companies wish to acquire may not coincide with the location of their cash reserves. The largest tech companies are global: their revenue generation is geographically dispersed, as is their cash. Moving cash around may incur significant taxation. For example, some key media rights are in the US, and acquiring these may require repatriating cash to the US, which would be taxed at up to 35 per cent.[47] Deloitte's estimate is that about ten per cent of cash reserves may need to be set aside for tax payments.

Finally, some companies may need to set aside additional funds to pay dividends or for share buybacks. From 1980 to 2005, almost no tech companies paid material dividends. As of 2012, eight of the ten companies in our research pay a dividend. Currently the tech sector collectively returns $26 billion per year to shareholders in the form of dividends.[48] Further, many technology companies have returned cash to shareholders through share buybacks: 2011 saw $90 billion worth of shares repurchased.[49] Should dividends or buybacks increase current cash reserves would be depleted.

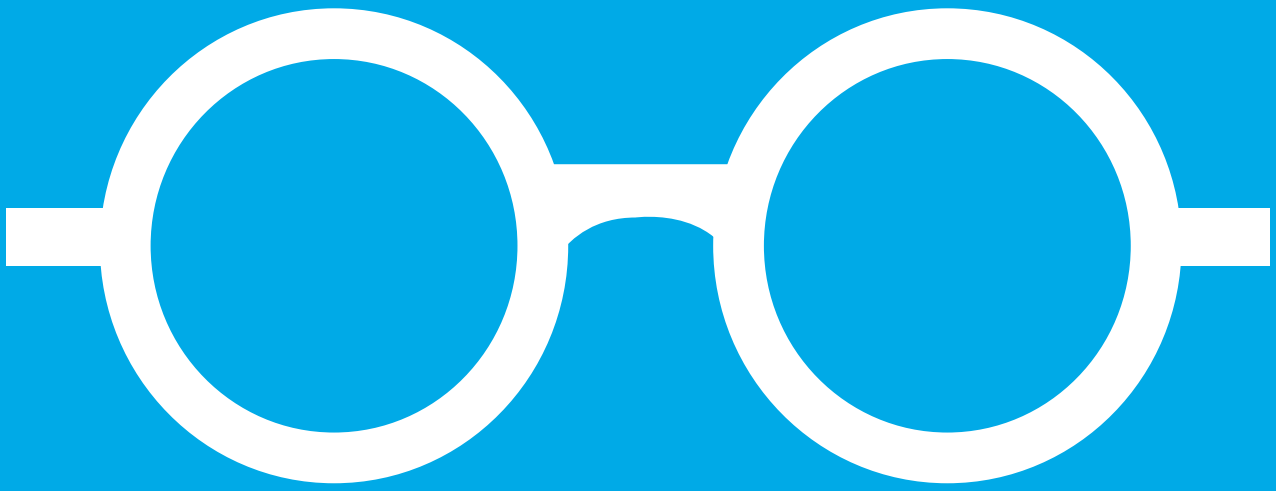
Bottom line

For tech companies, TV content is a dilemma. No device, no matter how elegant, is worth much without the content that makes the device complete. Similarly, one of the principal reasons for the existence of networks is to distribute content, and the best content is the most distributed, legally or otherwise. Several tech companies could certainly afford to invest in content, almost regardless of the return. But they should consider the extent to which this would complement their existing offering, for example relative to investing in bringing out another device. Limiting premium content to one manufacturer's device may not be the best commercial option. Tech companies should also consider the extent to which investing in content will require changing the existing company culture, and adding to the executive board.

For content companies, the arrival of tech companies looking for media rights could be a good thing. It may drive up the price of content, enabling them to earn a better return. Rights owners, such as football associations and clubs, could similarly benefit. Content companies should, however, consider which tech companies are likely to be long-term investors in content.

For broadcasters, the involvement of tech companies in bidding contests for rights or finished programmes could be problematic, in that prices may be bid up, raising their costs. However tech companies may well look to broadcasters as potential partners in acquiring and managing rights.

The geeks will not inherit the earth
(but will enhance television)

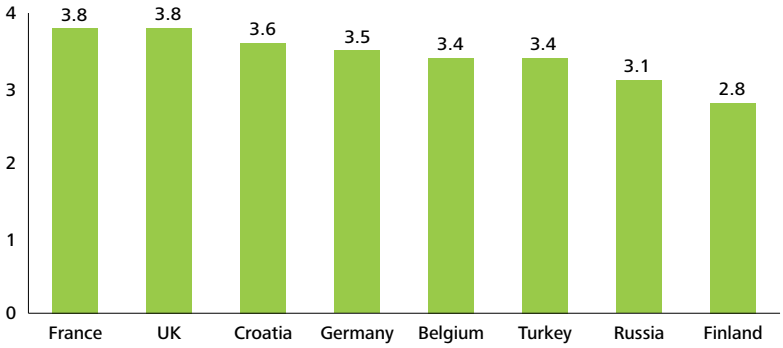


The geeks will not inherit the earth (but will enhance television)

Humans are defined by technological progress. Since flint was appropriated as the first convergence tool (killing, cutting and fire-lighting all in one device), our evolution has been shaped by the creation of ever more powerful technologies, one of the most significant of which has been the computer.

In the early 1950s there were just five computers in the world. As of 2012, many households own five or more computer-powered devices, from connected MP4 players to tablet computers. Figure 7 shows the average number of devices owned by, or readily accessible to, consumers in a range of European countries. It has taken just six decades for computer penetration to rise from five globally to five per upper quartile living room in the European Union.[50]

Figure 7. Average number of portable devices (computers, tablets, smartphones, mobile phones, cameras, games consoles, MP4 players) which respondents own or have access to, 2012



Note: The sample for the countries with low Internet penetration such as Croatia, Russia, and Turkey is not nationally representative. It is indicative of professionals living in cities. Sample for all other countries is nationally representative.[51]

Source: Deloitte Global Mobile Consumer Survey May-June 2012. Sample: all respondents (Belgium 999, Croatia 1,004, Finland 1,127, France 2,011, Germany 2,083, Russia 2,046, Turkey 1,012, UK 2,060). Some respondents may own or have access to more than one device of each category.

Computers, software, and other technological advances created in the world's tech hubs have had a far-reaching impact, and technology adoption appears to be accelerating. The technology sector is often described as world-beating, mostly due to the scale of success at its most successful companies.

Technology and the media sector

Technology companies have had a profound impact on multiple aspects of the media sector. The neighbourhood book store, high street music retailers, record labels and newspapers – all have been impacted by the technology sector's advance.

E-commerce has, to a large extent, out-competed the shop-based retail book store; particularly smaller businesses but even large chains such as Borders' UK operation.[52] Music retail has seen a string of high profile exits, from the Virgin Megastore to Tower Records in the United Kingdom and the United States.[53] In 2005, the global recorded music industry, already suffering declining revenues, generated more than $30 billion in revenues.[54] In 2012, music industry revenues are forecast to be less than $18 billion.[55]

The rise of the search engine has come hand in hand with a decline in classified advertising in print, with a marked impact on the local newspaper industry. National and global newspapers have gone online, but generally have not been able to take advertising or subscription revenues with them.[56]

Technology and the television industry

Television appears to be next in the technology companies' sights. However, TV may be a tough nut to crack. The medium's claim on our attention, its subscriptions and share of advertising revenues are of the highest order.[57]

In the past decade, technology companies have launched myriad new products and services largely designed to disrupt the way in which we consume television. Tech firms have offered a range of innovations enabling us to watch what we want, when we want and on the device of our choice.

Several of these innovations have been successful (measured by rates of adoption) albeit not necessarily in the way first intended. Rather than taking market share, the most successful technological innovations aimed at the television market have ultimately supported and enhanced TV consumption and business models.

The PVR: a fundamental part of TV viewing

One example of the additive impact of technology on television is the personal video recorder (PVR). Launched in the EU just over eleven years ago, the PVR was expected to fundamentally change the way we watch TV,[58] reducing overall consumption and precipitating systematic avoidance of TV advertising.[59]

A decade later, PVRs have proved a mainstream success. By the end of 2011, PVR penetration exceeded 50 per cent in the United Kingdom and United States, and adoption is rising steadily in other markets. In markets with high PVR penetration, the devices have become an integral part of the television experience, mostly by enabling consumers to manage the programmes they want to watch. They have facilitated incremental viewing, principally by making programmes easier to record (when the viewer is absent or while watching another programme) relative to their VHS recorder predecessors.

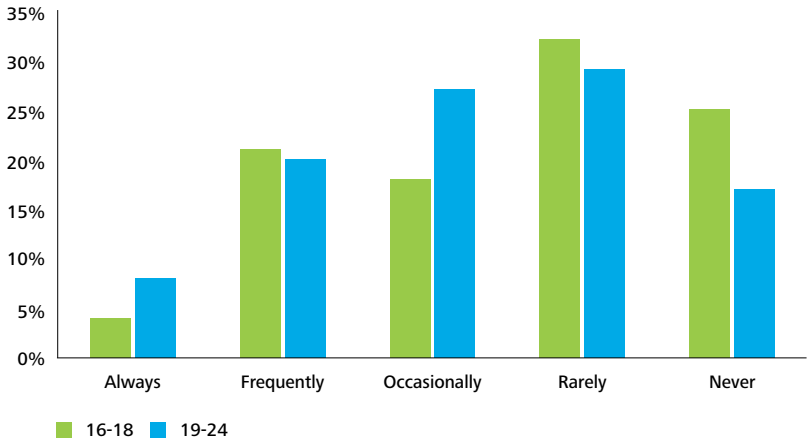
However, the PVR has not fundamentally changed consumption patterns. In PVR homes, only a minority of programmes watched are recorded. PVR viewing supplements live viewing: it does not dominate it. Further, the PVR has not diffracted choice: its main impact has been to enable more views of the most popular programmes.[60] Occasionally a single programme may be viewed more often via a PVR than live, but rarely in the case of primetime programmes.[61]

The schedule has remained integral to television consumption for live viewing, as well as viewing via PVR. The professional scheduler has not been rendered irrelevant. In the UK, between Q2 2006 and Q2 2011, the proportion of time-shifted viewing in homes with a PVR stayed largely stable at between 13.7 and 16 per cent.[62] Over the same period, PVR penetration rose from six per cent of households to 52 per cent.[63]

Further, the PVR's rising popularity has not been accompanied by endemic ad-skipping. Among PVR households in the UK about seven per cent of ads are skipped, mainly because only a minority of TV programmes are recorded.[64] The default behaviour among PVR owners remains to watch live TV and reference the schedule first. In respect of advertising, the increase in ownership of PVRs in the UK has been accompanied by a rise in measured TV ads watched at normal speed. In 2011, the number of ads viewed averaged 47 per day; in 2002, the tally was a mere 34. In 2012, approaching a trillion ads may be watched across all platforms.

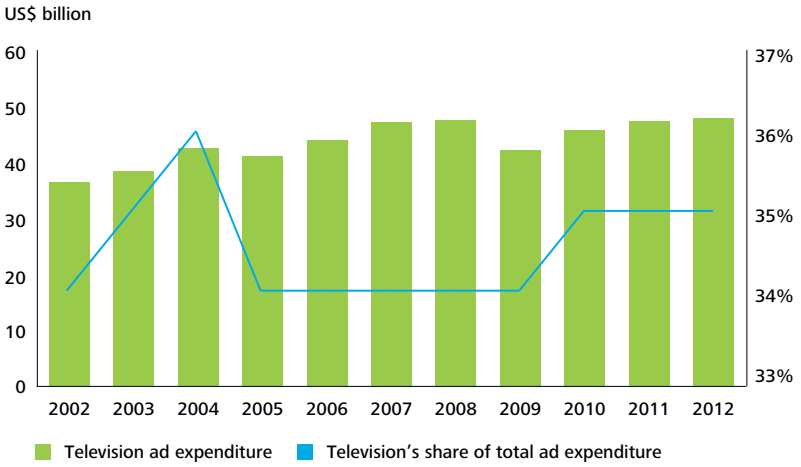
Where ad-skipping does occur it is often subject to interruption. Almost 30 per cent of 16-24 year olds "always" or "frequently" stop fast-forwarding ads if they see one they like (see Figure 8).[65]

Figure 8. Frequency of stopping/fast-forwarding upon seeing an advert or trailer that interests the viewer when watching pre-recorded TV via PVR, 2012



Source: Deloitte/GfkUK, June 2012. Sample: all those of age between 16-24 with a PVR (94 respondents)

Figure 9. TV ad spend in Europe (Western Europe and Central and Eastern Europe), 2002-2012 ($ billion)



Source: ZenithOptimedia, Advertising Expenditure Forecasts, June 2012

The PVR's growth does not seem to have affected TV advertising revenues in Europe (see Figure 9).

Technology has helped television evolve from product to ecosystem

A decade ago television was a fairly simple proposition. Almost all viewing was on a TV set, and viewers had little choice but to follow the schedule. In most territories in Europe, consumers could either pay a subscription or watch ad-funded content. Pay-per-view was in the form of DVD rental or occasionally via a set top box.[66]

Today, technology has made the television offering far more sophisticated and complex. It is also, arguably, more resilient than ever, as technology has made television's core product – the programme with high-production values – more accessible and appealing.

Technologies such as the PVR and on-demand video sites have made it easier to watch programmes that may have been missed when first broadcast. Online video access, coupled with a rising base of computers, laptops and high-end smart phones, and ever faster Wi-Fi and 3G speeds, have made it easier to watch TV outside the house, and within the home but away from the living room.

Conditional online video access has strengthened the value of subscription television – every family member, including those temporarily living away from home, such as college students, are able to enjoy the benefits of subscription.[67]

The arrival of the connected TV set should reinforce TV's evolution from product to ecosystem. Its main role will likely be to facilitate access to additional television content, as discussed in detail in the chapter on connected television in this report.

In addition, we should not forget that the TV set (connected or otherwise) has undergone significant improvement over the last decade; it is on average larger and flatter, and most likely occupies more living room space than ever.

The rise of social networks, in addition to already popular and pervasive e-mail, text messaging and instant messaging networks, have made it easier to talk about what's on television, increasing the buzz around TV programming.

The bottom line

Technology is often assumed to change and inflect the way we consume media. But generally technology does not change behaviour, but rather is moulded by it.

Looking at evidence from recent decades, it might be said that technological advance has been shaped by the commercial need to satisfy our largely inflexible media habits, rather than the converse. Technologies that have succeeded have met, rather than reset, our fundamental consumption behaviour.

Technology companies should note that technological advances unaligned to core behaviours have remained niche.

Whatever enables existing, or even latent, behaviours to be enhanced, has flourished. E-mail, social networks, text messages, instant messaging and the like are not out-and-out innovations, but rather iterations of preceding forms of communication, which often complement them.

Broadcasters and programme makers should note that television evolution operates under the same rules. From a technological perspective television has advanced markedly in the last ten years: the television offering is like nothing ever experienced. Yet the way in which we consume television has hardly changed.

Traditional TV is not dead

Traditional TV is not dead

The TV industry has traditionally been based on the following model. Its consumers watch about 3-5 hours of programmes a day, mostly live rather than pre-recorded or on-demand, on a TV set, typically in the company of others. In each market, the majority of programmes are shown by a small number of channel families. A minority of these represent the majority of TV watched. The industry is funded by a blend of advertising, subscription and taxation.

The traditional TV model is regarded by some commentators as past its sell-by date. Search engines are an indicator of sentiment. A search of "TV is alive" yields 28,100 hits. A search of "TV is dead" generates 384,000 results.[68] In that regard TV's outlook looks rather precarious.

But search engine hits is just one metric. Here are some other data points. By the end of today, two billion more hours of television will have been watched in the European Union. On an average day in 2012, TV ad spend in Europe will be $131 million.[69] Pay-TV revenues worldwide are approaching $200 billion per year.[70]

For an industry that some consider dead or dying, its pulse, as measured by attention and revenues, appears quite strong.

Deloitte's view is that there are several fundamental and connected reasons why television is thriving, and why it should continue to thrive.

TV's enduring popularity is due to its ability to meet a range of core human needs

TV's popularity is not solely down to the existence of a box in the corner of a room. Nor even a set of very talented actors and actresses, guided by the best producers, vocalising the most articulate dialogues, profiled by the best stages and sets.

TV's enduring success – which has yet to plateau, with billions in the world still without regular access to television in their homes – is down in large part to its unmatched and ever-improving ability to address a set of basic human needs.

TV is, by a blend of design and accident, capable at satisfying our desire for entertainment (content based and story-based), our need for relaxation, our craving to be social and our concern over budgetary constraints.

Television also satiates one need that we often deny – structure in our lives. Television's schedule, rather than being a handicap, is for the majority of viewers a benefit, using the timings of regular programmes like soap operas and news bulletins to mark the time of day.

Television enables us to relax, providing a passive but engaging viewing experience which permits but does not require interactivity. We are in an Internet age. But not everyone wants to interact at all times. Indeed after a long day at work, most likely packed with interaction with machines and people, the last thing we may want to do is continue interaction with television programmes.

All these behavioural needs co-exist in all of us, albeit to varying degrees. But the outcome, for over 95 percent of people in developed countries, is largely the same. Television is a part of our lives, with that part varying from a few hours per week to a many hours per day, but averaging out at about four hours per person per day.

The business of entertainment appears optimised for television

TV's popularity is fundamental to its business model, which is a 21st century iteration of the millennia old recipe of funded entertainment, in the same vein as books, plays, music and movies – usually made with the aim of maximising the audience.

The more compelling the content – and for audio-visual entertainment, this normally reads costly – the greater the potential audience. Television, like cinema, can fund a piece of content through distribution to hundreds of millions of viewers around the world, monetising directly through subscriptions, licence fees or indirectly via advertising. Unlike cinema, television can draw massive audiences on a daily basis, enabling production costs to be spread widely. Television's reach makes profitable (sometimes highly so) the commissioning of individual episodes costing millions of dollars per hour to produce.

The highest budgets per hour guarantee the best actors, producers, writers, technicians, stagecraft and sets, which in turn attract the largest, and most valuable, audiences.

TV's customers have a widening range of options to pay for content. In most countries advertising is a major source of funding. In many countries a licence fee is exacted. A growing range of pay-TV options exist, in the form of subscriptions and pay-per-view. Much TV content is still offered via bundles, but the range of these is widening, particularly with the arrival of specialist over-the top providers such as Netflix and LOVEFiLM.

Television's diversity makes it highly inclusive and resilient

Television offers viewers an increasingly wide range of genres and programmes, catering for audiences' diverse spectrum of tastes, stratified by an ever richer blend of nationalities and social classes.

On one hand, television can deliver complex, but rewarding, Scandinavian thrillers.[71] On the other, it can serve up coverage of darts in high definition behind a pay wall, as well as a daily serving of soap operas, watched by a faithful audience of millions. It is our trusted source of news, with news bulletins week in week out dominating the top 100 programmes watched. [72]

Television can offer multiple variants of the same genre in every language. In the UK, *The Million Pound Drop, Who Wants To Be A Millionaire*, *University Challenge, Britain's Best Brain, Pointless* and *Cleverdicks* are examples of quiz shows, each appealing to different audiences.

Technology TV is the dog. Tech is the tail

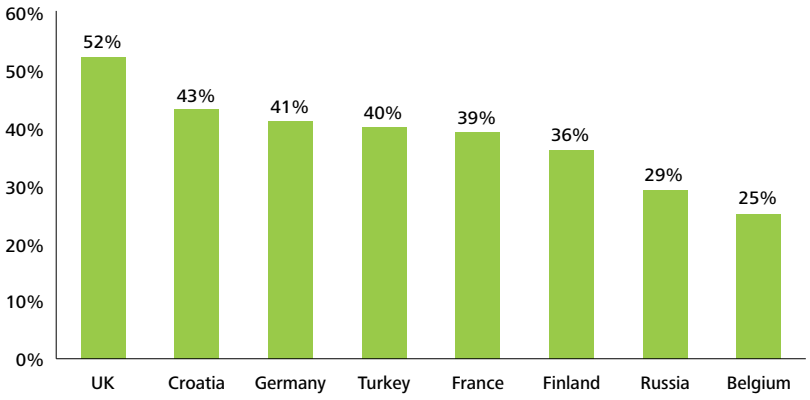
Technology is sometimes regarded as a means of consuming TV as efficiently as possible. However tech is in fact often used to consume more TV, rather than to manage TV consumption.

The technological offering connected with television has ratcheted up radically, but our attitude towards TV has changed little, as discussed in the chapter: The geeks will not inherit the earth (but they will enhance television).

Despite growing numbers of devices that can be used to view TV per household (smartphone penetration rates being well into the double figures in European countries and tablet penetration approaching that (see Figures 10 and 11), TV viewing remains concentrated on the main screen, and is most often undertaken in the company of others. PVR penetration now exceeds half of homes in the US and the UK; broadband reaches the majority of homes in the EU, enabling video-on-demand. Yet linear viewing remains dominant.

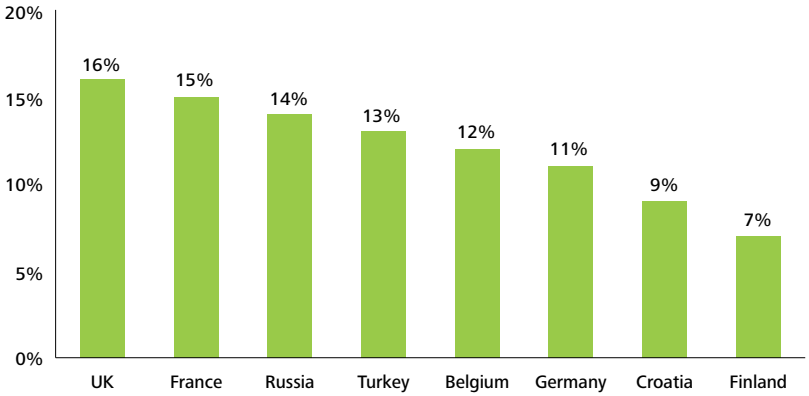
For those who consider social networks a broadcast medium, try consuming a big event, like the opening ceremony of a major sports event, purely via Twitter.[73] It's like hearing punch line after punch line, but without the preamble. Social networks are generally accompaniments and complements to broadcast television.

Figure 10. Smartphone penetration in Belgium, Croatia, Finland, France, Germany, Russia, UK and Turkey, 2012



Source: Deloitte Global Mobile Consumer Survey, May-June 2012. Sample: all respondents (Belgium 999, Croatia 1,004, Finland 1,127, France 2,011, Germany 2,083, Russia 2,046, Turkey 1,012, UK 2,060). The sample for the countries with low Internet penetration such as Croatia, Russia and Turkey is not nationally representative.

Figure 11. Tablet penetration in Belgium, Croatia, Finland, France, Germany, Russia, UK and Turkey, 2012



Source: Deloitte Global Mobile Consumer Survey, May-June 2012. Sample: all respondents (Belgium 999, Croatia 1,004, Finland 1,127, France 2,011, Germany 2,083, Russia 2,046, Turkey 1,012, UK 2,060). The sample for the countries with low Internet penetration such as Croatia, Russia and Turkey is not nationally representative.

Bottom line

Deloitte's view is that in a decade's time, TV's imminent demise will likely still be the subject of industry conferences, newspaper articles and discussions among industry peers.

However, unless the next ten years witness a major change in behaviour, the emergence of a genuine competitor to TV or the breakdown of some fundamental component of the television model, it is most probable that television will continue to be consumed in quantities that astound, and will continue to generate hundreds of billions of dollars in advertising, subscription and pay-per-view revenues.

Television does not appear to be dead. Rather it offers enormous commercial opportunities to companies that wish to get involved: the world's audience wants to be entertained and TV is in the sweet spot.

New content economics: welcome back to the old world

New content economics: welcome back to the old world

The cost of creating content, whether it be words, music, audio-visual or interactive, continues to fall. High-definition (HD) cameras can be purchased for a few hundred Euros, powerful video editing software is available for less than a hundred Euros and runs perfectly on computers costing as little as a thousand Euros.[74] Processing power becomes cheaper every year, thanks to Moore's Law, which observes that the number of transistors on a chip double every two years. Cloud computing means processing capability does not need to be owned at all.

There are two implications of falling equipment costs. First, it lowers a barrier to entry for producers. Professional content – from an editing perspective at least – can be created on a budget. The raw, grainy feel of a Hi8 camera need not be an integral feature of low budget content in 2012.[75] Given falling prices, it would appear that anyone with a modest budget can now realise their inner Spielberg.

Second, with the growth of high quality online video aggregators, anybody can broadcast their own content, and that of others, and make a few dollars. Anybody, it is argued, could be the next MGM.

Regrettably we are not all Spielberg

The falling cost of technology can reduce one of the barriers to entry; but there remains a critical barrier that has neither a price tag nor Moore's Law equivalent: talent. The best cameras at the lowest prices are not sufficient to make a good programme or film.

Television in general is still big budget: it is a medium in which creating on a modest budget can really show through. There are occasional breakout programmes and genres which attain major success on a (by television's standards) meagre budget, but those are the exception rather than the rule.[76] For example, in the United States the typical cost of scripted prime time entertainment can be more than $3 million per hour. Unscripted shows are cheaper, but cost per hour can still be in the region of $1 million. Low-cost hits, such as *Trading Spaces*, at a cost of just $90,000 per episode, produce a wonderful return on investment, but are very rare.[77] More typically, an hour of unscripted reality TV on cable channels costs between $300,000 and $500,000.

In this respect television differs from music and print. It is still possible to record a platinum-selling album in a garage (although the cost of marketing is as significant as ever).[78] It is still possible for a talented journalist to use free blogging software to reach a worldwide audience.

A growing volume of low-cost video content does not signify the end of the blockbuster content model

Over the past few years, there has been a growing volume of video titles available via online video aggregators. For example, there is a large library of ad-funded content available online that offers guidance on everything from learning how to play classical guitar to understanding algebra, and almost everything in between. There are companies that have been created specially to cater to these markets, such as Khan Academy.[79]

Deloitte regards this content as an important addition to the library of video content available, but views this, based on viewing figures and revenues, as a distinct proposition from mainstream television, at least in 2012.

Falling costs of units of technology equipment do not necessarily lead to falling production budgets

Technology currently typically represents about 10 per cent of production budgets. In productions reliant on special effects, technology can account for about 40 per cent of the budget.[80]

Further, a significant decline in the cost of individual pieces of technology may not have a major impact on overall production budget, for television programmes as well as for movies. The reason for this is simple: a director's instinct is to deliver the most impactful audio-visual experience on a fixed budget, rather than trying to deliver a production at the lowest cost.

Therefore, a fall in the price of a camera is likely to be interpreted as an opportunity to purchase more cameras, or to opt for a higher specification camera to shoot from more angles. Coverage of major sports events may already involve dozens of cameras; but there could easily be dozens more, whether that be for a geographically stretched event, such as a marathon, or a contained spectacle, such as a football match.

Declining prices for special effects, meanwhile, may lead to the introduction of more compelling effects on the same budget. Effects can always be made more special; the better they become, the higher the bar is raised.[81] It is not just about effects used in action films; special effects may be equally as compelling in news bulletins.[82] And as one bulletin's effects improve, its competitors may be expected to follow suit, leading to a special effects arms race.

The indirect costs of declining technology unit prices can be significant. The more cameras in use, the more camera operators (and possibly sound technicians) are required. The more footage captured, the higher the cost of post-production. If post-production is distributed across sites, additional bandwidth may be needed.

For programmes where productions costs do fall, rising costs may be accommodated in other parts of the technology budget. For example, the rising number of screens on which video can be viewed, all with different screen sizes and aspect ratios, means different cuts of the same programme are required. Producing just for 16:9 and 4:3 is a relatively modest incremental cost, but creating different cuts optimised for a range of tablets and smartphones can add thousands of dollars or more to the budget.

Technology is just part of the budget

Content economics are not limited to making content – there's also promotion and distribution to take into account. A key cost in making successful content is marketing. In this respect, costs are rising at least in line with core movie budgets.[83]

Social media and networks can help in this regard, and can be relatively low cost. However, they are not a marketing solution on their own, but a component, with their primary impact being to amplify and not replace core marketing initiatives. Social marketing alone may be insufficient unless driven by a core programme of traditional advertising.

For those wanting to set up their own channel, one of the biggest barriers to entry is brand equity in existing channels which, in many countries, will be the product of years of trust building and accumulated spending.

Technology budgets can rise even if the price of equipment falls

Looking ahead, technology costs are very likely to continue to fall. Moore's Law still has some time to run.[84] But if Moore's Law ever does prove finite – finally proving the naysayers right – there is likely to be an equivalent to take its place.

As the costs of one technological component falls, new technologies will appear. Take HD as an example. The cost of HD cameras and post-production has fallen consistently and significantly over the past decade – anecdotally more than ten-fold between 2005 and 2011. That is great news, until the point when HD becomes standard definition (SD), and a new higher HD emerges.

In fact, the new HD, known as quad HD, is already being defined as an official standard. The first sets are in the shops,[85] and broadcasts are expected as early as 2014. Quad HD offers four times the resolution of the current highest level of HD. In pixels, that is 3840 x 2160, or over 8 million.[86] Customers may be unlikely to pay four times as much to watch Quad HD – even if they are willing to pay four times as much for a Quad HD set.

Quad HD of course means new cameras, which initially may be markedly more expensive than standard HD cameras; the processing power required to capture, encode and store content is around 64 times greater than for a professional quality HD camera.[87]

The first broadcasts in quad HD may well be condemned as folly, or commercial madness. But if the first quad HD broadcasts wow viewers, other broadcasters will soon rush to catch up.

Once broadcasters have learnt to cope with quad HD, there will be ultra-high definition (UHD) to deal with. UHD is also known as 8K because it offers 8,000 lines of resolution, compared with the 4,000 lines in quad HD.

Bottom line

Technological progress can make elements of production of TV programmes cheaper. But lower cost technology applied in larger quantities can also be used to differentiate a programme from its nearest competitors and, as a result, gain a higher audience.

Furthermore, while technology may reduce the cost of the same specification camera on a year-on-year basis, it is quite likely that in the same time period a more powerful, capable camera will have been released.

Content producers face a dilemma: whether to exploit falling technology costs, or deploy additional technology to create more compelling content. The former may appear a preferable short-term option, but will falter if content continues to move to an increasingly blockbuster-driven model, in which ever larger shares of revenue accrue to the winners. Furthermore, given audience's growing range of devices on which they may consume content, content producers need to allocate increasing amounts of budgets to catering for second (and third) screens. Repurposing content can become a significant expense, if, say, content needs to be formatted for a wider range of operating systems and devices.

Broadcasters, whether pay or free-to-air, need to retain audiences. They are more likely to do so if their programmes are more arresting. Broadcasters face an increasingly competitive market, with a growing number of channels and aggregators of over-the-top content. Their commissioning choices will inevitably have to factor in cost, but will want to avoid programming that looks too cheaply made: for the majority of viewers, after all, TV is about entertainment that's best served slick and glossy.

About the research

Deloitte has produced this report as part of its continuing support for the IBC Leaders' Summit. This is the second year in which Deloitte has proudly been Supporting Partner of the Summit.

Deloitte's roles and responsibilities have entailed the research, writing and publishing of the report and the report's scope was the product of discussions between Deloitte and IBC.

Deloitte has a dedicated research team which works continuously in sourcing, writing and producing pieces of thought leadership as part of its long term comprehensive research program whilst undertaking independent analysis of the development of the technology, media and telecommunications (TMT) sectors.

Our research team considered the sectors as an inter-related, inter-dependent ecosystem and was guided by our analysis of the capabilities and limitations in corollary sectors, such as fixed or mobile broadband networks, evolution of operating systems for mobile phones, developments in processors, diversification of the smartphone form factor, increases in satellite broadband capacity.

Deloitte's approach is to blend qualitative and quantitative research. We held in excess of 500 meetings around the world, typically with industry executives, investment banks and industry analysts, focused on discussing developments in the sector, of which about 40 per cent cover in whole or part the evolution of the television sector.

Specific programmes of quantitative research that have informed this report include:

- Selected inputs from Deloitte's Global Mobile Consumer Survey, an online survey which includes a quantification of penetration and usage of mobile devices among 12,342 respondents in eight European countries: Belgium (999), Croatia (1,004), Finland (1,127), France (2,011), Germany (2,083), Russia (2,046), Turkey (1,012) and the UK (2,060). The sample is nationally representative in Belgium, Finland, France, Germany and the UK, and representative of urban professionals in Croatia, Russia and Turkey. Fieldwork took place during May-June 2012.
- Inputs from an online survey of 4,006 nationally representative respondents in the UK looking at a wide span of TV consumption patterns and attitudes to TV. The survey was fielded by GfK and based on a question set written by Deloitte and GfK reflecting inputs from industry executives. Fieldwork took place during June 2012. The survey was modularised and the sample split in half so that a representative sample of 2,000 respondents answered each of the two sets of modules. This modularised approach was implemented to ensure quality of response throughout the entire questionnaire. Respondents were sampled and weighted to reflect the UK adult population (16+).
- Copious consumption of television and second screen apps.

Views expressed by third parties providing input for this report are not necessarily those of Deloitte.

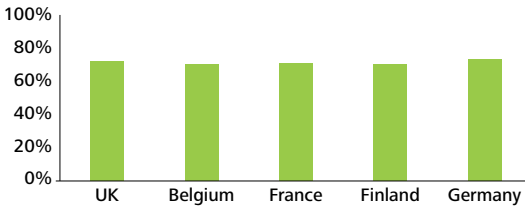
For further information about this research please contact paullee@deloitte.co.uk.

www.deloitte.com/ibctv

Notes

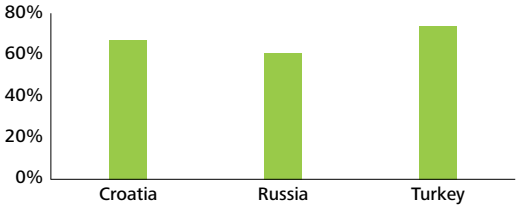
1. According to this article television is responsible for "a lot" of the 90 million daily tweets generated as of November 2010. Assuming that "a lot" is at least 5 million per day, this would imply over a billion tweets per year. Source: There Are 90 Million Tweets per Day, And A Lot Are TV Related, TechCrunch, 10 November 2010: see: http://techcrunch.com/2010/11/10/twitter-tv/. For a list of the most popular television trends topics on Twitter in 2009, see: Top Twitter Trends of 2009, Twitter Blog, 15 December 2009: http://blog.twitter.com/2009/12/top-twitter-trends-of-2009.html
2. In Q1 2012, 11.5 per cent of TV sets sold in the UK were 43 inches or larger; in 2007, the proportion was just 3 per cent. In Q1 2012, 34.5 per cent of sets sold were 33 inches or larger. Source: GfK quoted in: Figure 2.12. The Communications Market 2012, Section 2: TV and audio-visual, Ofcom, July 2012. See: http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_2.pdf
3. In this report we have used the term "connected TV" rather than smart TV as smart TV sets are not necessarily connected: they might require the purchase of an additional part, known as a Wi-Fi dongle, to enable connected usage. However "Smart" TV sets that do not have connectivity fully built in can be connected by attaching any peripheral with connectivity, such as certain games consoles, a laptop computer, a BluRay DVD player.
4. For examples of the hypothetical impact of connected TV, see: Connected TV to have big impact on British TV viewing, Broadband TV News, 2 November 2010: http://www.broadbandtvnews.com/2010/11/23/connected-tv-to-have-big-impact-on-britsh-tv-viewing/
5. According to one survey of 4,000 consumers, the most popular uses of connected TV are watching streaming TV, watching YouTube and watching movies. Source: France tops TV connection rates, UK lowest, Broadband TV News, 17 May 2012. See: http://www.broadbandtvnews.com/2012/05/17/france-tops-tv-connection-rates-uk-lowest/; According to a survey undertaken by Forrester in 2010, what most people wanted to do with connected TV was to watch more TV. Source: Interest In Connected TVs, Forrester, 1 October 2010. See: http://blogs.forrester.com/category/connected_tv_forecast; According to Ofcom's Communications Report, the most common usage of connected TVs was to watch more TV. See Figure 2.17, The Communications Market 2012, Ofcom, July 2012. See: http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/UK_2.pdf
6. According to a report by IMS research in 2011, about 25 per cent of TV sets shipped globally in 2011 were Internet connected. The number of Internet-connected TVs will reach 70 per cent of total TV shipments by 2016. Source: Connected TV Set Shipments Will Grow to 70 Percent during 2016, IMS Research, 2 May 2012. See: http://imsresearch.com/press-release/Connected_TV_Set_Shipments_Will_Grow_to_70_Percent_during_2016_According_to_IMS_Research
7. As of 2010, CRT televisions were almost unavailable in Europe. Source: CRT going down the tubes. Hardly?, MIT News, 2 February 2010. See: http://web.mit.edu/newsoffice/2010/crt-recycle.html
8. Deloitte estimate based on estimates of laptop penetration in Europe and data on penetration of other connected devices that could be used to provide connectivity for television sets, as described in other sections of this report.
9. The following games consoles have connectivity built in: Sony PS3, Xbox 360 and Nintendo Wii. PS2 and Xbox models do not have built in connectivity.
10. Apple TV and Roku units sold about 7 million units worldwide in 2011. Source: Apple TV, Roku need Google to take dedicated streaming STBs mainstream, RapidTV News, 23 July 2012. See:http://www.rapidtvnews.com/index.php/2012072323178/apple-tv-roku-need-google-to-take-dedicated-streaming-stbs-mainstream.html
11. Deloitte's estimate is that between 70 and 75 per cent of citizens in Western Europe and between 60 and 85 percent of urban professionals living in emerging countries within Europe to own or to have access to a laptop computer. These data are based on Deloitte's Global Mobile Consumer Survey, which polled a representative sample of populations in Germany, Finland, France, Germany and the UK (see Figure 12) and a sample of urban professionals in Croatia, Russia and Turkey (see Figure 13). Deloitte's estimate is that about two thirds of laptop computers in these countries are less than four years old. We have assumed a typical replacement cycle of about three years.

Figure 12. Ownership or access to laptop computers in Belgium, Finland, France, Germany and the UK, 2012



Source: Deloitte Global Mobile Consumer Survey, May-June 2012. Sample: all respondents: Belgium (999), Finland (1,127), France (2,011), Germany (2,083) and the UK (2,060).

Figure 13. Ownership or access to laptop computers in Croatia, Russia and Turkey among urban professionals, 2012



Source: Deloitte Global Mobile Consumer Survey, May-June 2012. Sample: all respondents: Croatia (1,004), Russia (2,046), and Turkey (1,012).

12 . HDMI cables are available in Europe at prices starting from a few dollars. For example, in Germany, an HDMI cable is €1.75 ($2.2), see: http://www.amazon.de/Unbekannt-Verbindungskabel-HDMI-Stecker/dp/B000FAGG4Y/ref=sr_1_3?s=ce-de&ie=UTF8&qid=1344263962&sr=1-3; In France, an HDMI cable is €1.80 ($2.2), see: http://www.amazon.fr/Bulk-CABLE-550G-C%C3%A2ble-HDMI-Plaqu%C3%A9/dp/B000JU7N5Q/ref=sr_1_2?ie=UTF8&qid=1344537258&sr=8-2; In Spain, an HDMI cable is €3.79 ($4.7), see: http://www.amazon.es/Bulk-CABLE-557-1-5-contactos-dorados/dp/B002MSU5BM/ref=sr_1_4?ie=UTF8&qid=1344537522&sr=8-4]. The prices are as of 09 August 2012.

13. According to Deloitte's Global Mobile Consumer Survey, between a quarter and a half of the population in Western Europe has a smartphone. In emerging countries in Europe between a quarter and three quarters of urban professionals living in cities has a smartphone. These data are based on Deloitte's Global Mobile Consumer Survey, which polled a representative sample of populations in Belgium, Finland, France, Germany and the UK and a sample of urban professionals in Croatia, Russia and Turkey. However the capabilities of smartphones vary – the definition of a smartphone is becoming increasingly diverse – and typically only high-end smartphones, with more powerful processors and graphics capabilities are able to deliver services like video streaming. Some models can be connected to TVs via HDMI ports; others offer specialist docking stations and if you have access to neither of these, adapters are available. Sony Mobile offers a docking station that enables you to connect your smartphone to a television set. See: http://www.sonymobile.com/gb/products/accessories/livedock-multimedia-station; some models of Apple's iPhone supporting content mirroring via Apple TV. Source: Apple TV: How to use AirPlay Mirroring. See: http://support.apple.com/kb/HT5209; Kanex is one company that offers an adapter to enable a smartphone to output to a television set. Source: Kanex MHL HDMI adapter: Smartphone's screen on an HDTV, CNET, 30 August 2011. See: http://news.cnet.com/8301-17938_105-20099353-1/kanex-mhl-hdmi-adapter-smartphones-screen-on-an-hdtv/
14. For example, a survey undertaken by Futuresource explains that, most popular use of connected TV were to watch catch-up TV, Youtube videos and streaming films from online channels. Source: France leads with connected TV use, Digital TV Europe, 18 May 2012. See: http://www.digitaltveurope.net/24275/france-leads-with-connected-tv-use/ ; According to a survey undertaken by Forrester in 2010, what most people wanted to do with connected TV was to watch more TV. Most respondents were interested in getting access to well-known sources of TV shows and movies like Netflix, Blockbuster, or regular broadcast and cable networks. Source: Interest In Connected TVs, Forrester, 1 October 2010. See: http://blogs.forrester.com/category/connected_tv_forecast;
15. Consumption patterns, by time of day, for BBC iPlayer remain largely the same as those for linear TV. Source: Monthly Performance Pack, BBC iPlayer, Page 23, January to April 2012, BBC. See: http://downloads.bbc.co.uk/mediacentre/iplayer/iplayer-performance-april12.pdf
16. In April 2012, BBC iPlayer requests peaked at 373,000 per day, compared to the 26.7 million linear TV viewers. Source: Monthly Performance Pack, BBC iPlayer, Page 23, January to April 2012, BBC. See: http://downloads.bbc.co.uk/mediacentre/iplayer/iplayer-performance-april12.pdf
17. Deloitte estimates that between 15 and 25 per cent of citizens in Western Europe use their phones to watch streaming video on an occasional (at least once weekly) basis. These data are based on Deloitte's Global Mobile Consumer Survey, which polled a representative sample of populations in Germany, Finland, France, Germany and the UK. Deloitte estimates that between 15 and 30 per cent of urban professionals in emerging countries in Europe use their phones to watch streaming video on an occasional (at least once weekly) basis. These data are based on Deloitte's Global Mobile Consumer Survey, which polled a sample of urban professionals in Croatia, Russia and Turkey.
18. Deloitte/UK, June 2012, Sample: all respondents (4,006 respondents, nationally representative).
19. In 2012, Deloitte estimates that TV advertising targeted to individual households will likely represent less than one-tenth of a per-cent of global television advertising revenues, which is less than $200 million out of a total market of $227 billion. For a more detailed discussion on this topic, see: "Targeted television advertisements miss the point", Technology, Media & Telecommunications Predictions, 2012, Deloitte LLP, 2012. See: http://www.deloitte.com/tmtpredictions
20. In 2010, there were about 26 broadband access lines per 100 people in the EU 27, equivalent to about 70 per cent household penetration. Source: Broadband penetration rate, Eurostat. See: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsiir150&plugin=0
21. In research undertaken by Deloitte/GfK on the UK market, younger age groups, those in higher socioeconomic groups (who tend to be wealthier) and those with more devices are most likely to be heavier users of connected TV. Nearly 20 per cent of wealthier respondents had exhibited higher regular usage of TVs to access TV-on-demand at 19 per cent versus a national average of 16 per cent. For 25-34 year olds the figure was 24 per cent and for those with tablets it was 28 per cent. Source: Deloitte/UK, June 2012, table 5. Samples: all respondents (4,006, nationally representative), 25-34 year olds (777), upper middle class (253), tablet owners (755).
22. Source: Netflix Outbids HBO for David Fincher and Kevin Spacey's 'House of Cards', The Hollywood Reporter, 15 March 2011. See: http://www.hollywoodreporter.com/news/netflix-outbids-hbo-david-fincher-167882
23. Apple, Cisco Systems, Intel and Microsoft have a market capitalisation of over $500 billion. Source: Apple Market Cap Poised to Crack $500 Billion, *The Wall Street Journal*, 28 February 2012. See:http://blogs.wsj.com/marketbeat/2012/02/28/apple-market-cap-poised-to-crack-500-billion/
24. Endnote 24 should be: Apple and Microsoft are the only companies to have crosses the $600 billion mark in terms of market capitalisation. Source: Apple Market Cap Hits $600 Billion, *Huffington Post*, 10 April 2012. See: http://www.huffingtonpost.com/2012/04/10/apple-market-cap-hits-600_n_1415067.html
25. The technology sector has always been pretty good at generating profit. What has really changed in the last five years is cash generation. Companies like Lucent used to make a lot of profit, but they had to reinvest in factories and R&D: up to 40 per cent of profit every year. The new model has swung away from capital expenditure (CAPEX) and Research and Development (R&D) intensity. So although the tech industry as a whole is only slightly more profitable on an accounting basis, it is generating about five times as much cash.

26. Deloitte analysis based on the latest available financial reports, as of 1 August 2012, for the top 10 public companies in terms of total cash. The total cash includes cash and cash equivalents, total short-term investments and total long-term investments. The following companies were included in our study: Apple, Cisco, Dell, Google, IBM, Microsoft, Oracle, Qualcomm, Quanta Computers and Samsung Electronics. Collectively, these companies had a total of $425 billion in total cash, as of August 2012. The total cash position for Quanta Computers for Q2 2012 is based on a Deloitte estimate.
27. In January 2012, Apple was rumoured to be interested in TV rights for the English Premier League. Source: Can Apple Add Exclusive Sports Coverage To Its Empire?, Seeking Alpha, 11 January 2012. See: http://seekingalpha.com/article/318735-can-apple-add-exclusive-sports-coverage-to-its-empire
28. The Premier League TV rights for three years costs £3.018 billion. Source: Forget the financial crisis - BT joins the Premier League party and football lands an incredible £3BILLION, *Daily Mail,* 13 June 2012. See: http://www.dailymail.co.uk/sport/football/article-2158825/Premier-League-sell-TV-rights-3-billion-BT-Sky.html
29. The interest of technology companies in creating a space in broadcasting sector were signalled when Netflix outbid HBO to claim premium cable rights for the drama series *House of Cards*. Source: "Netflix Outbids HBO for David Fincher and Kevin Spacey's 'House of Cards', The Hollywood Reporter, 15 March 2011. See: http://www.hollywoodreporter.com/news/netflix-outbids-hbo-david-fincher-167882
30. Netflix also distributes DVDs by post in the United States.
31. Google invested $350 million in marketing and advances for 100 bespoke TV channels. Source: YouTube will kick in an extra $200 million to market new channels, Engadget, 31 July 2012. See: http://www.engadget.com/2012/07/31/youtube-channel-original-content-200-million/; Google Fiber, Google's first attempt at the bundled Internet and television services market, promises Internet access speeds more than 100 times faster than those of traditional cable and telecommunications companies. Source: Google unveils ultrafast Internet/TV in Kansas City, Reuters, 26 July 2012. See: http://www.reuters.com/article/2012/07/26/net-us-google-fiber-kansas-idUSBRE86P1PC20120726
32. The total cash holdings are calculated based on the latest available data as of August 2012. Reporting schedules and fiscal years for each company varies.
33. Deloitte has used the latest published information available for each company.
34. Deloitte has used the latest published information available for each company.
35 Spanish football clubs earn about €641 million from TV rights. Source: Barca and Real consider sharing TV rights to make La Liga more competitive, *Daily Mail*, 30 May 2012. See: http://www.dailymail.co.uk/sport/football/article-2152076/Barcelona-Real-Madrid-prepared-share-TV-rights-make-La-Liga-competitive.html
36. The deal included Women's World Cups in 2015 and 2019 but the majority of the value of the rights would have been for the tournaments in 2018 and 2022. Source: FIFA to award World Cup TV rights to FOX, *New York Post*, 21 October 2011. See: http://www.nypost.com/p/sports/more_sports/fifa_to_award_world_cup_tv_rights_wfLuCf7HL4fs92EeSnU54K
37. Telemundo outbid Univision for the Spanish-language broadcast rights to the '18 and '22 World Cup, offering $600 million. Source: FIFA to award World Cup TV rights to FOX, *New York Post*, 21 October 2011. See: http://www.nypost.com/p/sports/more_sports/fifa_to_award_world_cup_tv_rights_wfLuCf7HL4fs92EeSnU54K
38. Source: NBC wins rights to Olympics through 2020; promises more live coverage, *USA Today*, 7 June 2011. See: http://content.usatoday.com/communities/gameon/post/2011/06/olympic-tv-decision-between-nbc-espn-and-fox-could-come-down-today/1
39. Source: HBO gambles on the success of Boardwalk Empire, *The Guardian*, 20 September 2010. See: http://www.guardian.co.uk/media/2010/sep/20/boardwalk-empire-hbo-american-television
40. Source: A Bigger, Pricier 'Game of Thrones', *The Wall Street Journal*, 29 March, 2012. See: http://online.wsj.com/article/SB10001424052702303404704577309432008018946.html
41. Source: 'Modern Family' Cast Reaches Deal to End Salary Standoff, The Hollywood Reporter, 27 July 2012. See: http://www.hollywoodreporter.com/thr-esq/modern-family-cast-deal-salary-355527
42. Acquisitions of tech companies over the past 18 months have been for up to $10 billion. The largest tech deals in history have been much larger, with many at tens of billions, and the occasional deal over $100 billion. But the largest transactions are usually mainly share deals, with cash forming only a minor part of the deal. Tech companies' purchases of media companies may require more of a cash element due to the lack of familiarity between sectors. For a list of all tech M&A in 2011 and the first few months of 2012, see: Tech M&A deals of 2011, Network World: http://www.networkworld.com/slideshows/2011/2011-tech-deals.html and Tech M&A deals of 2012, Network World: http://www.networkworld.com/slideshow/35002#slide1
43. Microsoft, Intel, IBM, Cisco, Google and Oracle R&D spend between March 2011 to March 2012 was $39.3 billion. Source: Microsoft, Intel, Google outspend Apple on R&D, *USA Today*, 21 March 2012. See: http://www.usatoday.com/money/perfi/columnist/krantz/story/2012-03-20/apple-marketing-research-and-development-spending/53673126/1; Nokia's spend on R&D in 2010 was $3.9 billion. Source: Not Seeing Much Return on That Massive R&D Spend, Are You, Nokia?, All Things D, 3 February 2011. See: http://allthingsd.com/20110203/not-seeing-much-return-on-that-massive-rd-spend-are-you-nokia/
44. For example, Apple's sales, general and administrative costs were $8.3 billion in 2011. Source: Microsoft, Intel, Google outspend Apple on R&D, *USA Today*, 21 March 2012. See: http://www.usatoday.com/money/perfi/columnist/krantz/story/2012-03-20/apple-marketing--research-and-development-spending/53673126/1
45. For a view on Intel's expenditure on its new plant in Arizona, see: Insight: As chip plants get pricey, U.S. risks losing edge, *Reuters*, 1 May 2012: http://www.reuters.com/article/2012/05/01/us-semiconductors-manufacturing-idUSBRE8400N920120501; Samsung's new chip plant in China will cost $7 billion, see: Samsung reveals its China chip plant will cost $7bn, making it its biggest ever overseas investment, The Next Web, 2 April 2012: http://thenextweb.com/mobile/2012/04/02/samsung-reveals-its-china-chip-plant-will-cost-7bn-making-it-its-biggest-ever-overseas-investment/
46. A 450 mm semiconductor fabrication plant will cost about $10 billion. Source: TSMC doles out $1.4bn to buy Moore's Law breathing space, *The Register*, 6 August 2012. See: http://www.theregister.co.uk/2012/08/06/tsmc_invests_asml_lithography/
47. Source: The Tech Company Argument For Tax Holidays and High Dividends, Forbes, 26 July 2012. See: http://www.forbes.com/sites/timworstall/2012/07/28/the-tech-company-argument-for-tax-holidays-and-high-dividends/
48. Source: Tech sector boosting dividends, The Globe and Mail, 13 June 2012. See: http://www.theglobeandmail.com/globe-investor/markets/market-blog/tech-sector-boosting-dividends/article4255860/

49. Source: Share buybacks: The wrong way to reward shareholders, The Globe and Mail, 10 February 2012. See: http://www.theglobeandmail.com/incoming/share-buybacks-the-wrong-way-to-reward-shareholders/article545466/
50. According to Deloitte's Global Mobile Consumer research, the average number of connected devices owned in EU countries where the research was undertaken (Belgium, Finland, France, Germany, United Kingdom) varied between 1.2 and 1.6 per person across the entire population. In this calculation, a maximum of one device for each category of devices was considered. However, each individual may own more than one device and the pattern of multiple ownership is more common among wealthier incomes. Deloitte estimates that upper quartile households are likely to have 50 per cent more devices per person. Factoring in average household size in the EU of about 2.5, we can imply five devices per upper quartile household in the EU. Source: Number of private households by household composition, number of children and age of youngest child, Eurostat, 19 July 2012. See: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfst_hhnhtych&lang=en; Source: EU27 population 502.5 million at 1 January 2011, Eurostat, 28 July 2011. See: http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-28072011-AP/EN/3-28072011-AP-EN.PDF
51. Research for the Deloitte Global Mobile Consumer survey was undertaken via online research. Therefore the panel for the countries with low Internet penetration is not nationally representative and is indicative of professionals living in cities.
52. Borders declared itself bankrupt in the United States in February 2011. It had withdrawn from the UK in 2009. Sources: Borders Files Bankruptcy, Is Closing Up To 275 Stores, Bloomberg, 16 February 2011. See: http://www.guardian.co.uk/business/2011/feb/13/borders-bankruptcy-on-cards-in-us; Borders poised for bankruptcy in US, *The Guardian*, 13 February 2011. See: http://www.guardian.co.uk/business/2011/feb/13/borders-bankruptcy-on-cards-in-us
53. Source: Never mind the high street: Branson sells his Virgin Megastores, *The Guardian*, 18 September 2007. See: http://www.guardian.co.uk/business/2007/sep/18/media.retail; Source: A Broken Record Store, *The Washington Post*, 23 August 2006. See:http://www.washingtonpost.com/wp-dyn/content/article/2006/08/22/AR2006082201350.html
54. Recorded Music2012 – edging to a new dawn, Enders Analysis, 24 July 2012.
55. Recorded Music2012 – edging to a new dawn, Enders Analysis, 24 July 2012.
56. The Mail Online, the online version of the Daily Mail's print product, had 94 million unique browsers a month as of June 2012 generating ad revenues of £27 million. Source: Mail Online may make a profit – but the sums are too hard for Mr Micawber, *The Guardian*, 29 July 2012, see: http://www.guardian.co.uk/media/2012/jul/29/main-online-profit-sums-too-hard-for-micawber?newsfeed=true; Associated Newspapers' revenues for 2011 comprising the Daily Mail, Mail on Sunday, Mail Online and Metro, were £862 million. Source: DMGT company financials, 24 May 2012. Source: DMGT – Half Year Ended 1 April 2012, 24 May 2012, see: http://www.dmgt.com/uploads/files/HY12-Half-Year-Analyst-Presentation.pdf; In 2011, US newspapers lost $10 in print revenue for every $1 gained online; in 2010 they lost $7 in print for every $1 gain from digital. These trends have been attributed to newspapers' losing "ground to tech intermediaries". Source: Newspapers Lose $10 Dollars in Print for Every Digital $1, Bloomberg Businessweek, 19 March 2012. See: http://www.businessweek.com/news/2012-03-19/newspapers-lose-10-dollars-in-print-for-every-digital-1
57. Source: Google, Ally to Target TV Spots, *The Wall Street Journal*, 28 July 2009. See: http://online.wsj.com/article/SB124874405686685561.html
58. Source: The dog that hasn't barked, Broadcast, 18 December 2001. See: http://www.broadcastnow.co.uk/news/multi-platform/news/the-dog-that-hasnt-barked/1187294.article; Source: Tivo study predicts death of primetime TV, Broadcast, 05 March 2002. See: http://www.broadcastnow.co.uk/news/multi-platform/news/tivo-study-predicts-death-of-primetime-tv/1138636.article
59. One survey of marketers found that 75 per cent would cut their television ad budget as a result of ad-skipping technology. Source: The TiVo Effect: Advertisers See Less TV Ad Spending, ClickZ, 25 November 2002. See: http://www.clickz.com/clickz/news/1704616/the-tivo-effect-advertisers-see-less-tv-ad-spending; For other views on the anticipated impact of PVRs on viewing, see: TV advertising's DVR challenge, CNET, 23 May 2006: http://news.cnet.com/2100-1024_3-6075233.html; For a view from 2005, which estimated 50 per cent of viewing would be skipped by 2010, see: Sky+ won't kill TV ads, says media buyer, *The Guardian*, 28 November 2005. See: http://www.guardian.co.uk/media/2005/nov/28/advertising.broadcasting1;
60. For example, on Christmas Day 2011, two popular shows, Eastenders and Downton Abbey, were scheduled at the same time. The former was more watched live and was also watched via a PVR by two million viewers; the latter was watched via a PVR by three million viewers, but had less live viewers. The volume of PVR views are among the highest ever for a programme. Source: Ratings 2011: the year PVR came of age, Broadcast, 26 January 2012. See: http://www.broadcastnow.co.uk/ratings/ratings-2011-the-year-pvr-came-of-age/5037016.article
61. For example, one programme on the UK schedule, *Bedlam*, had 274,000 viewers live and added half a million more with PVR views, taking total views to 742,000. Source: Bedlam once more for 742k, Broadcast, 22 June 2012. See: http://www.broadcastnow.co.uk/ratings/bedlam-once-more-for-742k/5043630.article?blocktitle=CONSOLIDATED-RATINGS&contentID=37392
62. Based on data from BSkyB, Thinkbox and BARB.
63. Based on data from BSkyB, Thinkbox and BARB.
64. In the UK about ten percent of viewing is time shifted (at the time of the article the proportion was nine per cent). About two thirds of ads are fast forwarded. Source: Sky Anniversary, Broadcast, 29 September 2011. See: http://www.broadcastnow.co.uk/news/analysis/sky-anniversary/5032657.article
65. TV+: TV's relationship with advertising, social networks, shopping, technology and companion devices, Deloitte LLP, 2011. Source: TV+ perspectives on television in words and numbers, Deloitte, 28 August 2011. See: www.deloitte.co.uk/television
66. This uses a technology called conditional access.
67. One explanation for cord cutting may be due to students accessing using their parents' pay-TV subscriptions via streaming, rather than taking out a separate subscription. Source: The Death Of TV: Comcast Lost Nearly 400,000 Cable Subscribers In Last Year, Business Insider, 1 August 2012. See: http://www.businessinsider.com/comcast-loses-nearly-400000-subscribers-in-last-year-2012-8

68. The search for the exact same phrases: "TV is dead" and "TV is alive" was undertaken via Google (other search engines exist) on a PC in the UK. The search results are as of 13 August 2012.
69. Revenues are for Western, Central and Eastern Europe. Source: ZenithOptimedia, Advertising Expenditure Forecasts, June 2012. In 2012, TV ad yearly spend is forecasted to reach $47.8 billion.
70. In 2010, global TV subscription revenues were £121 billion. Source: Figure 3.3, International Communications Market Report 2011, Section 3: Television and Audio Visual, Ofcom, December 2011. See: http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/icmr/3_-_tv.pdf. Deloitte is expecting that the Pay-TV revenues will be approaching $200 billion per year in 2012.
71. This article heralds the roster of "intelligent and creative television" and notes how a television series can generate "much intellectual buzz and frisson". Source: The small screen gets better, Gillian Tett, *Financial Times*, 29 June 2012. See: http://www.ft.com/intl/cms/s/2/0ed8ef6a-c0b1-11e1-9372-00144feabdc0.html#axzz21TTvMwUd
72. In the week commencing 25 June 2012, television news bulletins filled 27 of the top 100 programmes. Source: Top 100 network programmes, Broadcast, 5 July 2012. See: http://www.broadcastnow.co.uk/ratings/top-100-network-programmes/5044130.article?blocktitle=TOP-100-NETWORK-PROGRAMMES&contentID=37585
73. Sporting events generate among the most conversations on social media. For example, Usain Bolt's gold medal-winning run in the 200 meters final drew 80,000 tweets per second. Source: Olympics 2012: Twitter Users Sent More Than 150 million Summer Games Tweets, The Hollywood Reporter, 13 August 2012. See: http://www.hollywoodreporter.com/news/olympics-2012-twitter-usain-bolt-record-michael-phelps-401973; FIFA Women's World Cup Final in 2011 saw over 7,196 tweets per second. Source: World Cup Final: A New Tweets Per Second Record, Mashable, 17 July 2011. See: http://mashable.com/2011/07/17/world-cup-final-twitter-record/
74. For example, the price of a full-HD Camcorder is $662 (€539), see: http://www.amazon.de/Sony-HDR-PJ260VE-LCD-Display-Weitwinkel-Kartenindex/dp/B006VVE21U/ref=sr_1_1?s=ce-de&ie=UTF8&qid=1344263798&sr=1-1. The price of video editing software is $84 (€68): http://www.amazon.de/Adobe-Photoshop-Elements-Premiere-deutsch/dp/B005KR3JFG/ref=sr_1_2?s=software&ie=UTF8&qid=1344845073&sr=1-2. The price of a laptop suitable for video editing is $1,534 (€1,249), see: http://store.apple.com/de/browse/home/shop_mac/family/macbook_pro. The prices and exchange rate are as of 13 August 2012.
75. The commercially available Hi8 camera was most famously used to film the 1999 box office hit "The Blair Witch Project". The camera was purchased at a local Circuit City store and returned after the filming was complete for a refund, which in turn was used to fund editing.
76. Source: Reality TV shows find success with small budgets, strong personalities, *The Kansas City Star*, 08 December 2010. See: http://www.kansascity.com/2010/12/05/2499791/biggest-loser-other-reality-shows.html
77. At the peak of this show's popularity, a celebrity edition of the show achieved a higher rating than any show on ABC, CBS, NBC or Fox Source: Reality TV shows find success with small budgets, strong personalities, *The Kansas City Star*, 8 December 2010. See: http://www.kansascity.com/2010/12/05/2499791/biggest-loser-other-reality-shows.html
78. For example the Foo Fighters recorded their album 'Wasting Light' in lead singer Dave Grohl's garage. The album sold 235,000 copies on its first week on sale and debuted at number one in 12 countries. Sources: Foo Fighters: Recording Wasting Light, Sound on Sound (SOS), June 2011. See: http://www.soundonsound.com/sos/jun11/articles/foo-fighters.htm; Foo Fighters plan tour of fans' garages, *The Guardian*, 18 March 2011. See: http://www.guardian.co.uk/music/2011/mar/18/foo-fighters-tour-fans-garages
79. For more information see: http://www.khanacademy.org/
80. The cost of 2012's blockbuster movies is estimated at between $200 million and $300 million, of which special effects are estimated at about $100 million. Source: Hollywood bets heavily on razzle-dazzle action and effects, *Los Angeles Times*, 27 April 2012. See: http://articles.latimes.com/2012/apr/27/business/la-fi-ct-summer-blockbusters-20120428
81. For a list of special effects used in some recent television series, see: The High Price of TV's Virtual Reality, Entertainment Weekly, 4 November 2011: http://www.ew.com/ew/article/0,,20534121_20543380,00.html
82. Effects are heavily used in news specials, for example, the BBC's coverage of the 2010 UK General Election. Source: The BBC's Election 2010 programme, BBC News, 5 May 2010. See: http://www.bbc.co.uk/blogs/theeditors/2010/05/election_2010_on_bbc_tv_news.html
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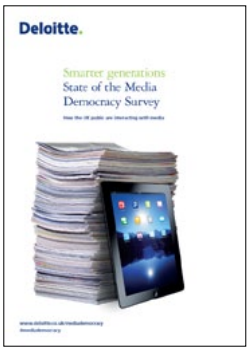

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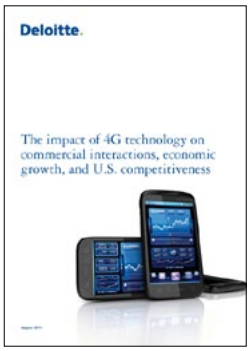

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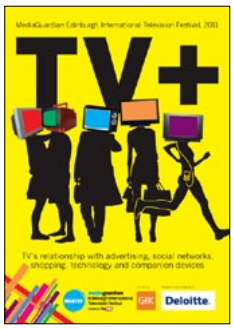

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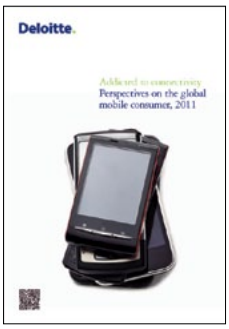

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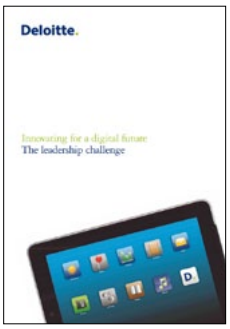

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