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PSB prominence in a converged media world

ANNEX: The impact of digital media

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1. Broadcast-led platforms

While the last decade was characterised by the take-up of multi-channel digital broadcast platforms more recent years have seen the extension of broadcast platforms to allow for internet-delivered content. We have therefore begun to see the emergence of 'hybrid' devices, integrating traditional broadcast signals and internet content via broadband.

Given the scale and strength of the vertically integrated pay TV platforms in the UK, Sky (10.8m households) and Virgin (3.8m households) are likely to play a major role in driving uptake of own IP-enabled platforms, supported by new entrants such as YouView, BT Vision and Freesat.

Sky's Anytime+ and Virgin Media's TiVo set-top boxes were introduced in 2010 and offer access to audio-visual content from a variety of different sources including live broadcast, locally recorded files and on-demand content delivered from the internet.

YouView is a joint venture between four broadcasters (BBC, ITV Player, Channel 4, Five) and three telecommunications companies (BT, Arqiva, Talk Talk). Launched in July 2012, YouView's hybrid set-top boxes combine access to Freeview broadcast signals with broadband delivered on-demand content.

Freesat's recently launched set-top box, 'Freesat Free Time', includes broadband connectivity and access to VoD, including catch-up services BBC iPlayer and ITV Player through a backwards EPG, as well as other on-demand services (including paid-for content)².

In recent months, Freeview have announced plans for a new HD set-top box which will feature seamless integration with IP-delivered on-demand content.

While there are some material differences between them, these broadcaster-led platforms tend to share some common characteristics:

- Live broadcast remains central but is supplemented by on-demand content with a particular focus on 'catch-up' (through integration with services like iPlayer and 4oD and / or through backwards EPGs)
- Each platform has its own proprietary interface and EPG
- They tend to be UK focussed.

2. Smart TVs

A new generation of 'smart' or 'connected' TVs allows the integration of internet connectivity and a TV set, providing access to a wide range of catch-up services, video-on-demand, personalisation, voting, games, social networking and other multimedia applications.

² The relatively high cost of Freesat Freetime (£275) and YouView (£299) is likely to be a barrier to widespread uptake in the short term, although this will change as the device becomes bundled with other services and prices fall

Television manufacturers such as Samsung and Sony are the key players given their leading role in the design and marketing of connected sets, with Panasonic, Toshiba, LG and many others also launching a range of smart TV devices.

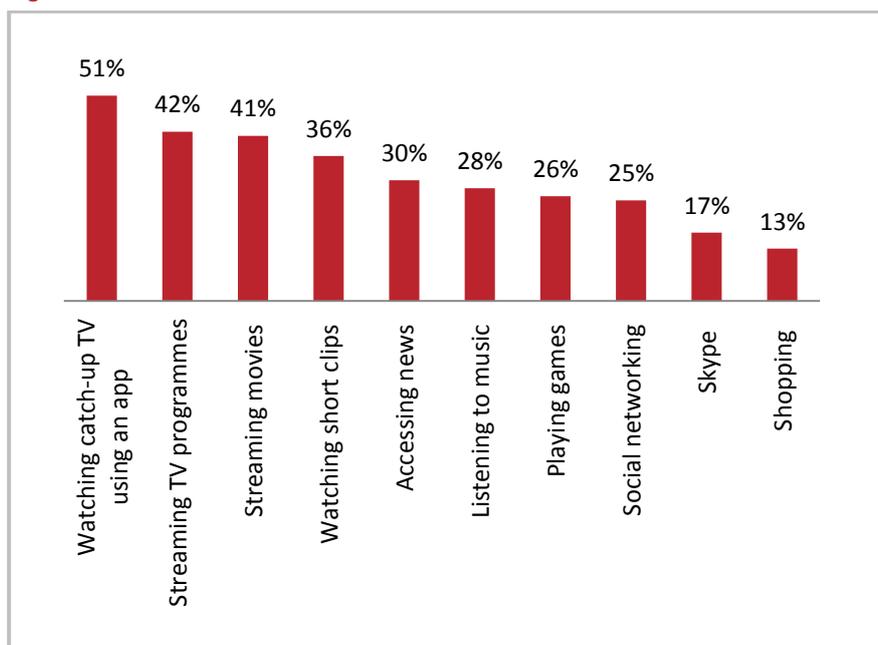
Smart TV sales and the smart TV share of the television market have both increased substantially over the past two years with more than 2.9 million smart TVs being sold in the UK since 2010³. With the exception of China, people in the U.K. (and France) have the highest ownership of smart TVs (15%)⁴.

However, the market remains relatively fragmented, with different smart TV platforms provided by the full range of manufacturers.

11% of British households intend to buy a smart TV within the next year⁵ with the introduction of contextual EPGs and new ways for audiences to discover content are seen as key market drivers⁶.

65% of smart TV owners said they had used the internet connection on their smart TV⁷, with the most widely-undertaken activities being watching catch-up TV (51%), streaming programmes (42%), and streaming films (41%).

Figure 2: Activities undertaken on smart TVs⁸



As households replace their TV set with a connected device, smart TV manufacturers will increasingly compete with broadcaster-led set-top boxes in the battle for control of the user interface.

However, although smart TVs comprise a fifth of all TV sets sold, the extent they will wrestle control from broadcaster-driven platforms is less clear. Given the scale

³ Source: Ofcom Communications Market Report 2012

⁴ Source: Ofcom International Communications Market Report 2012

⁵ Source: YouGov, 2012

⁶ Source: Ofcom International Communications Market Report 2012

⁷ Source: Ofcom Communications Market Report 2012

⁸ Source: Ofcom Communications Market Report 2012

of the vertically integrated pay TV platforms in the UK (almost 60% of UK households have access to Sky or Virgin⁹), a significant proportion of Smart TV users are likely to continue to use their pay-TV set top box as their primary content access gateway.

Indeed, at this stage internet functionality is not a key reason for purchasing a Smart TV. Ofcom research¹⁰ found that the most commonly-cited reasons for their purchase relate to wanting the best product with the latest technology, the design of the set and the quality of the screen.

Smart TV platforms tend to share the following characteristics:

- Live broadcast remains central but is supplemented by on-demand content (through catch-up services like iPlayer and access to on-demand stores)
- Each manufacturer has its own interface and EPG (although some manufacturers use third party software e.g. Sharp and Toshiba use Rovi)
- Other IP-enabled applications such as games and social networks are promoted
- Devices are international / global although with some degree of UK customisation in the selection and organisation of the services carried.

3. Device-related platforms

The technology which allows smart TV to integrate internet connectivity has allowed the development of third party devices which can be used to deliver IP content to a household. These include devices whose primary aim is to deliver audio-visual content and devices which provide TV content as secondary to their main purpose (games consoles, Blu-ray players, etc.).

Amongst TV-oriented devices, Apple and Google have begun to battle over control of the TV interface through the launch of their own devices (Apple TV through their own vendor-specific device, Google TV by providing the middleware to multiple third parties). These services connect to a TV to give customers access to a range of free and paid-for online services, including TV and film content, games and social networks.

⁹ Source: Ofcom Communications Market Report 2012

¹⁰ Source: Ofcom Communications Market Report 2012

Figure 3: Comparison of Google TV and Apple TV¹¹

	Google TV	Apple TV
Cost	£199	£99
Operating System	Android	iOS (2 nd generation onwards)
Web Browsing	Open (through Google Chrome)	Limited
sVoD	Netflix	Netflix
tVoD	Through web accessible tVoD services	iTunes
Device	Third parties (previously Logitech, currently Sony)	Vendor specific
Input device	Full keyboard, touchpad remote	Simple remote
Apps	Through Google Play	Limited



Other TV-orientated services include Roku (into which Sky invested in 2012) and Boxee, who provide internet connectivity and access to content through a range of apps (rather than channels). Intel is also developing its own TV device which it hopes to launch in early 2013.

However, while TV oriented platforms are growing in popularity¹², so far the market for these devices remains relatively small. Boxee, which retails at \$99, was rumoured to have sold only 200,000 devices earlier in 2012¹³. Despite costing as little as \$49.99¹⁴, Roku had sold only 2.5m devices worldwide as of March 2012¹⁵.

Contrast this with hugely popular non-TV orientated platforms such as connected games consoles like Microsoft's Xbox 360 and Sony's PS3, which have moved beyond simple gaming to connected "entertainment hubs," giving access a wide

¹¹ Source: Communications Chambers analysis, November 2012

¹² Apple sold more Apple TVs in the first nine months of 2012 than they did iMacs and Mac Pros combined, source: Gizmodo, Apple investor reports

¹³ Source: <http://www.pcmag.com/article2/0,2817,2403017,00.asp>

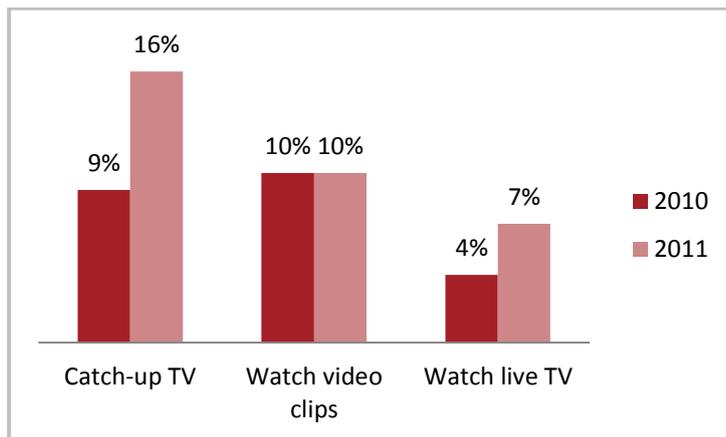
¹⁴ Up to \$99 for the 1080p HD version

¹⁵ Source: <http://venturebeat.com/2012/03/03/roku-intervie/>

range of on demand services. 55% of homes in the UK already have access to a games console¹⁶, with penetration forecast to rise. The Xbox 360 has sold 70m devices globally¹⁷.

While the use of games consoles to access TV content remains a relatively niche activity, its popularity is growing. Of homes with access to a games console in the UK¹⁸, 16% watch catch-up TV and 7% claim to watch live TV via the device, a material increase from the previous year.

Figure 4: Proportion of households with games consoles that use the device for additional services¹⁹



Indeed, in the UK today, games consoles account for three times the non-linear video viewing of connected TVs and all other connected devices²⁰.

In addition, increasingly ubiquitous smartphones, tablets and laptops all provide access to OTT TV content through both browsers and apps. 58% of people in the UK have a smart phone, and 19% own a tablet²¹.

Today this tends to be through broadband and WiFi connection. In the future, this could also be through high speed 4G macrocellular networks.

Device-related platforms tend to share the following characteristics:

- Focus on on-demand content (through integration with catch-up services and access to on-demand stores) rather than live broadcast – content rather than channel
- Other IP-enabled applications such as games and social networks are also promoted
- Mix of walled-garden (Apple TV, games consoles) and open (Google TV) approaches to internet access

¹⁶ Source: Ofcom Technology Tracker Q1 2012

¹⁷ Source: <http://uk.gamespot.com/news/70-million-xbox-360s-sold-6398561>

¹⁸ Source: Ofcom Technology Tracker Q1 2012

¹⁹ Source: Ofcom Communications Market Report 2012

²⁰ Source: Enders Analysis, TV, non-linear and disruption

²¹ Source: Ofcom International Communications Market Report 2012

- Internationally oriented.

4. OTT content aggregators

A gamut of over-the-top (OTT) TV services is now available to consumers through a range of platforms. Services including catch-up video streaming, subscription VoD and transactional VoD. As well as through a browser, OTT services can often be viewed through the variety of broadcaster-led platforms, next generation TVs and third party devices previously discussed (typically through apps).

Figure 5: Illustration of global OTT battleground²²

Service name	Business model	Domestic market	International markets
Acetrax	VoD	Switzerland	Germany, Italy, Spain, UK
Totalplay	SVoD	Mexico	Latin America
Netflix	SVoD	US	Canada, Latin America, UK, Scandinavia
Hulu	SVoD, ad-funded	US	Japan
Amazon/ Lovefilm	SVoD	US	UK, Germany, Scandinavia
Voddler	VoD, ad-funded	Sweden	Norway, Finland, Denmark, Spain

Accessing OTT video services is already a mainstream activity. An estimated 25 million people in the UK watched online VoD services including catch-up TV in March 2012²³ representing 37% of the population, an increase of two percentage points since 2011 (35%)²⁴.

The OTT battleground is competitive, hugely fragmented and often international in nature. A report for the European Commission found 435 individual catch-up and VOD services across Europe²⁵.

Scale is therefore key and broadcast-driven platforms with their high levels of penetration play an important role. Last month iPlayer and ITVPlayer became available on the Sky+ HD set-top box and are now available in 1.3 million TV homes - Sky is forecasting this to increase to between 5 and 8 million in the next five years.

In the UK, Netflix launched in January 2011 and delivered 1.2 million unique users in March 2012. Lovefilm launched a new online streaming-only package, Lovefilm

²² Based on Informa Telecoms and Media

²³ Source: UKCOM/Nielsen

²⁴ Source: Ofcom Communications Market Report 2012

²⁵ Source: Study on the implementation of the provisions of the Audiovisual Media Services Directive concerning the promotion of European works in audiovisual media services, Attentional and others, see http://ec.europa.eu/avpolicy/docs/library/studies/art_13/final_report_20111214.pdf

Instant, in December 2010. It has since growth its audience by 56% in the past year, from 1.6 million in March 2011 to 2.5 million in March 2012. In July 2012, Sky launched their own OTT content aggregator, Now TV, which is available as a browser based (PC and Mac) service, on smartphones and tablets (Android and iOS) and through some connected devices (PS3, YouView, etc.).

While relatively diverse, the OTT aggregators do share some common characteristics:

- VoD orientated with little or no emphasis on live TV
- Programme and content (rather than channel) focussed
- Typically accessed through a browser and sometime as apps, available on a range of connected devices (smartphones, tablets, next generation TVs and other connected devices)

5. Other digital intermediaries

A heterogeneous mix of third party digital intermediaries has emerged in recent years. While typically not content owners, these services aim to provide new ways to discover, interact, share and consume content.

Facebook introduced its Open Graph API in September 2011. This has allowed third party applications to be developed within Facebook including video services from OTT content aggregators such as Netflix and Hulu. These apps tend to focus on using Facebook as a platform (to extend reach) and to promote new forms of discovery (social).

In addition, services have been launched which seek to increase interaction around TV content. Products like Zeebox²⁶ in the UK and IntoNow and GetGlue in the US leverage social networks to provide a way for consumers to share comment and content around a live TV broadcast.

In summary, digital intermediaries tend to:

- Be free at the point of use (possibly advertiser funded)
- Be service-based rather than content-based
- Be available across multiple platforms
- Target a global or highly international audience.

²⁶ In January 2012, Zeebox entered into strategic partnership with Sky, with the service now integrated with the Sky+ app

2. Packaging and listing

Integral to these new content gateways, new, more intelligent forms of packaging and listings are emerging to help audiences navigate this increasingly broad range of content.

Integration of live, catch-up and VoD

The growing availability of on-demand content means that the traditional forwards EPG is increasingly ineffective at reflecting the consumption habits of viewers. As a consequence, EPGs are evolving with more seamless integration between linear and non-linear viewing.

For example, YouView and Virgin's TiVo set top boxes already provide a backwards EPG so that consumers can scroll back as well as forward.

Figure 6: Illustration of YouView's backwards EPG



The next generation of EPGs, such as that developed by Rovi (which powers Sharp and Toshiba's range of smart TVs) includes backwards and forwards EPGs. On Freesat's "Free Time" box, on demand content is available as stand-alone services and via individual programme entries as part of a backward-looking EPG with the previous seven days' listings available. Freeview's new HD set-top boxes will also feature 7 day backwards EPGs.

In some cases, the user is able find content across different on-demand and catch-up services. Google TV, for example, allows a viewer to search for catch-up BBC programmes without first accessing the iPlayer service.

Growth in apps

The growth of new generation TVs and devices is creating a new environment where linear channels are only an element of the television offering. Increasingly, screens of icons and apps could form consumers' first view, providing one-click access to catalogues of on-demand content. YouView and Virgin's TiVo boxes already allow users to access a range of apps.

Figure 7: Illustration of apps and games on Virgin Media’s TiVo device



The current fragmentation of platforms means that separate apps must be developed for each TV manufacturer.

Figure 8: Illustration of availability of OTT apps on TV platforms, as at December 2012²⁷

	LG	SAMSUNG	Panasonic	youview	SONY BRAVIA	XBOX	PS3	Google TV	Apple
BBC iPlayer	✓	✓	✓	✓	✓	✓	✓	✓	
itv		✓		✓			✓		
NETFLIX	✓	✓	✓		✓	✓	✓	✓	✓
LOVE FILM	✓	✓			✓	✓	✓		
4+ HD				✓		✓	✓		
You Tube	✓	✓	✓		✓	✓	✓	✓	✓
NOW TV				✓		✓	✓		

While apps currently need to be developed for the each of the highly fragmented devices, the set top box world is slowly moving towards open software standards. Both YouView and the Virgin Tivo box contain elements of Flash and web protocols. The new Freesat Free Time box has the world’s first fully HTML5 EPG. The Smart TV Alliance²⁸ aims to create standards which will apps to work across Smart TVs.

²⁷ Source: Base79, Connected TV – Where has the Audience Gone?, September 2012

²⁸ Current members of the alliance include TV manufacturers LG, Toshiba and Philips / TP Vision, as well as IBM, Qualcomm (chipset manufacturer), Technisat (set-top box manufacturer) and YuMe (video advertising platform)

Dynamic landing pages

When switched on, most TV devices take the user to either a menu or the last channel watched. The former tends to be a generic menu, and the latter is often a poor indication of what the viewer wants to watch²⁹.

On many of the new next generation TV platforms, the audience is directed to a “smart” or dynamic landing page. While these vary between manufacturers, they will often include apps, search boxes, featured listings and other push recommendations (which may be content promoted by the manufacturer, social networks, recommendation algorithms based on past behaviour, etc.).

Figure 9: Samsung 2012 Smart TV ‘Smart Hub’ landing page



EPG customisation

Until recently, the audience had little control over the ordering of the EPG. However, some digital TV platforms now allow the audience to select and prioritise their favourite channels. Some OTT services, such as TV Catchup, allow users to entirely customise their EPG, removing and re-ordering channels.

²⁹ There is no reason why the channel a user watches first thing in the morning should be the same as the channel they were watching the previous night

3. Discovery

The ways in which consumers scroll through a grid-based TV guide and browse on the open internet are very different. Whereas TV discovery is generally a 'lean back' or passive experience (typically as a form of entertainment shared with friends and family), internet discovery is more 'lean forward' or proactive, often undertaken alone (and often for the purpose of active information gathering or communication). As TVs and internet-abled devices converge, a mix of these approaches is being trialled.

Filtering methods

Connected TV devices employ a number of different ways for users to filter and navigate content. For example, Virgin's TiVo set top boxes include searchable content, suggestion functionality ("TiVo Suggestions"), "TiVo Collections" (which enables different types of content to be aggregated in alternative ways), "TiVo Folders" (bespoke genres of content) and a Discovery Bar (recommendations based on other users' viewing behaviour).

Social discovery

Digital intermediaries are providing new ways to offer a more personal level of recommendations than can be achieved using solely algorithmic or editorial recommendations.

Social recommendations can be served through mobile apps, Facebook and social TV guides, on both connected TVs and companion devices. For example, second screen guides³⁰ such as Zeebox tap into social networks to make recommendations based on friends' viewing behaviour without the need to access an EPG directly. Social tools are beginning to be integrated into user interfaces themselves. For example, the NDS OONA interface now integrates social media and personalisation to contextual recommendation.

Push recommendations

Some TV platforms incorporate push recommendations to help users find relevant content, based on the judgements of the content gateways themselves, or viewers' observed behaviour, stated preferences and content ratings:

- Passive filtering can be used to make recommendations based on past behaviour (in a manner similar to Amazon recommendations). Recommendations can be made by analysing the content and finding similarities (genre, actor, etc.).

³⁰ The Future Media Research Programme categories second screen apps as falling into four categories: remote control, remote management, content interaction and remote consumption.

- Alternatively, active filtering - where the viewer provides information that will be used as the basis for recommendations – can be employed (e.g. the Netflix recommendations engine).
- Curated recommendations can vary from those chosen by “editors” to provide viewers with an interesting range and diversity of featured content, to those paid for by programme providers or sponsors.

Event triggers

New platforms are likely to include a range of new methods for tagging and identifying relevant content. For example, event triggers could be used to notify viewers when a sporting event reaches extra time or when a particular topic is raised in a talk show.

This could be driven by a mechanism similar to a Twitter follow (e.g. the viewer has opted into following a news provider), algorithmically generated notifications based on previous viewing or a social trigger based on your friend’s behaviour.