The outcomes for consumers in relation to pay TV in Europe

A report for British Sky Broadcasting Limited

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Contents

Index of Figures

Index of Tables

1 Introduction

In this section we set out the background to and scope of the study, detail our approach to the study, and outline the structure of the report.

1.1 Background and scope of the study

We were asked by British Sky Broadcasting Ltd to conduct a study of the outcomes for consumers in relation to pay TV services. In terms of consumer outcomes, the focus was to be on prices, consumer choice, and innovation. The objective of the project was to establish a resource that can be used to assess and compare the outcomes for consumers in the following countries:

- Austria;
- Belgium*;
- Denmark;
- Finland;
- France*;
- Germany*;
- Greece*;
- Italy*;
- Netherlands*;
- Norway*;
- Portugal*;
- Spain*;
- Sweden*; and
- Switzerland.

In addition, we were asked to include the UK in our comparisons, raising the total number of countries considered to 15.

We report here our findings from a comparator analysis of the information collected on these 15 countries and include a set of 10 country annexes for a selection of countries as marked above with an asterisk.

More specifically, the scope of the study included the following areas:

- Pay TV channels available – number, providers, and genres, including those channels that provide:
    - live television coverage of the most popular sports competitions in the particular country; and
    - first-run Hollywood “blockbuster” movies.

- Platforms used to deliver pay TV content to consumers.

- Identification of pay TV retailers and the platforms they retail on, and for the main retailers:
    - a description of the pay TV packages available, the channels included, and the monthly subscription charge;
    - details of other services available to pay TV subscribers (e.g. broadband and telephony services, pay per view (PPV) services and associated charges);
    - the terms of provision of hardware (such as set top boxes);
    - as far as possible, take-up of each retailer’s product or service;
    - a broad overview of changes occurring in relation to the above.

- An assessment of the status of innovative services such as digital television, interactive television services, personal video recorders (PVRs), high definition television (HDTV), video on demand (VOD) services, delivery of programmes via the internet, internet protocol television (IPTV) and mobile TV:
    - the date at which innovative new pay TV products and services were introduced;
    - the development of such products and services since that date;
    - the providers of such products and services;
    - take-up by consumers of those products and services; and
    - a description of the features of such services currently available to consumers.

The scope of the study also included subscriber data for individual channels and/or packages. However, our research did not identify publicly available sources for these data.

Appendix 1 contains a copy of the terms of reference for our work. We sought to collect as much data as possible with the understanding, as agreed with British Sky Broadcasting Limited, that not all the information requested in the terms of reference was likely to be publicly available. The data we collected on the 15 countries listed above have been compiled in databases which form part of a separate set of deliverables of this engagement.

1.2 Our approach to the study

We conducted our research and analysis between September 2007 and February 2008. The following tasks were undertaken. We:

- identified local PwC consultants with expertise in the entertainment and media sector in each country;
- developed a database template for data collection and a pro forma report in conjunction with British Sky Broadcasting Limited;
- developed a content questionnaire to understand which content in each country is considered important and the channels that carry this important content;
- conducted a pilot study covering Spain and Belgium and compiled a draft Spanish country report;
- rolled out the data collection process for the remaining countries following the pilot study, largely during October and November 2007;
- analysed the data in each of the countries and prepared an initial set of country reports in December 2007;
- compiled this comparator report for 15 countries based on analysis of selected data; and
- prepared supplementary data for a subset of 10 countries.

Throughout our work we liaised closely with PwC local experts, and in conducting our research we relied on a large number and wide range of international and national data sources which we refer to in this document and its appendices as appropriate. We note that we conducted an extensive search for data in each country, but that the availability and quality of data is variable. Where reasonable and informed estimates could be made, we did so on the basis of our own expert judgement and with the advice of local expertise. In addition to the 10 country annexes, we also compiled data appendices for all of the 14 countries in the list above (other than the UK).

Owing to the introduction of new services together with the launch and closure of channels and subsequent possible changes to pay TV retailers' offerings, while the information was correct at the time we collected it, it is possible that prices and/or packages offered may since have changed. We collected the data on prices and packages between September 2007 and November 2007.

1.3 Structure of this report

The remainder of the report is structured as follows:

- In Section 2 we discuss a number of issues with respect to important definitions and data, provide some context regarding the heterogeneous nature of pay TV across countries, and present some selected relevant metrics for each of the countries under consideration, including estimates of geographic coverage and effective retailer choice.

- Section 3 provides our assessment of choice and value for money in each of the countries surveyed, including: pay TV offerings; pay TV channels; packages and prices; and the prices of installation and hardware.

- Our findings on innovation in the pay TV sector are provided in Section 4, covering digital TV, PVRs and HDTV.

- The conclusions of our work are presented in Section 5.

There are additionally the following appendices attached to our report:

- Appendix 1 contains the terms of reference for the study.

- Appendix 2 provides, for the selected subset of 10 countries, additional data covering:

  - TV platform penetration and estimates of pay TV subscribers;
  - an overview of the main pay TV retailers and their services;
  - important local sports content;
  - the pay TV channels that carry important sports content and first-run Hollywood "blockbuster" movies (and PPV services that provide the same);
  - the costs (including hardware and installation costs) of subscribing to selected pay TV packages from selected pay TV retailers, including channels with important live sports content and first-run Hollywood "blockbuster" movies;
  - the choice of retailers that provide such packages;
  - the range of pay TV channels and the number of channels;
  - an overview of innovation services – when these were introduced, what is available now, and take-up information where available; and
  - the cost of subscribing to most inclusive pay packages including channels with important live sports content and first-run Hollywood "blockbuster" movies.

- In Appendix 3 we provide the following selected metrics for each of the 15 countries covered in this report:

  - GDP per capita;
  - average daily viewing of television; and
  - number of TV households.

- Appendix 4 contains a note on the methods and data sources underpinning our estimates of the number of "genuine" pay TV subscribers in Section 2.

- Appendix 5 provides charts indicating the findings of our assessment of important sports and movies packages.

- Appendix 6 contains the assumptions and data underpinning our package analysis.

2 Issues and background

2.1 Key issues

Before setting out our findings, it is important to provide some detail on a number of key issues that required considerable attention during the course of our research. These issues include the nature and quality of the data available on the various pay TV sectors in each country, and the definition of key terms and metrics, together with some important basic concepts. In our view the following discussion is an important precursor to gaining a full understanding of the research and analysis as well as our findings.

2.1.1 Free To Air TV channels vs. pay TV channels

We make the following important demand-side distinction and define "pay TV channels" as those channels that are unavailable free to air ("FTA") on any platform for a given country. If consumers in a country are able to receive specific channels on a platform (e.g. via roof top aerials or via satellite dishes) without paying a subscription fee, we define these channels as "FTA channels". To illustrate the point here, one example identified by our research is Retailer T, a cable operator and pay TV retailer in [REDACTED]. While its lowest-priced "pay" TV package contains 13 channels, none of the channels included are in fact pay TV channels from the consumer's perspective, as they are all available on other platforms FTA, i.e. the consumer would be able to receive the channels on an alternative platform without paying a subscription fee. From the supply side perspective, the definition of a pay channel is one financed principally or solely from carriage fee revenues, whereas a FTA channel would be financed through advertising revenues and/or a licence fee or other taxes (where the channel is publicly owned). As this study is focused on consumer outcomes, we define FTA channels from the consumer perspective.

2.1.2 Cable access services vs. "genuine" pay TV services

Separately from distinguishing FTA vs. pay channels, we consider it important to distinguish between television services that simply provide consumers with access to multi-channel TV over a cable network and "genuine" pay TV services. Services that enable connection or access to TV via cable may be offered by local cable operator or cable TV association and are paid for by the consumer directly to the cable operator. They may also be offered and charged as part of a rental agreement (this form of charging is less transparent to the consumer than the cable access fee charged directly by a cable operator). These TV services are often considered by consumers as basic TV provision and analogous to utilities such as electricity and gas.

Such services and charges can be defined as "cable access services" and "cable access fees". They are also sometimes referred to as "mini-pay TV" services to distinguish them from "genuine" pay TV services. "Genuine" pay TV services give access to a wide range of choice and valued content beyond what is available in a standard cable access TV package. There is a range of multi-channel TV packages: these usually combine a mix of FTA and pay TV channels according to our demand-side definition in Section 2.1.1, but a cable access/mini-pay service will generally have a significantly higher proportion of FTA channels, either by a demand-side or supply-side definition, than a "genuine" pay TV package.

Cable access fees have been applied for decades by cable operators in a number of countries, particularly in "legacy cable countries". We define these as countries that have been extensively cabled (over 70% penetration) for several decades as a result of limited or poor over-the-air reception for radio and television services (for example, Belgium, Switzerland and the Netherlands). The cable access model has also applied in historically highly cabled countries (Denmark, Sweden, Norway, Germany, and Austria)[1]. In the legacy cable countries, cable transmission became the main platform by which most TV households received TV. Informa Media's West European TV Report (2006)[2] explains the importance of this historical context with respect to Belgium, one of the most highly cabled countries in Europe:

"Widespread cable construction started in the 1960s to counter terrestrial signal interference from neighbouring countries. Cable TV was therefore considered a utility, with most networks owned by gas or electricity companies or the local municipality. Subscription fees remain low, partly because it continues to be perceived as a utility rather than a premium entertainment source".

2.1.3 Cable access subscriptions vs. "genuine" pay TV subscriptions

Recognising the distinction between FTA and pay TV channels and the relevance of cable access/mini-pay TV services in a number of countries, we believe that it is important to distinguish between "genuine" pay TV subscribers and cable access/mini-pay TV subscribers. Because cable access services typically comprise a bundle of largely FTA channels, we can infer that the fees paid by consumers for such services must include only a small or no element related to the content provided. As stated previously, such services are often considered basic TV provision, particularly in legacy cable countries but also in historically highly cabled countries. "Genuine" pay TV services, by contrast, include many more carriage fee-funded and premium-content channels, and fees paid by consumers can be reasonably inferred to include an element related to the acquisition of such content (whether or not there are specific incremental fees for such channels separately set out in the fee schedules).

To make a fair comparison between subscription fees for pay TV services across Europe, therefore, we believe it is important to recognise this distinction – we would expect consumer fees for cable access/mini-pay TV services to be lower than those for "genuine" pay TV services as the latter provide both an access element and a content element. The acquisition and subsequent provision of important content both raises costs to the provider and increases the price that consumers are prepared to pay. This important distinction is highly relevant in relation to cable operators, particularly in the legacy cable countries. In countries other than legacy cable countries and historically highly cabled countries, the existence of fully viable over-the-air reception of basic TV services implies that where customers are prepared to pay extra to receive pay TV services, a large proportion of the fees paid must relate to the acquisition of pay TV channels.

The distinction between cable access fees and subscriptions to "genuine" pay TV is commercially relevant. For example, it is referred to in the 2006 annual reports of [REDACTED] pay TV retailers (e.g. Retailer J[3], Retailer K[4]), the German Digitisation Report 2007[5], and the International Pay TV Study by

[1] For more details see Section 2.4 below.

[2] See Informa West European TV Report, 10th Edition, page 42.

[3] [REDACTED]

[4] [REDACTED]

[5] Published jointly by the public sector bodies Gemeinsame Stelle Digitaler Zugang (GSDZ) und Arbeitsgemeinschaft der Lndesmedienanstalten (ALM) 2007. See www.alm.de/fileadmin/forschungsprojekte/GSDZ/Neu_Digitisation_2007.pdf

Spectrum/Value Partners from September 2007[6]. The Retailer J annual report 2006 refers in its English translation to cable access revenue generating units (RGUs) and distinguishes them from pay TV RGUs[7]. Similarly, the largest [REDACTED] pay TV retailer Retailer B provides detailed data on its analogue and digital subscriber base and distinguishes between basic and premium cable RGUs[8].

2.1.4 Data on pay TV subscribers

One key metric in a comparative pay TV country assessment is the proportion of TV households that subscribe to pay TV. Within this universe of households that pay to receive multi-channel TV services are both cable access and “genuine” pay TV subscribers. Unfortunately, however, the available data do not make this important distinction explicit. Moreover, the proportions of either type of pay TV subscribers vary across countries. Consequently, a cursory examination of pay TV subscriber data across countries potentially leads to incorrect inferences about the status and development of the pay TV sector in each country.

For the reasons set out above, to make a valid cross-Europe comparison of pay TV pricing of retailers providing “genuine” pay TV services that include a reasonable level of “genuine” pay TV content (such as that prevalent in the UK and other well-developed pay TV sectors such as France), it is critical to strip out cable access/mini-pay services from the existing revenue and subscription data, in order to achieve a like-for-like comparison. Other price distortions due to the cable structure that has historically evolved may also be embedded in the data: for example, we were informed by Retailer E that analogue community networks, due to their purchasing power, typically negotiate discounted prices relative to what is publicly available to a private individual or home. This practice may artificially depress prices, both absolutely and relatively to those prevailing in primarily direct-to-consumer sectors. This may also create comparability issues between reported country prices and thus, straightforward pricing comparisons are not possible using existing data, which must be examined to take into account “genuine” pay TV provision.

To demonstrate the impact that this issue could have on price comparisons, we have formed estimates of the number of cable access/mini-pay subscribers separately from the number of “genuine” pay TV subscribers for a selection of Western European countries and regions that have traditionally been highly cabled. Our analysis shows that the pay TV subscriber data from sources such as Screen Digest, taken at face value, will overstate what we regard as “genuine” pay TV penetration, based on an analysis of platform data, annual reports of cable TV companies and other market research reports. The results of our analysis are summarised in Section 2.6 and further details are provided in Appendix 4. Note that we are not criticising the published data as such, rather, highlighting that they need to be examined carefully and adjustments made to account for the distinction between “genuine” pay TV and cable access subscribers.

Our analysis in Section 3 seeks to provide a like-for-like comparison of pay TV services across Europe, avoiding the comparability issues associated with the differences between cable access/mini-pay and “genuine” pay TV, by (i) directly comparing package prices for channel content that is comparable among

[6] Prepared on behalf of OFCOM and dated 18 December 2007. See www.ofcom.org.uk/consult/condocs/market_invest_paytv/annex9.pdf. The Spectrum/Value Partners study states: “For the purposes of this report, we have classified basic cable as pay TV – because consumers pay a monthly fee for access to the TV service. However, in some reports, basic cable is not referred to as pay TV, because none of the consumer fees are passed through to the channels; instead the channels pay a carriage fee to the cable operators”.

[7] [REDACTED]

[8] [REDACTED]

countries (to the best extent that this is possible given inherent differences in pay TV sectors) rather than using reported secondary data (for the reasons noted in the following section), and (ii) focusing on packages that contain sufficient important content clearly to be representative of “genuine” pay TV.

2.1.5 Challenges in comparing pay TV across countries

Beyond the issue of definitions and data on “genuine” pay TV subscribers, it is clear to us that there is an extremely large number of factors that would need to be taken into account in order to make valid comparisons of pay TV offerings across countries. First of all, it is necessary to take into account the differing context for pay TV development across countries, a subject that is covered in more detail in the following section. However, we have also noted substantive differences in the types and quality of content and the nature of packages on offer in each country. These observations lead us to conclude that straightforward price comparisons of pay TV services across countries are not appropriate: price cannot be disentangled from the content offered and considerable care must be taken to assess the data to ensure that, to the extent possible, comparisons are carried out on a genuinely like-for-like basis in order to draw valid and defensible conclusions. For example, we do not consider it valid to compare the price of a standard cable access package offered by a cable operator in a highly cabled country (e.g. Retailer J), which includes many FTA channels and is potentially subject to price regulation, with a premium package retailed by, for example, Retailer H. We present what we consider to be valid comparisons in Section 3, where we detail our approach and findings on the comparison of choice and prices of pay TV across countries.

However, we note that we have not attempted to compare other features such as quality of service (which would include the quality of the EPG, ease of navigation, service reception, customer service, and fault rectification). These factors would need to be taken into account for a fully comprehensive assessment of the outcomes for consumers, but were outside the scope of our research. We also note that in our research and analysis we have attempted to account for the quality of pay TV service offerings by considering indicative quality based on the number, category and range of pay TV channels. Clearly and ultimately, what constitutes quality can only be assessed, with some difficulties, by asking consumers. However, this was outside the scope of the study.

2.1.6 Rapidly-changing environment

The pay TV landscape in Europe is evolving quickly. Services, pricing and content can frequently change and channels can launch and close rapidly. Digitisation has altered the consumer experience, opening up more choice and facilitating the introduction of new services, convergence possibilities and revenue opportunities. The need to switch consumers to digital, which can be affected, for example, by government policy with respect to digital switchover and spectrum availability, is also influencing the strategy of retailers with regard to the balance between analogue and digital pricing and content. Our report captures the state of pay TV largely at a particular snapshot in time – largely during autumn 2007. This is the only possible approach which makes sense in a fluid environment, but at the same time it means that this report should be read in the context of the overall dynamism of the sector.

2.2 Overview of the heterogeneous nature of pay TV sectors across countries

Prior to setting out the findings of our work, it is important to recognise that pay TV varies considerably across countries and that this variation is inextricably linked to a number of country-specific key factors that set the context for its development. These country-specific factors should be taken into account in forming a reasonable view of comparisons across countries.

Some of the key ways in which countries vary that affect comparisons include:

- **Economic prosperity** (as measured, for example, by GDP per capita) – this impacts the willingness to pay for TV of consumers and the willingness of platform operators and pay TV retailers to develop services. All other things equal, we would expect countries with a high GDP per capita (e.g. Norway) to have more developed pay TV services and a higher willingness to pay than countries with a relatively low GDP per capita (e.g. Portugal).

- **The historic nature of TV provision in the country** – as stated, the poor quality of analogue over-the-air transmission in a number of countries (Belgium, Switzerland and the Netherlands, which we refer to as legacy cable countries) led to the development of extensive analogue cable networks for the delivery of television services. In such countries analogue cable became the main delivery platform for television services. Other countries, such as Sweden, Norway, Germany and Denmark, have also historically been highly cabled countries. It is in these countries that the cable access/mini-pay models are prevalent.

- **Size, as measured by the number of TV households** – this impacts the potential revenues for programme producers and channel providers, and costs for platform operators and pay TV retailers. Countries with relatively low numbers of households (e.g. Belgium has 4.4m households) may be more expensive to serve on a per household basis than countries with a relatively high number of households (e.g. France has 24.5m households) owing to economies of scale in TV provision. Some pay TV providers (particularly satellite retailers in Scandinavia but also in Austria, Germany and Switzerland) supply similar services to more than one country in order to obtain economies of scale.

- **TV viewing preferences** – this includes, amongst other aspects, the amount of time spent viewing and preferences for specific types of content. Countries differ significantly in the amount of time that people devote to watching television. For example, in the Netherlands, average daily viewing is less than 120 minutes whereas in Greece it exceeds 240 minutes. With respect to preferences for specific types of content, there are differences across countries. Consumers tend to have a strong preference for domestic language programming in various genres and this is often provided by public service broadcasters (PSBs) and commercial FTA broadcasters.

- **Public policy (including regulation and competition policy) vis à vis broadcasting** – this especially impacts the funding, number and quality of PSBs and when, and in what form, private commercial television was introduced. These factors have affected, amongst other things, the quality of domestic terrestrial FTA channels. Regulation and competition policy is also of critical importance: examples are must-carry regulations and merger policy; the policy stance on availability and pricing of spectrum, digital switchover, technologies and networks; and the introduction of competition at various stages of the value chain, to set out only few examples. If applicable, these factors potentially can affect a wide range of pay TV sector features including the number of platforms and platform coverage and development, the quality and availability of content on platforms, and prices (for instance, in some countries cable fees are subject to price regulation).

Although it was outside the scope of this study to assess all of these factors on a country by country basis, each factor is likely to have had an impact on the development of each country's pay TV sector and the observed outcomes in terms of consumer choice and price and innovation.

To illustrate the variability in existing consumer outcomes among European countries due to the factors described above, below we provide a brief overview of some of the key features in the subset of 10 countries we studied in more detail (see Appendix 2 for further information). Note that in these short summaries, all references to pay TV penetration are from Screen Digest, which does not, as already discussed, make the important distinction between "genuine" pay TV and cable access/mini-pay TV:

- **Belgium -** is amongst the smaller countries in our sample with 4.4m TV households, and is mid-range in terms of GDP per capita. It is a legacy cable country – in 1996, approximately 90% of TV households were connected to a cable TV network. Cable TV networks were historically owned by utility companies or local authorities. Cable remains the main mode of delivering standard TV services and cable operators have local cable monopolies in their franchise areas. Belgium has two main language regions – Wallonia (French speaking) and Flanders (Dutch speaking) – with distinct viewing preferences and habits. Flanders is the wealthier region and comprises two-thirds of the population. Flemish households watch an average of 166 minutes of TV per day; the smaller Wallonia region watches an average of 205 minutes of TV per day.

- **France -** is the third largest country in our sample in terms of number of TV households (24.5m) and is mid-range in terms of GDP per capita. The French watch an average 204 minutes of TV per day, which is above the average of around 190 minutes per day for our sample of countries. Pay TV was launched in 1984 on the analogue terrestrial platform with the Canal+ channel from the Canal+ Groupe. Digital pay TV was launched in 1996. At the end of 2006, 20% of French multi-channel TV subscribers remained on analogue cable and 15% continued to subscribe to the Canal+ analogue terrestrial pay TV channel[9]. According to an OECD publication on IPTV dated 19 December 2007, France is "the most advanced and largest IPTV market in the OECD"[10].

- **Germany -** with 38m TV households, Germany has by far the largest number of TV households of the countries in our sample of 15 and it is the 11th richest in terms of GDP per capita[11]. Average daily TV viewing at 227 minutes is well above the sample average of around 190 minutes. A notable feature of Germany is the division of the country into 16 federal states (Länder), with each Länd applying its own regulations to cable TV provision. These include "must carry" rules, and even rules on which channels must be given access to the network. The leading TV platform in Germany is analogue cable, with 54% of TV households connected. KDG is the leading provider of both analogue and digital cable TV services and operates in 13 Länder. Analogue cabled households pay a connection fee, typically as part of residential rental agreements, to access TV.

- **Greece -** Greece is the 12th richest country in our sample in terms of GDP per capita and has 3.5m TV households. Multichoice Hellas is the main pay TV retailer and, until the launch of the two IPTV retailers OnTelecoms and Vivodi in early 2007, had effectively been the sole pay TV retailer in Greece since 1994. Multichoice Hellas retails on both analogue terrestrial and digital satellite, although it no longer advertises the analogue terrestrial offer. [REDACTED] pay TV penetration at the end of 2006 was relatively low, at 9% of its 3.5m TV households according to Screen Digest, even though there is relatively high average daily viewing of TV at 249 minutes per day.

- **Italy -** is the 4th largest country in our sample in terms of the number of TV households (23.1m) and is the 13th richest (measured by GDP per capita). Average daily TV viewing was 239 minutes, substantially above the sample average of 190 minutes. Historically, the development of Italy's

[9] The Canal+ channel is required by regulation to broadcast unencrypted on terrestrial for 270 minutes per day.

[10] Page 12, DSTI/ICCP/CISP(2006)5/FINAL: Directorate for Science, Technology and Industry - Committee for Information, Computer and Communications Policy - Working Party on Communication Infrastructures and Services Policy: "IPTV: Market Developments and Regulatory Treatment", JT03238173.

[11] GDP per capita figures here are compared at market exchange rates.

pay TV sector has been curbed by the large number (7) of national FTA channels offering a wide choice of local and acquired content, sports and movies, as well as numerous local regional private channels. Rai, Mediaset and Telecom Italia Media are the main FTA broadcasting groups and recent (2007) changes in legislation affecting the allocation of transmission capacity on digital multiplexes are expected to promote further competition in the FTA sector. While pay TV was first launched in 1990 by Telepiù on analogue terrestrial, a negligible cable infrastructure and subsequent mergers between rival pay TV operators Telepiù and Stream (backed by Vivendi and News Corporation, respectively) created the conditions for satellite-delivered pay TV. Pay TV had a total penetration of around 19% at the end of 2006 (and is entirely digital), and satellite is Italy's leading pay TV platform, with a 17% penetration of TV homes. As the sole satellite platform operator, Sky Italia had 4 million subscribers (94% of total pay TV subscribers) by the end of 2006.

- **The Netherlands –** with 7m TV households, the Netherlands is the 6th largest country in our sample and is the 3rd richest (measured by GDP per capita). Average daily TV viewing is 113 minutes, the lowest in our sample of 15 countries. The Netherlands is a legacy cable country, with around 86% of TV households connected to a local cable network at the end of 2006 (of which 83% were analogue and 17% digital). Until approximately 15 years ago, cable companies were owned by local authorities and their services financed in part via national taxes for radio and television services.

- **Norway –** is the richest (in terms of GDP per capita) country in our sample and the smallest in terms of number of TV households (2m). It has relatively low average daily TV viewing at 156 minutes per day, which places it 12th in our sample of 15 countries. Cable pay TV services were launched in the south and the east of the country by UPC Norway (now Get) in 1988 but were not rolled out nationwide until 1997. This was the same year in which the pan-Scandinavian satellite operators Viasat (Modern Times Group) and Canal Digital (then Canal+ and Telenor) launched digital pay TV services. By the end of 2006, around 63% of subscribers to multi-channel TV subscribed to digital pay TV services and the remaining 37% subscribed to analogue cable services.

- **Portugal -** is the 9th largest country in our sample in terms of number of TV households (3.7m) and the poorest (in terms of GDP per capita). With an average 210 minutes of daily TV viewing, Portugal is above average compared to the average of around 190 minutes per day for our sample of countries. [REDACTED] until late 2007, [TV Cabo] was owned by the incumbent telecommunications provider, Portugal Telecom. TV Cabo operates both a cable network and Portugal's single DTH platform. Its main competitor is the analogue cable operator, Cabovisão. According to Screen Digest, TV Cabo had over 5 times as many subscribers as Cabovisão at the end of 2006. Around three quarters of TV Cabo's subscribers receive services via its cable network.

- **Spain –** with over 15m TV households, Spain is the 5th largest country in our sample yet the 14th richest based on GDP per capita. The Spanish on average watch 219 minutes of TV per day, significantly above the average of our sample of 190 minutes per day. Pay TV has been available in Spain since 1990, with the launch of Canal+ España. Digital pay TV was launched via digital satellite in 1997 on two rival platforms, Via Digital and Canal Satélite Digital. They subsequently merged in 2003 to form digital satellite operator Digital+, which is now Spain's leading pay TV retailer, followed by ONO on cable (largely digitised) and Imagenio on IPTV. Subscribers to IPTV have grown rapidly since its launch in 2004.

- **Sweden -** is the 8th largest country in our sample in terms of number of TV households (4.2m) and mid-range in terms of GDP per capita. With an average 145 minutes of daily TV viewing, Sweden is significantly below the sample average of around 190 minutes per day. The three largest pay TV retailers in Sweden by subscriber numbers are ComHem (a cable operator), Boxer (on digital terrestrial television "DTT") and the pan-

Scandinavian pay TV retailer Canal Digital. However, ComHem, which merged with UPC Sweden in 2006, combining the two largest cable operators at the time, has almost three times as many subscribers as either Boxer or Canal Digital. ComHem retails on the cable platform only, Boxer is Sweden's only DTT pay TV retailer, and Canal Digital retails on cable, digital satellite and IPTV. Viasat, another pan-Scandinavian pay TV retailer and a channel provider, also operates in Sweden on digital satellite but has fewer subscribers than Canal Digital. Approximately half of multi-channel TV subscriptions in Sweden are on the analogue platform [REDACTED].

Further to the overview of countries above, in the following sections we provide data on a selection of metrics that we consider to provide relevant context to the country pay TV comparisons that follow in Sections 3 and 4 of our report.

2.3 Geographic coverage and retailer choice

We have estimated the effective number of pay TV retailers a consumer can choose from in each country for:

- a large majority of consumers across the country[12]; and
- consumers living in major cities.

Our approach to this estimation has been to research the geographical coverage of pay TV retailers through sources such as the retailers themselves, regulators' websites and, where necessary, other estimates in the public domain (such as press reports) to understand not just how much of the country a pay TV retailer covers, but also which cities/regions this applies to. We used this information on geographical coverage to estimate where retailers overlap. With this information we formed an estimate of the likely minimum retailer choice faced by a large majority of consumers in a country and by consumers living in large cities only.

It should be noted that a degree of judgement has been exercised in estimating these figures – in particular we have relied on local expertise to estimate the extent to which pay TV retailers (particularly cable operators) overlap as these data are commonly unavailable. Hence the estimates that follow should be considered indicative. Furthermore, it should be noted that we have only considered larger pay TV retailers (e.g. up to 8 pay TV retailers in each country with the largest number of pay and cable access/mini-pay subscribers). Hence the figures we present are potentially underestimates if there are many geographically overlapping pay TV retailers with relatively few subscribers. Finally, it should be noted that (owing to limited available data) we do not take into account the degree to which the available choice is realisable: for example, whether there are constraints on the installation and/or use of satellite dishes or whether the broadband signal is sufficiently reliable to make IPTV a practical choice.

We summarise our findings in Table 1.

[12] "Large majority" is defined as more than 60% of TV households.

Table 1: Retailer choice

Countries	Indicative estimate of minimum retailer choice for a large majority of consumers	Indicative estimate of minimum retailer choice for consumers living in major cities	Countries	Indicative estimate of minimum retailer choice for a large majority of consumers	Indicative estimate of minimum retailer choice for consumers living in major cities
Austria	**2**	**3**	Netherlands	**4**	**4**
Belgium	**3**	**3**	Norway	**3**	**5**
Denmark	**4**	**5**	Portugal	**3**	**4**
Finland	**3**	**4**	Spain	**2**	**3**
France	**2**	**3**	Sweden	**3**	**5**
Germany	**3**	**4**	Switzerland	**2**	**3**
Greece	**1**	**3**	UK	**2**	**4**
Italy	**2**	**3**			

Source: PwC research

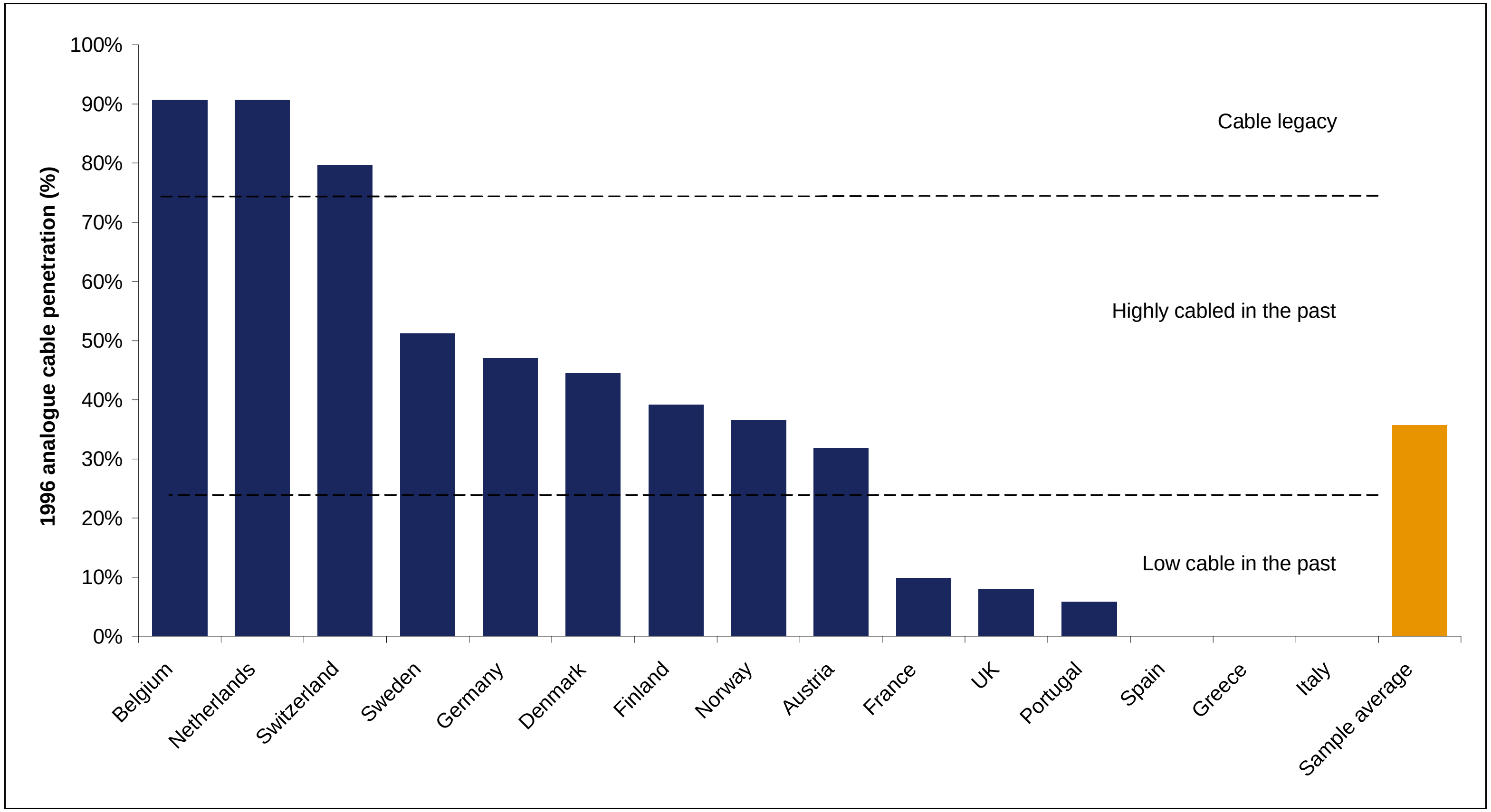
Greece has the most limited degree of retailer choice for the majority of consumers (1 retailer), whereas the majority of consumers in the Netherlands and Denmark have more retailer choice (4) than in the other sample countries. In cities the number of retailers available ranges across countries from 3 to 5.

2.4 Historic cable penetration

We first present historic (1996) cable penetration, as we believe this has implications for the evolution of pay TV services in different countries. As mentioned in Section 2.1, the practice of charging cable access fees is prevalent in some countries, and it is useful to highlight these.

Figure 1 provides data on the proportion of TV households that subscribed to analogue cable multi-channel TV services in 1996. This shows that analogue cable pay penetration in the legacy cable countries (Belgium, Netherlands and Switzerland) exceeded 75% of TV households in 1996. Figure 1 also indicates those countries that were relatively highly cabled at that time (30% to 50% of TV households). For countries with 25% cable penetration or below, we define these as having relatively low analogue cable penetration in the past.

Figure 1: Analogue cable penetration in 1996

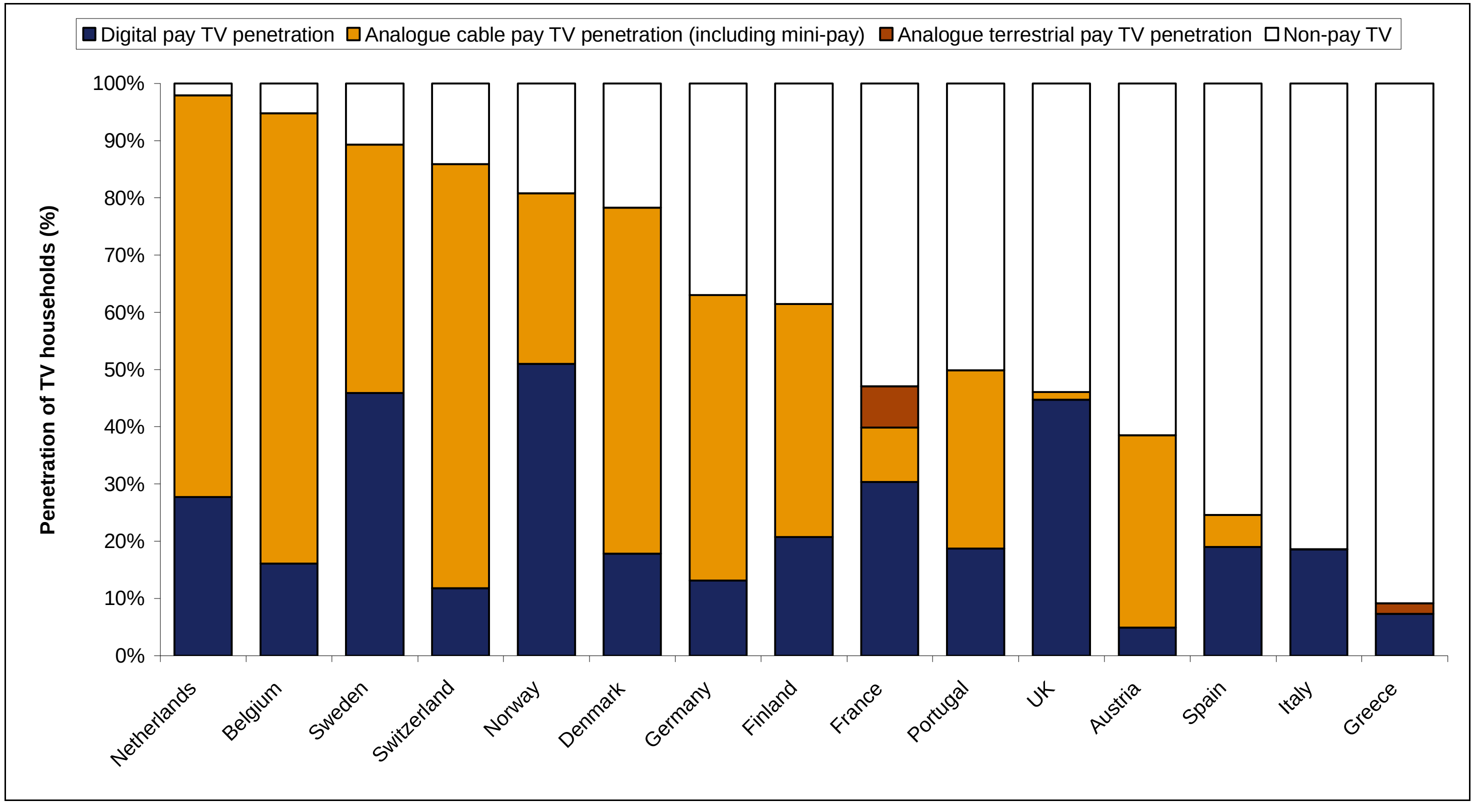


Source: Screen Digest

2.5 TV platform penetration at the end of 2006

In Figure 2 we present Screen Digest data for the end of 2006 on TV platform penetration for each of the countries. We indicate digital pay TV penetration, analogue cable pay TV penetration (including mini-pay), and analogue terrestrial pay TV penetration[13], as defined by Screen Digest.

Figure 2: TV platform penetration at the end of 2006



Source: Screen Digest and PwC analysis

[13] France and Greece only.

We make the following observations:

- the legacy cable countries (Belgium, Netherlands and Switzerland) have relatively low digital pay TV penetration; and
- Sweden, Norway, France and the UK had achieved relatively high digital pay TV penetration by the end of 2006.

2.6 Estimate of “genuine” pay TV penetration at the end of 2006

2.6.1 Estimate of “genuine” pay TV penetration at the end of 2006

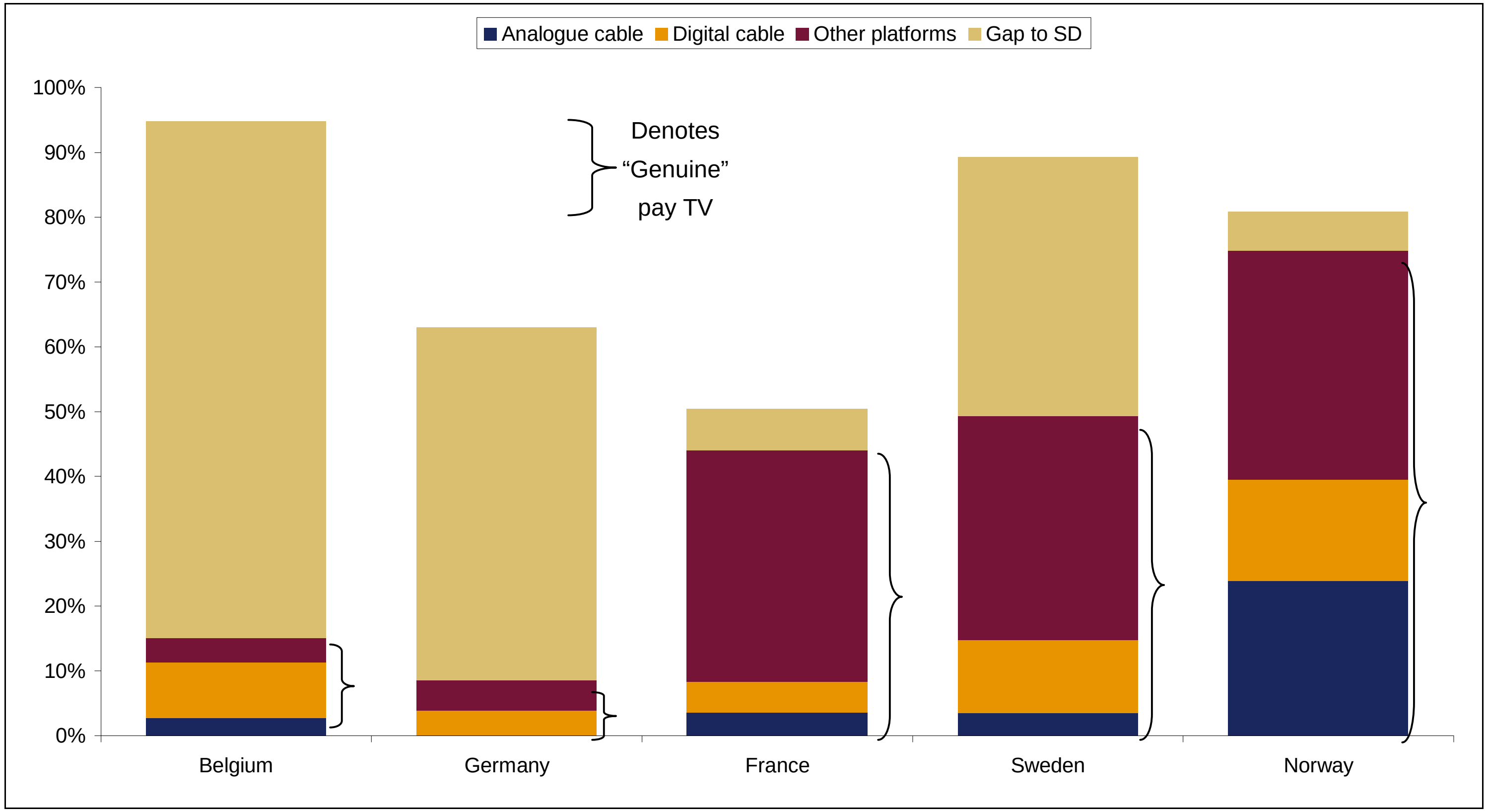
Figure 2 above provides a useful snapshot of the proportion of TV households by platform at the end of 2006. For the reasons set out above, however, this does not adequately distinguish between “genuine” pay TV penetration and cable access/mini-pay penetration. Consequently, these data cannot be used to compare pay TV sectors across Europe on a like-for-like basis. As previously explained, the need to distinguish “genuine” pay TV subscribers from those who are essentially paying for access is particularly important in those countries that are legacy cable and historically highly cabled. Therefore, we have attempted to estimate the number of cable access/mini-pay subscribers separately from the number of “genuine” pay TV subscribers for those Western European countries and regions that have traditionally been highly cabled. We made use of various publicly available data sources, in particular annual company reports, investor presentations, and industry surveys, in order to develop these estimates.

The exercise was not straightforward owing to a number of issues including lack of data, lack of clarity in data (the underlying assumptions are not always explained in detail) and lack of consistency among available data due to different methods of estimation and/or different definitions that may each be valid in their own way. That said, we analysed the data available to form estimates of what we consider to be the penetration of “genuine” pay TV subscribers in an illustrative sub-set of 5 of the 15 countries covered by this report: Belgium, Germany, France, Sweden and Norway. We have also reviewed and provide some comments on the situation in Austria, Switzerland, the Netherlands, Denmark, Finland and Portugal. We do not consider that the distinction between cable access and “genuine” pay TV is important in Spain, Greece, the UK and Italy.

We have expressed the results of our analysis relative to Screen Digest subscriber figures. This is not meant to imply a criticism of Screen Digest figures specifically and we are not criticising the Screen Digest figures per se. Rather, the intention is to demonstrate that a substantial proportion of subscriber figures, as published by a wide variety of sources including Screen Digest, is likely to be attributable to types of subscriptions that do not constitute what we have defined as “genuine” pay TV subscriptions, and thus such figures should be used with care if the data are to be used as the basis for drawing conclusions about “genuine” pay TV subscriptions, or are to be used for cross-Europe comparisons of prices and outcomes for consumers. If subscription figures for all subscribers to TV services were to be the focus of analysis, we have no reason to doubt that the published subscriber data would be reliable (noting only that there are differences in the data provided by different data providers, so that in all cases data definitions and collection methodologies should be carefully assessed to ensure that the data most appropriate to the matter at hand are selected).

The results of our analysis are summarised in Figure 3.

Figure 3: Estimate of “genuine” pay TV penetration in a subset of countries, relative to Screen Digest data



Source: PwC analysis

Figure 3 demonstrates the gap between the pay TV penetration figures estimated by Screen Digest, and PwC's estimates of “genuine” pay TV penetration, based on adjustments to Screen Digest's cable penetration figures using data obtained on cable retailers' businesses and/or other publicly available information. The gap is significant, particularly in legacy cabled countries such as Belgium and Germany and also in a historically highly cabled country such as Sweden. The gap is small in France and Norway.

[REDACTED]

Table 2: [REDACTED]

[REDACTED]

Table 3: [REDACTED]

[REDACTED] Average revenue per user (ARPU) differs substantially, depending on whether "genuine" pay TV is taken.

As previously mentioned, in addition to the analysis described above for the five countries summarised in Figure 3**,** we investigated the possibility of carrying out a similar analysis for additional countries, including the Netherlands, Switzerland, Austria, Denmark, Finland and Portugal. While the data for these countries were more limited and thus a reliable quantitative assessment could not be determined, we consider that downwards adjustments are also likely to apply in most of these countries to some extent and summarise our findings supporting this conclusion in Table 4 below. The exception to this conclusion was Portugal, where we were unable to confirm whether similar adjustments are necessary.

Table 4: [REDACTED]

Full details of our analysis and approach for all the countries analysed are provided in Appendix 4 and are also summarised as part of the supplementary data included in Appendix 2 for those five countries where a quantitative assessment was made.

To summarise, however, it is apparent from the analysis we have undertaken that readily available data from secondary sources on the number of pay TV subscribers could be misleading as the basis for cross-European comparisons of pay TV because of the heterogeneity of pay TV subscriptions. In particular, based on our analysis of retailer and/or country specific data (while necessarily carried out at a high level owing to limited detailed information on cable retailers' customer bases which is typically confidential) it is clear that when the important distinction is drawn between cable access/mini-pay TV services on the one hand, and "genuine" pay TV services on the other, to enable like-for-like comparisons, a considerable downward adjustment of reported pay TV penetration estimates in the legacy cable and highly cabled countries studied may be required. This implies that standard unadjusted subscriber data across countries, and consequently associated revenue and ARPU data, are not directly comparable as in many cases they do not relate to like-for-like services.

3 Choice and value from pay TV

3.1 Introduction

In this section we provide, based on our research, a comparative assessment of the following aspects of the outcome for consumers regarding pay TV in 15 countries: pay TV offerings, pay TV channels, packages and prices and the prices of installation and hardware. We also outline the selection of retailers for which we analysed prices and various indicators of choice.

3.2 Structure of pay TV offerings

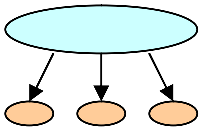
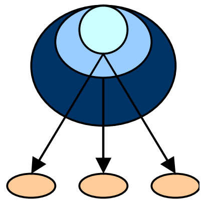
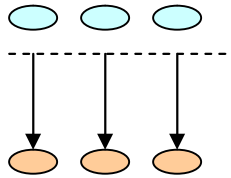
We first discuss channel packaging, layers and "buy-through" groups of channels, followed by some notable features of pay TV offerings identified, illustrated by specific country examples.

3.2.1 Channel packaging, package structures and "buy-through" groups

Pay TV channels are typically combined to form bundles, packages or "bouquets". These are then retailed to consumers in various combinations and layers. These package structures essentially represent a menu of options for consumers and tend to vary across retailers and countries. Some structures are more flexible than others, as we indicate below. The practice of requiring consumers to subscribe to particular packages before the option to subscribe to further channels becomes available (i.e. "buy-through" groups) exists to some extent in all 15 countries in our sample. Thus if a consumer wants to buy sports channels or movie channels, say, they may have to purchase the retailer's entry package. For instance, Retailer S requires that consumers subscribe to either its "Basic Package" or its "Family Package" in order to subscribe to any of its: "Sports Option", "Cinema Option", "Series Option", "Documentary Option", "Music Option", "Foreign News Option" or additional channels.

Across countries and retailers, we found that buy-through package structures vary in size and content (i.e. the range and quality of channels). In conducting our research across countries, we identified three main types of package structures which we define as: "One-plus", "S,M,L-plus" and "Many-plus". In practice, packages are often more complicated than these types, but the overall package structure is usually similar to one of these types of package structure and operates at several layers. We summarise these in Table 5.

Table 5: Package structures

Package structure	"One-plus"	"S,M,L-plus"	"Many-plus"
Description	One entry package, and then one or more layers of "buy-through" groups of channels that can only be purchased once the entry package has been purchased.	Features entry packages that form cumulative layers, for example a "Small, Medium and Large" set of packages, where the channels in "Small" form a subset of the channels in "Medium", which form a subset of the channels in "Large". Purchase of one of these packages allows purchase of "buy-through" groups of channels.	Multiple entry packages. Purchase of one or more of these entry packages allows purchase of several layers and "buy-through" groups of channels.
Diagram	 One entry package. Multiple layers and choices of "buy-through" groups of channels.	 Small, Medium and Large layers of entry packages. Multiple layers and choices of "buy-through" groups of channels.	 Multiple entry packages. Multiple layers and choices of "buy-through" groups of channels.
[REDACTED]			

Source: PwC research and analysis

As illustrated in Table 5, buy-through is a common feature of pay TV retailing in the countries we surveyed. It is usual for packages of thematic channels (e.g. sports, movies, foreign language) or single channels to be available only as "second-layer" or "second-tier" buy-through packages or channels that require subscription to other channels before the option to subscribe to these channels becomes available. We assessed the pay TV package offerings of 22 leading retailers and of these, Retailer F is the only pay TV retailer we have identified whereby it is possible to purchase individual channels on a standalone basis i.e. there is no requirement to buy any entry package or packages. Retailer F does however provide the majority of its available channels via a "Small, Medium, Large" package structure.

3.2.2 Bundling pay TV with additional services

Some pay TV retailers also provide other services in addition to pay TV, including: fixed telephony, internet and mobile telephony services. Furthermore, some pay TV retailers offer selected combinations of pay TV packages and additional service offerings at a discount, which we term "bundling pay TV with additional services". This is more common among cable pay TV retailers (e.g. Retailer B) and IPTV retailers (e.g. Retailer S) than satellite pay TV retailers. The country annexes in Appendix 2 provide further detail.

3.2.3 Notable features of pay TV offerings

When we conducted our research, we identified a range of notable features that demonstrate the extent of the differences between countries in our sample and hence possible further challenges for making valid comparisons of pay TV packages across countries.

Major pay TV retailers on multiple platforms

Some pay TV retailers retail on one platform only (i.e. cable, satellite, DTT or IPTV) and it is not uncommon for there to be only one available pay TV retailer per platform. In such cases, consumer choice between retailers also equates to choice between platforms and vice versa. This model occurs, for example in Spain. However, there are several exceptions and in some countries the major pay TV retailer(s) retail on multiple platforms. Retailers K and H, for example, retail on all platforms.

Obtaining some important content on certain platforms requires more than one pay TV contract

It is common for one pay TV retailer to provide all of a consumer's pay TV channels under one contract. However, in certain cases consumers take out contracts with a second retailer in addition to their main pay TV retailer in order to access additional important content. Examples of this include Retailer K via cable in [REDACTED] and Retailer W via satellite in [REDACTED].

Cable access/mini-pay

We identified cable access/mini-pay packages (as defined in Section 2.1) or packages similar to cable access/mini-pay packages (large numbers of FTA channels available in an entry package) from the following major pay TV retailers across countries: Retailer B, Retailer C, Retailer E, Retailer J, Retailer T and Retailer U. As already discussed, we do not consider these packages to constitute "genuine" pay TV.

Restricted choice

We identified the following areas of restricted choice:

- Until the recent sector entry of two IPTV providers, Retailer L offered only one pay TV package, providing limited choice for pay TV consumers; and
- Some countries have an analogue package buy-through requirement – for Retailer E, Retailer O and Retailer N it is a requirement for consumers to purchase the entry analogue TV package before they are permitted to purchase the digital pay TV packages.

Public authority influence on prices

In the Netherlands, prices for entry TV packages via cable are set through a process of bargaining with local authorities; hence the public authority exerts some influence over the prices set. We understand this bargaining applies to the entry analogue and digital packages only, and not the buy-through groups of channels.

Exclusivity of channels

There is a number of countries where major channels are exclusive to certain retailers, i.e. in order to access a major channel, a consumer must subscribe to a particular retailer's pay TV services. Subscribers to other pay TV retailers cannot access these channels, except possibly through separate additional contracts. [REDACTED]

3.3 Choice and prices of packages – approach and methods

To analyse the choice available to consumers in each country together with prices, we have selected illustrative packages from leading pay TV retailer(s) in each country for closer analysis.

3.3.1 Approach

Our approach to this analysis comprises the following steps:

- Selection of pay TV retailers for the package analysis;
- Selection of packages by pay TV retailer; and
- Comparative analysis of selected package content and prices.

Each of these steps is described in more detail below, together with the results of the analysis.

3.3.2 Selection of pay TV retailers for package analysis

We selected the leading pay TV retailers on the basis of the size of their subscriber base. Being the leading pay TV retailers in each country their offerings can be expected to impact a significant number of consumers and thus provide a good basis to use for the understanding of local consumer outcomes. In total, we have analysed pay TV packages from 22 leading pay TV retailers across the 15 countries analysed. Table 6 lists the retailers selected by country and shows the platform that has been selected for the price and package analysis. While some pay TV retailers typically offer their services across a variety of platforms using either similar or sometimes identical package structures and pricing schedules, for simplicity and because a consumer decides on a combination of platform and retailer, we focus on the offering of each retailer on a particular platform.

Table 6: Selection of pay TV retailers

Retailer	Platform included
Retailer A	Digital cable
Retailer B	Digital cable
Retailer C	Digital cable
Retailer E	Digital cable
Retailer F	Digital cable
Retailer G	Digital satellite
Retailer G and Retailer H[14]	DTT
Retailer I	Digital cable
Retailer J	Digital cable
Retailer K	Digital satellite
Retailer L	Digital satellite

Retailer	Platform included
Retailer M	Digital satellite
Retailer N	Digital cable
Retailer O	Digital cable
Retailer P	Digital satellite
Retailer Q	Digital satellite
Retailer R	Digital satellite
Retailer S	IPTV
Retailer T	Digital cable
Retailer U	Digital cable
Sky	Digital satellite
Retailer X	Digital cable

**Retailers may also be available on additional platforms not included here, and other retailers may also be available on the platforms listed.*

3.3.3 Selection of packages for analysis for each selected pay TV retailer

Package choice

Four packages were selected for analysis for each pay TV retailer for a given platform (typically digital cable or digital satellite)[15]:

1. A “most inclusive” package, which represents the most comprehensive package containing all the important/key content available from the pay TV retailer. In compiling this package across countries, we have excluded adult channels, foreign language channels and some more specialised channels that are available as additional options[16].

[14] We analyse the full DTT offering in [REDACTED], which comprises a FTA offering plus pay options from Retailer G and Retailer H.

[15] Note that for multiple-platform pay TV retailers, package choice is usually similar, if not identical, across platforms.

[16] This is owing to the potential of such channels to distort comparability across countries or (particularly adult channels which may be affected by different regulations across countries). Moreover, adult content does not have general appeal and language channels vary in importance across countries and consumer segments.

2. An “inclusive of important sports” package. This comprises the lowest-priced package that includes a significant amount of the important sports content (typically live broadcasts of the domestic football league) in the country to the extent available through the pay TV retailer;

3. An “inclusive of important movies” package. This comprises the lowest-priced package that includes a significant amount of the important movies content in the country to the extent available through the pay TV retailer; and

4. An “inclusive of important sports and important movies” package, which is generally the lowest-priced package combining the important sports and movies content from 2 and 3 above, that is available through the pay TV retailer.

The “inclusive of important sports”, “inclusive of important movies” and “inclusive of important sports and important movies” packages were identified on the principle that they should be attractive to a sports and/or movies fan (as applicable), i.e. they should include a reasonably comprehensive (but not necessarily exhaustive) set of the sports and/or film channels (as applicable) available through the pay TV retailer that are regarded as containing important relevant content in that country.

Although a rare occurrence in our survey, where no buy-through is required, the package will comprise simply the important sports and/or movies content on a standalone basis.

Where necessary, we have combined retailer offerings to build comparable packages across countries. For example, in [REDACTED] we study the combined offering of Retailer J and Retailer K on cable; in [REDACTED], the combined offering of Retailer I and Retailer H on cable; in [REDACTED], the combined offering of Retailer A and Retailer K on cable; and in [REDACTED], the combined offering of Retailer U and Retailer V on cable.

Platform choice

As mentioned above, we assess digital cable and digital satellite packages.

Firstly, digital packages have been selected as important sports and movies content is typically only fully available (together with complementary features such as interactivity) in digital transmission. Furthermore, the pricing and content policy between analogue and digital packages may be driven by strategic factors linked to government or company policy towards transitioning consumers to digital and thus analogue and digital packages may not be wholly comparable.

Secondly, we have elected to focus on comparing cable and satellite offerings, which, subject to coverage, are traditionally the primary competing modes of receiving pay TV across Europe. This comparison is the most straightforward (being most like-for-like) and in our view the most appropriate for a direct comparison of price and choice across Europe, as:

i. Historically, these are generally the most established platforms on which pay TV is available (i.e. at a similar stage of development with a similar variety of offerings). DTT, for example, may be comparatively more affected both by spectrum availability and government policy; and on IPTV where the entrants to the pay TV sector are typically more recent, there tends to be a more limited range of package offerings and a more limited range of important content.

ii. In addition, IPTV providers may use pay TV as an add-on to other services (such as internet access), rather than as a primary product, i.e. it may be possible that pay TV is treated as a “sweetener” to reduce churn for other services, rather than offered as the primary service in itself. Retailer incentives to promote bundled services may affect the pricing and content policy for IPTV services.

However, while for the reasons above our analysis focuses on cable and satellite, for completeness we have also included an analysis of one DTT set of packages (in [REDACTED]) and one IPTV set of packages (from Retailer S).

In some cases our package selection has required the aggregation of more than one retailer’s package offering in order to build up comparable packages. This occurs when the pay TV retailer in question is also a platform operator and operates an open platform but does not offer the requisite content. We have sought to select packages that represent a meaningful and attractive comparable choice for a consumer. This is consistent with looking at the options available to a consumer once they are on a given platform since that decision, if applicable, is an integral part of the consumer choice. However, in the analysis below, we have explicitly noted cases where the package described combines the offerings of multiple pay TV retailers in such a way that multiple contracts are required. For each of the package selections, we consulted with our local PwC experts.

It was considered that a group of packages selected using the approach described in this section for a given pay TV retailer, reviewed together, would provide a reasonable overview of the choice and price available to a consumer in each country who is interested in accessing important pay TV content, including important local sports and movies, via a particular platform.

Selecting packages according to a common approach also ensures that the prices are reasonably comparable (to the extent that they cover similar consumer outcomes) across the countries assessed.

While it must be noted that there is unavoidably a degree of subjectivity required in selecting packages that represent a “meaningful” outcome that is inclusive of relevant important content for a consumer, the packages selected reflect our best view based on local expertise, industry experience and our expert judgement.

3.3.4 Analysis of selected package content and prices

According to the approach above, we identified, for each package selected, the channels advertised by the pay TV retailer as being part of that package, and the price that must be paid to receive that package.

The price of receiving a package may have different elements: for example, hardware costs (one-time and/or rental) and other set-up costs such as installation costs. Where the information is available, these different price components are separately identified and detailed in Section 3.5.

Analysis of package content

Each package identified was analysed to understand the nature, quantity and quality of the content received by consumers for the given price.

A meaningful comparison of price cannot be undertaken without a comparison of the quality of content. While any assessment of quality is necessarily subjective, in our analysis we have attempted to classify each channel using a number of categories each of which, we believe, adds a different level and dimension of value to a consumer. By considering the allocation of channels among each category, we obtained an indicative assessment of relative quality.

We classified the channels into six categories:

1. Domestic FTA channels: these are channels that are free of charge from the consumers’ perspective, i.e. available without a subscription charge on at least one platform, whether this be cable, satellite, terrestrial or IPTV, although the purchase and installation of equipment may be required. Our classification of channels to this category was based on a combination of local research, channels identified via Lyngsat, and channels identified from the websites of the main satellite retailer in each country as available free via satellite[17].

[17] Satellite pay TV retailers differ in the extent to which they list the FTA channels available via their platforms, and Lyngsat may not include every single channel available FTA in every country. Nevertheless we consider these the most appropriate readily available resources to identify if a consumer can receive a channel without a subscription fee, in addition to information provided by our local experts.

2. Neighbouring FTA channels: channels that are FTA in bordering countries that have historically been available to consumers in the country. These are typically the main analogue terrestrial channels in neighbouring countries (although a number of these channels may no longer be available FTA on analogue terrestrial, their history will have influenced consumer perceptions of their value add through a pay TV package).

3. Fillers: shopping channels available on pay TV only which we consider to have limited content value.

4. Adult channels: while we sought to exclude adult channels for the purposes of our analysis, some retailers include a small number of adult channels in a group of other (i.e. non-adult) channels or in the entry package. We therefore identify these as a separate category for the small number (three) of cases for which this occurs.

5. Local pay channels: these constitute non-international pay channels that are not neighbouring FTA channels, fillers or adult channels[18].

6. International channels: these contain content, covering a range of genres, aimed at an international audience. Such channels may also have local language feeds and/or variations in content tailored to suit local audiences, but a majority of their content will be common across different countries/regions. Typical examples include Discovery, National Geographic, Disney, Jetix, Cartoon Network, MTV, BBC Prime, and CNN International. There is a number of international channels targeting ethnic groups that have settled in other countries, e.g. TVP Polonia in Germany. Such channels are distinguished from local channels that are carried in foreign countries (e.g. BBC1 in the Netherlands).

We consider that genuine added value from pay TV retailers (over and above what is freely available to consumers) arises primarily from the channels in categories 5-6.

The package information presented in this analysis is based on data collected primarily in the period between September and mid-November 2007, and was up to date as of that time. However, packages and prices are subject to change and may today be different in some cases. For the purposes of a reasonable comparison, however, this should not matter as long as the information shown is (as is the case) recent and based on a common timeframe.

The data generated by our approach outlined above allow for a partial comparative assessment of the outcome for consumers in terms of choice and prices. The assessment is, however, incomplete, or partial, as the quality of the individual channels that make up a package as judged by the viewers has not been taken into account.

[18] Local pay channels include "foreign" channels. The definition of a "foreign" channel as used in this report refers to a channel that is tailored for a local domestic audience, but also appears on platforms outside of its country of origin. For example, BBC1 (originating in the UK) is classified as a foreign channel in the Netherlands; and Sat.1 (originating in Germany) is classified as a foreign channel in Denmark.

Price comparisons

To make a reasonable assessment about relative prices and value across different countries it is necessary to control for the price level prevalent in a country. In reporting our analysis, we present prices at market exchange rates and in PPP€ terms, which are prices adjusted by purchasing power parity (PPP) exchange rates. These enable a comparison that is adjusted for cross-country price levels.

Our PPP€ measure is formed by constructing a price level index from World Bank data of national GDP at market exchange rates and in PPP terms. We then rebased this index to form an index corresponding to the nominal €:PPP€ exchange rate in each of the sample countries. Note that while countries in the Euro area share a common currency, price levels may still differ on average across national borders and hence they can have differing rates of conversion to PPP€.

Note also, that prices reported here do not include any discounts that may be received by communities collectively negotiating with pay TV retailers (e.g. Satellite Master Antenna Systems - “SMATV” - communities in Denmark). It is common for such negotiation to lead to lower fees than reported here, but discounts vary from community to community.

3.4 Choice and prices of packages - results

In the sections that follow we present the results of our analysis of the “most inclusive” packages, “inclusive of important sports” packages, “inclusive of important movies” packages and “inclusive of important sports and movies” packages across countries. Note that in Figure 4 we have drawn a horizontal line, below which we place:

- FTA and neighbouring FTA channels;
- Adult (these are typically made available as separate packages/channels, but there are three packages in our sample in which an adult channel is included by the retailer); and
- Fillers.

All other categories of channels are displayed “above-the-line”. We note that when comparing the total number of channels in each package, we have only included the channels that are advertised by the retailer on its website. Pay TV retailers may take different approaches to selecting what to highlight. In particular, for satellite retailers where many channels can typically be received for free via a satellite dish, only a selection of these FTA channels may be advertised as part of the core satellite package. Generally we expect that important content will be advertised by the retailer as it would be in its best interests to do so; thus “above-the-line” channels should be substantively complete and comparable. We note that the exact number of sports and/or movie channels offered when purchasing important sports and/or movie content is to some extent arbitrary (i.e. it is a decision of the channel provider whether the total content is divided among many channels or a few channels). However, we assume that the total important sports content is reasonably comprehensive per country; and we focus more on comparing the prices of the “inclusive of sports and/or movies” packages across countries, and the number of international channels, than the number of sports and/or movies channels offered when purchasing important sports and/or movie content. Finally, as noted above, we recognise that a count of the number of channels is a means of comparison that will not fully reflect the quality of content and service of the offering (e.g. it does not take into account the provision of additional services, such as interactive services). However, as a thorough assessment of quality factors is highly complex and lies outside the scope of this report, the number of channels within each identified category at least provides a straightforward, transparent and easily understood means of comparison and indicator of quality.

3.4.1 Most inclusive package

We provide charts and a table to present the results of our analysis of this package across countries, followed by some remarks about what the data exhibit. In the charts that follow we provide the country name followed by the main retailer. In parentheses, if applicable, we indicate the additional retailer packages added in order to generate the most inclusive package.

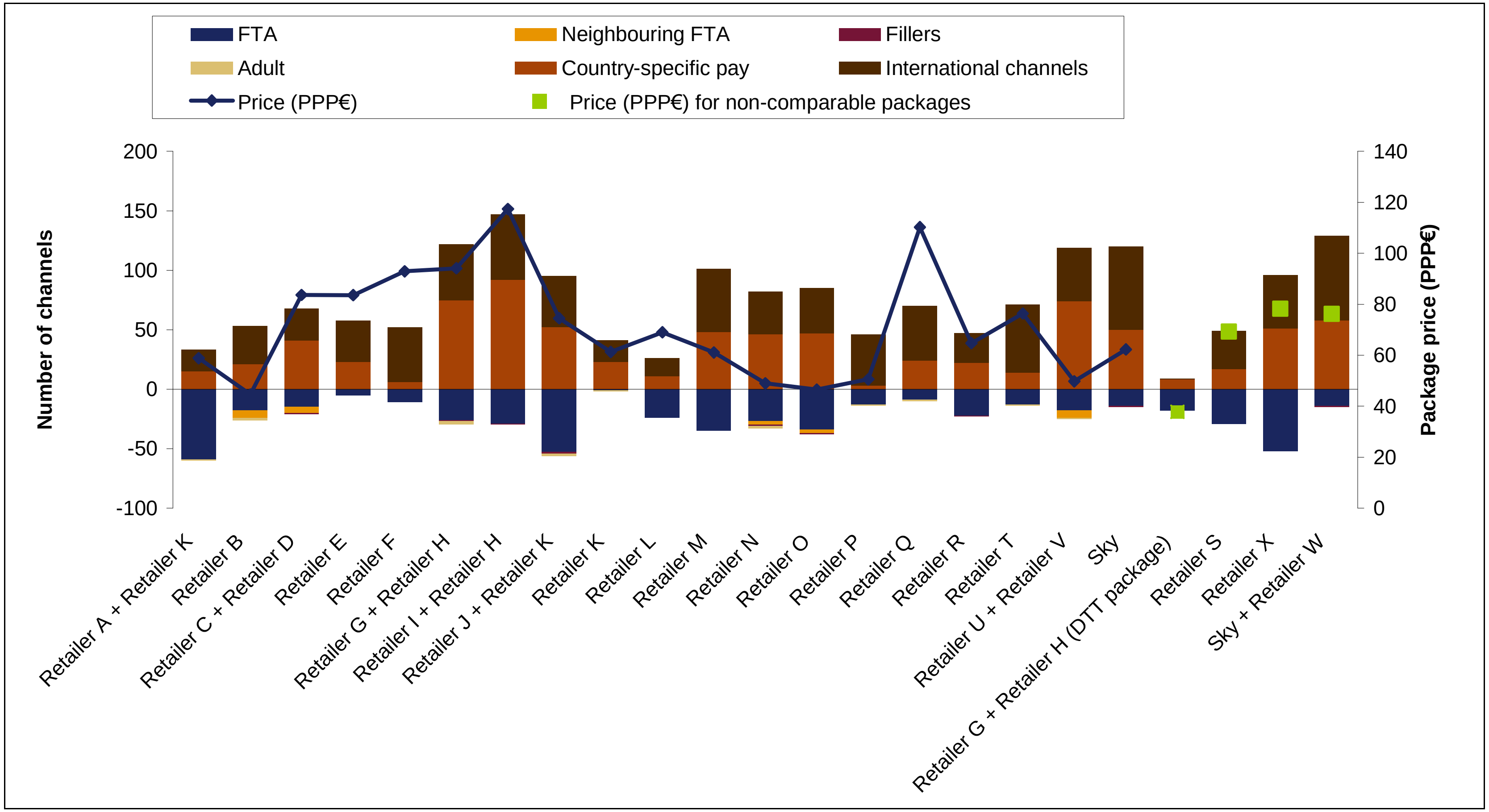
We note that Retailer X and Retailer S do not offer standalone TV. Retailer X requires that a fixed telephony contract is held for a pay TV subscription. Retailer S, an IPTV retailer, requires that consumers subscribe to a “triple play” (i.e. internet, fixed telephony, pay TV) subscription. We present the total price of pay TV and the minimum required bundle of services for these retailers, noting that the prices for these packages are non-comparable because additional services are provided in addition to pay TV. Sample averages presented here therefore do not include price and channel metrics relating to Retailer X or Retailer S.

[REDACTED]

Furthermore, the DTT package in [REDACTED] is not included in the sample average, and we do not consider it directly comparable, because of its differentiated structure (DTT in [REDACTED] is a part-pay and part-free platform with small mini-packs of pay channels available both from Retailer H and Retailer G) and because DTT is able to provide fewer channels owing to lower capacity than digital cable or digital satellite.

Finally, we note that the packages from Retailer S may not be fully comparable since they do not include what our local experts consider to be important sports content such as [REDACTED] football or other [REDACTED] sports channels.

Figure 4: Comparison of most inclusive packages



Source: PwC analysis

Figure 4 charts the comparison of PPP€ prices of the most inclusive packages based on the offerings of 22 leading pay TV retailers. Table 7, which follows, contains the data underpinning this chart. It illustrates the range of prices and channel offerings. For example, Retailer I offers a relatively large number of channels for a relatively high price; whereas Retailer A has a relatively low price but also a relatively low number of pay TV channels. The average price of the most inclusive package across 19 comparable retailer offerings is PPP €71 and the average number of pay channels is around 76.

Table 7: Data underpinning the most inclusive packages

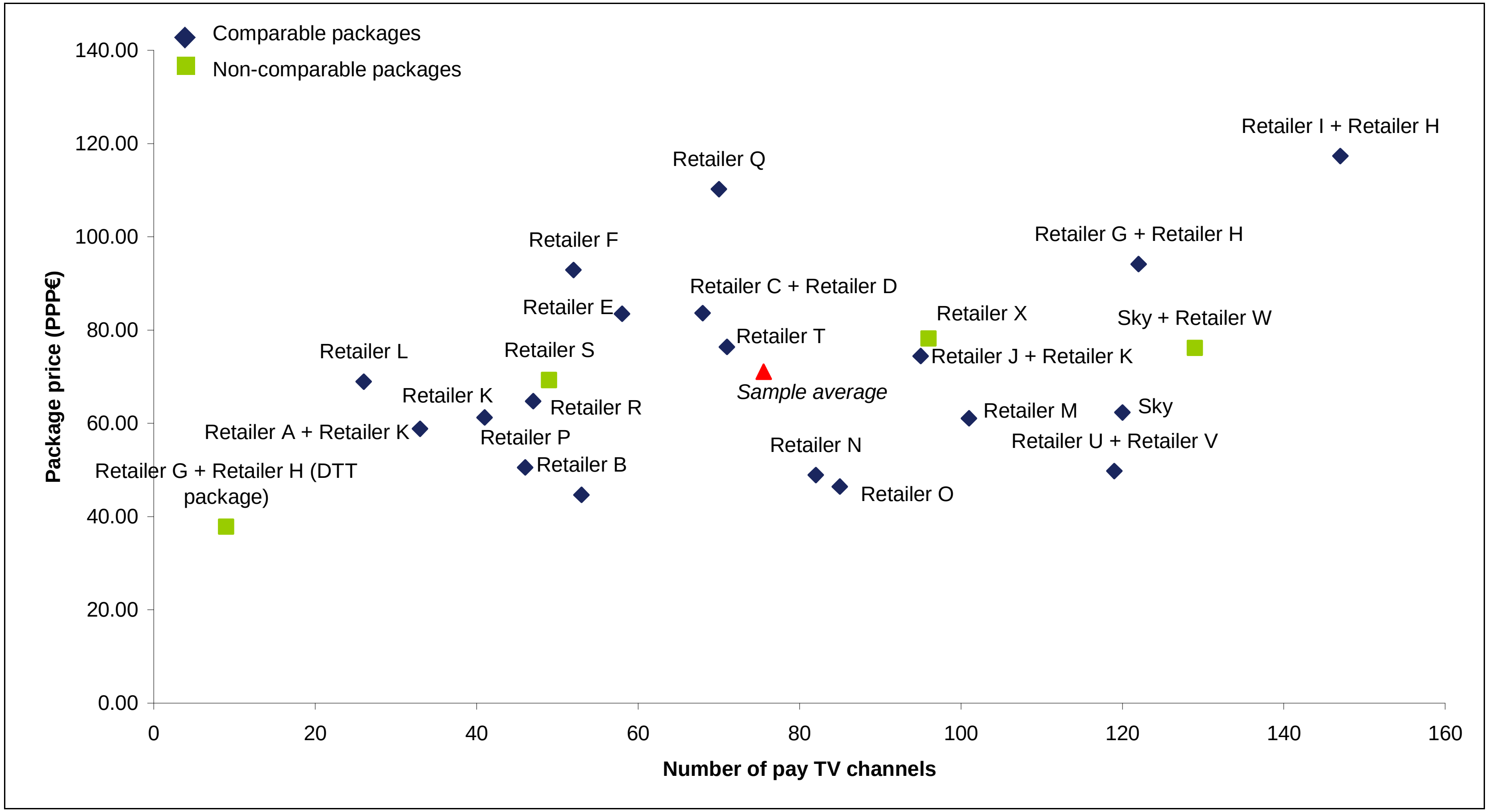
Retailer	Price (PPP€)	Price (nominal €)	Number of FTA, Neighbourhood FTA, filler and adult channels	Number of country-specific and international pay channels
Retailer I + Retailer H	117.36	120.70	30	147
Retailer Q	110.23	85.89	10	70
Retailer G + Retailer H	94.12	96.80	30	122
Retailer F	92.89	98.90	11	52
Retailer C + Retailer D	83.65	84.70	21	68
Retailer E	83.51	109.50	5	58
Retailer T	76.35	86.87	14	71
Retailer J + Retailer K	74.46	77.78	56	95
Retailer L	68.97	57.00	24	26
Retailer R	64.78	59.95	23	47
Sky	62.31	65.06	15	120
Retailer K	61.24	63.97	2	41
Retailer M	61.08	59.00	35	101
Retailer A + Retailer K	58.85	60.89	60	33
Retailer P	50.56	73.04	14	46
Retailer U + Retailer V	49.79	63.00	25	119
Retailer N	48.95	51.04	33	82
Retailer O	46.48	48.46	38	85
Retailer B	44.67	45.23	26	53
Sample average	*71.07*	*74.09*	*24.8*	*75.6*

Retailer G + Retailer H (DTT package)	37.82	38.90	18	9
Retailer S	69.25	64.09	29	49
Retailer X	78.23	81.68	52	96
Sky + Retailer W	76.14	79.50	15	129

Source: PwC analysis

Figure 5 charts the PPP€ price against the number of channels data for the most inclusive packages, again using the data shown in Table 7.

Figure 5: PPP€ price and number of channels for most inclusive packages



Source: PwC analysis

In Figure 5 it is notable that, whilst there is an apparent positive correlation between the number of pay TV channels and the package price (PPP€), the data points are widely scattered. This implies that a variety of unobserved variables are important and hence care should be taken in drawing conclusions from these data.

We can, however, observe a “frontier” of “superior” packages defined as those packages where there is no lower price for the observed (or higher) number of channels, or no greater number of channels for the observed (or lower) price. Packages along this frontier (excluding non-comparable packages), from retailers B, O, U, Sky, G, and I, appear in this chart to provide a superior consumer outcome than other retailers, either by offering a greater number of channels at a lower price, or by providing larger numbers of channels at the same price. This frontier analysis is limited to two dimensions only: price and the number of pay TV channels. It does not take into account the relative quality of the pay TV channels in a package.

3.4.2 Comparison with thematic packages

The above analysis of the most inclusive packages entailed an assessment of the full (i.e. comprehensive) pay TV offerings (in terms of content) of the retailers in our sample. Also of interest is the price that consumers would need to pay should they want to access specific content. As described above, the content that we have considered in this context is “important sports”, “important movies” and “important sports and movies”, chosen because this content appears in channels that are relatively easily identifiable and which are reasonably comparable across countries.

Our findings relating to these packages that include specific content are summarised in Table 8, which shows the price per package for each retailer. Note that these packages differ in terms of numbers of channels offered. To demonstrate the comparison with the price of the most inclusive package, we have also presented the price of the most inclusive package. Further data underpinning this table are supplied in Appendices 5 and 6.

Table 8: Packages price comparison

Country - retailer	Fully inclusive package PPP€ per package	Inclusive of important sports package PPP€ per package	Inclusive of important movies package PPP€ per package	Inclusive of important sports and movies package PPP€ per package
Retailer I + Retailer H	117.36	60.09	88.19	88.19
Retailer Q	110.23	38.49	48.51	51.32
Retailer G + Retailer H	94.12	67.87	57.17	72.73
Retailer F	92.89	22.54	25.36	27.24
Retailer C + Retailer D	83.65	50.07	59.95	59.95
Retailer E	83.51	56.18	74.50	78.60
Retailer T	76.35	9.40	22.82	28.48
Retailer J + Retailer K	74.46	69.66	50.52	74.46
Retailer L	68.97	59.90	59.90	68.97
Retailer R	64.78	32.36	32.36	50.73
Sky	62.31	47.08	47.08	56.77
Retailer K	61.24	43.05	23.91	47.84
Retailer M	61.08	40.37	37.27	52.79
Retailer A + Retailer K	58.85	40.20	29.57	49.85
Retailer P	50.56	48.75	32.59	50.56
Retailer U + Retailer V	49.79	36.35	36.35	44.26
Retailer N	48.95	31.68	31.68	38.39
Retailer O	46.48	29.26	29.26	36.93
Retailer B	44.67	26.89	31.83	38.74
Sample average	*71.07*	*42.64*	*43.10*	*53.52*

Retailer G + Retailer H (DTT package)	37.82	37.82	37.82	37.82
Retailer S	69.25	56.65	57.81	61.28
Retailer X	78.23	62.31	56.77	78.23
Sky + Retailer W	76.14	60.91	47.08	70.60

Source: PwC analysis

Notable findings from this analysis include:

- Retailer I and Retailer G, Retailer C and Retailer E have relatively highly priced packages; and
- Retailer F and Retailer T have notably low priced "inclusive of important sport", "inclusive of important movies" and "inclusive of important sports and movies" packages. Hence, subscribers to these retailers can access this specific content at a relatively low price.

The retailers that appear to offer relatively little choice are those that either have few channels or limited package flexibility. Based on the data detailed further in Appendix 5, we consider these to be:

- Retailer A offers a most inclusive package that contains only 33 pay channels, but the relatively small numbers of channels in each of the "inclusive of…" packages suggest that package structures are reasonably flexible; and
- Retailer L's most inclusive package contains only 26 pay channels, suggesting relatively little choice. The "inclusive of…" packages contain almost as many pay channels as the most inclusive package (21 (sports), 18 (movies) and 26 (sports and movies) pay channels) suggesting relatively little flexibility.

The retailers with more than 100 pay channels in their most inclusive packages are: Retailers I and G, Sky (UK), Retailer M, and Retailer U. Retailer G, Sky (UK) and Retailer M are notable for a flexible choice of entry package (multiple choices for entry packages). We do not make a judgement as to what package structure is superior but note that this structure is beneficial to the consumer seeking to purchase a small number of similar channels, versus other models that offer a broad range of channels across different genres.

3.4.3 Average prices per pay TV channel (in selected packages)

Another way to analyse the data is to look at average prices per pay TV channel in selected packages. Table 9 shows the average price per pay TV channel (defined as "above the line" from the analysis above) for each retailer for each of the packages above. We combine these to form an average price per pay TV channel across the four packages, to generate figures that can be used to compare retailer outcomes across a variety of different package types. It should be noted that this is one possible (albeit rudimentary) way of comparing packages and also that this comparison masks a range of differences between packages and services provided by pay TV retailers. Also, note that these are illustrative prices calculated as the price of a selected package divided by the number of pay channels in that package – they are not actual prices paid by consumers on a channel-by-channel basis.

Average prices per pay TV channel range widely from €0.41 (Retailer U's inclusive of important movies package) to €20.10 (Retailer A's inclusive of important sports package).

Table 9: Average prices per channel (from illustrative packages)

Country - Retailer	Most inclusive package Average price (PPP€) per channel	Inclusive of important sports package Average price (PPP€) per channel	Inclusive of important movies package Average price (PPP€) per channel	Inclusive of important sports and movies package Average price (PPP€) per channel	Average price (PPP€) per channel across these four packages
Retailer U + Retailer V	0.42	0.41	0.41	0.45	0.42
Retailer M	0.60	0.47	0.48	0.56	0.53
Retailer I + Retailer H	0.80	0.63	0.77	0.74	0.73
Retailer G + Retailer H	0.77	0.83	0.64	0.80	0.76
Retailer O	0.55	0.81	0.94	0.92	0.81
Retailer J + Retailer K	0.78	1.02	0.68	0.97	0.86
Retailer N	0.60	1.09	0.99	1.13	0.95
Retailer P	1.10	1.22	0.78	1.10	1.05
Retailer B	0.84	1.03	1.22	1.21	1.08
Sky	0.52	1.52	1.15	1.26	1.11
Retailer E	1.44	1.31	1.46	1.46	1.42
Retailer R	1.38	2.16	2.31	2.98	2.21
Retailer C + Retailer D	1.23	2.95	2.61	2.40	2.30
Retailer T	1.08	3.13	3.80	3.16	2.79
Retailer L	2.65	2.85	3.33	2.65	2.87
Retailer Q	1.57	4.81	2.85	2.44	2.92
Retailer K	1.49	14.35	2.39	3.68	5.48
Retailer F	1.79	11.27	5.07	3.89	5.50
Retailer A + Retailer K	1.78	20.10	4.93	7.12	8.48
Sample average	*1.13*	*3.79*	*1.94*	*2.05*	*2.23*
Retailer G + Retailer H (DTT package)	4.20	4.20	4.20	4.20	4.20
Retailer S	1.41	5.15	4.13	3.83	3.63
Retailer X	0.81	3.89	4.37	3.01	3.02
Sky + Retailer W	0.59	1.52	1.15	1.31	1.14

Source: PwC analysis

Across the four packages the 5 retailers that have relatively high average prices per pay TV channel are: Retailer K, Retailer A, Retailer F, Retailer Q and Retailer L. These retailers have above average average prices per pay TV channel for all four packages, with the exception of Retailer L for its inclusive of important sports package. We also note that Retailer K's high overall average price per pay TV channel is driven primarily by its sports package. Retailer K's entry package including important sports consists of 3 important sports channels only and hence it may not be readily comparable to larger packages that contain larger numbers of pay TV channels that do not contain important sport.

Retailer F and Retailer A also have very high average prices per pay TV channel for their “inclusive of important sports” packages. Similarly to Retailer K, this is driven by a small number (2 or 3) of channels in this package (although we note that Retailer T has only 3 channels in its “inclusive of important sports” package, and its average price per pay TV channel is below average for this package).

Overall, there is a wide range of prices and choice available across countries, and as we have argued, it is not valid to compare prices alone. We have attempted to make comparisons across countries based on prices and choice. We have attempted to account for quality in our choice metric by including only pay TV channels. While the international channels and movies channels are broadly comparable (although some differences may still remain), sports channels may differ in the underlying quality of the top tier national football league and the number of games shown.

A fully comprehensive assessment of price and choice would need also to take the quality of local pay TV channels into account.

3.5 Prices of installation and hardware

Pay TV retailers offer a variety of hardware and provide it to consumers in various forms, either included in subscription prices, as an explicit rental price or as an upfront purchase price. In addition, some pay TV retailers require consumers to pay an upfront joining or installation fee. Some pay TV retailers also require annual payments, such as smartcard rental. Table 10 presents the prices of hardware and installation costs we have identified for the major retailers in the 15 sample countries.

Table 10: Prices of installation and hardware

Retailer's services to which hardware enables access*	Price of basic Set top Box	Price of PVR	Price of HD Set top Box	Installation and joining fees for a new subscriber
Retailer A + Retailer K	Free	€7.99 monthly rental	No HD hardware identified	€ 70.00
Retailer B	€ 139.00	€6.00 per month (as of February 2008)	€10 monthly rent	None identified
Retailer C + Retailer D	Free	No PVRs identified	None available	€50.00 for Retailer D access plus €5.00 per month Retailer D access fee
Retailer E	Free	No PVRs identified	€334 with a card rental fee of €26. Must be subscribed to at least the medium package.	€ 40.00
Retailer F	€ 109.00	€399 - €599 depending on specification	€19.00 monthly rental	€ 30.00
Retailer G + Retailer H (DTT package)	Rental €8 per month.	Rental €8 per month.	Rental €8 per month.	€ 40.00
Retailer G + Retailer H	€8 monthly rental	€8 monthly rental fee and €75 deposit (this is HD enabled)	€8 monthly rental fee and €75 deposit (this is a PVR).	€ 40.00
Retailer I + Retailer H	Free	€99 or €3 per month	Monthly fee of €9 plus €299 or rental fee of €10 per month and deposit of €99	€ 60.00
Retailer J	€ 99.00	€9.90 rental per month	Not available	€ 49.50
Retailer K	€99 of €4.99 monthly rental	€399 or €9.99 per month	€199 or €9.99 per month	€ 39.99
Retailer L	€ 149.00	€399 for existing Retailer L customers and €499 for new customers. PVR installation costs €90 - €129. PVR services available only with the most inclusive package for an additional monthly fee of €7.50.	Not available	€ 70.00
Retailer M	Free	€99 plus additional PVR monthly fee of €7.00.	€99 installation, 12 months free rent then €7 per month rent	None identified
Retailer N	Free	Included in subscription prices	€69 connection fee and a €46.04 monthly fee for subscription to an HD package which includes 2 HD channels (National Geographic Channel HD and Discovery HD).	€ 29.99
Retailer O	Free	From €250	€ 299.00	€ 79.00
Retailer P	€ 228.39	€ 194.26	€ 324.64	€ 108.13
Retailer Q	€99.9 or €2.50 per month rental.	No PVRs identified	Not available	€ 80.00
Retailer R	Free	€395 or €3 - €6 per month for Retailer R customers depending on package subscription.	€395 or a deposit plus a €36 monthly fee for new subscribers	None
Retailer S	€ 6.96	€6.50 monthly rental	Not available	€ 40.77
Retailer T	€ 108.63	€217.81 to €436.17, depending on package subscription.	€108.63 to €436.17, depending on package subscription.	€ 54.04
Retailer U	€ 89.95	€6.00 per month for first 3 or 6 months, depending on package subscription and €12.00 for remaining period.	€8.99 per month	None
Sky	Free	€215.42 (€143.13 if ordered online)	€ 432.28	€ 43.37
Retailer X	Free	€ 216.86	€ 216.86	€ 36.14

Source: PwC Research

** This is the hardware we identified as providing access to the retailer's pay TV services. In some cases this may be supplied by the pay TV retailer and in other circumstances it may be provided by a third party (the platform operator). In addition, some hardware may allow access to pay TV services of multiple retailers whereas other hardware is retailer-specific.*

Table 10 indicates that the availability, price and payment models for the various hardware types differ substantially and it is difficult to make reasonable comparisons or inferences based on these data.

4 Innovative services

4.1 Introduction

In this section we present the results of our assessment of innovation in pay TV and the development of innovative services across countries. We assessed the following: digital TV, VOD, PVRs, HDTV, IPTV and mobile TV. For innovation we considered two main aspects: when a service was first introduced; and what penetration it has achieved according to the latest market research data. Digital TV and VOD were important early innovations in the pay TV sector, and these services started to launch during the mid-1990s. The most important recent innovations in the pay TV sector are PVRs and HDTV which provide consumers with genuinely new services that significantly impact a consumer's pay TV experience. While IPTV and mobile TV[19] are innovations, they are alternative means of receiving existing services alongside other communication services. Furthermore, in our view these are more dependent on innovation in the telecommunications sector rather than the pay TV sector, although we acknowledge that sector differences are starting to blur because of the process of convergence. We focus our analysis on digital TV, PVRs and HDTV[20].

In order to compare countries simply and transparently, we constructed an innovation indicator as follows:

1. We first generated an "innovation history indicator" that comprises the sum of the years since each innovative service was introduced;

2. We then considered the take up of innovative services and present charts that relate the number of years since introduction to penetration across the countries for which we have data available. We used these data to develop an "innovation penetration indicator" that compares digital TV penetration of TV households against the sum of HDTV penetration and PVR penetration of TV households. This chart allowed us to classify countries as "Lower", "Middle", or "Upper" in terms of penetration of innovative services. We note that there is likely to be a certain amount of correlation with the "Innovation history indicator" as early introducers will tend, all other things equal, to have greater take up. However, there are some innovations in some countries that were introduced relatively late but where take up has been rapid, and equally there are some innovations in some countries that were introduced relatively early but where there has been relatively little take up. Equally, there will be some correlation between the take up of different innovative services, since modern PVRs and HDTV are reliant on the development of digital TV; and

3. We then combine the "innovation history indicator" and "innovation penetration indicator" to classify innovation associated with pay TV in countries as "Upper", "Middle" or "Lower".

In the remainder of this section we present the relevant innovative services charts together with the indicators we constructed.

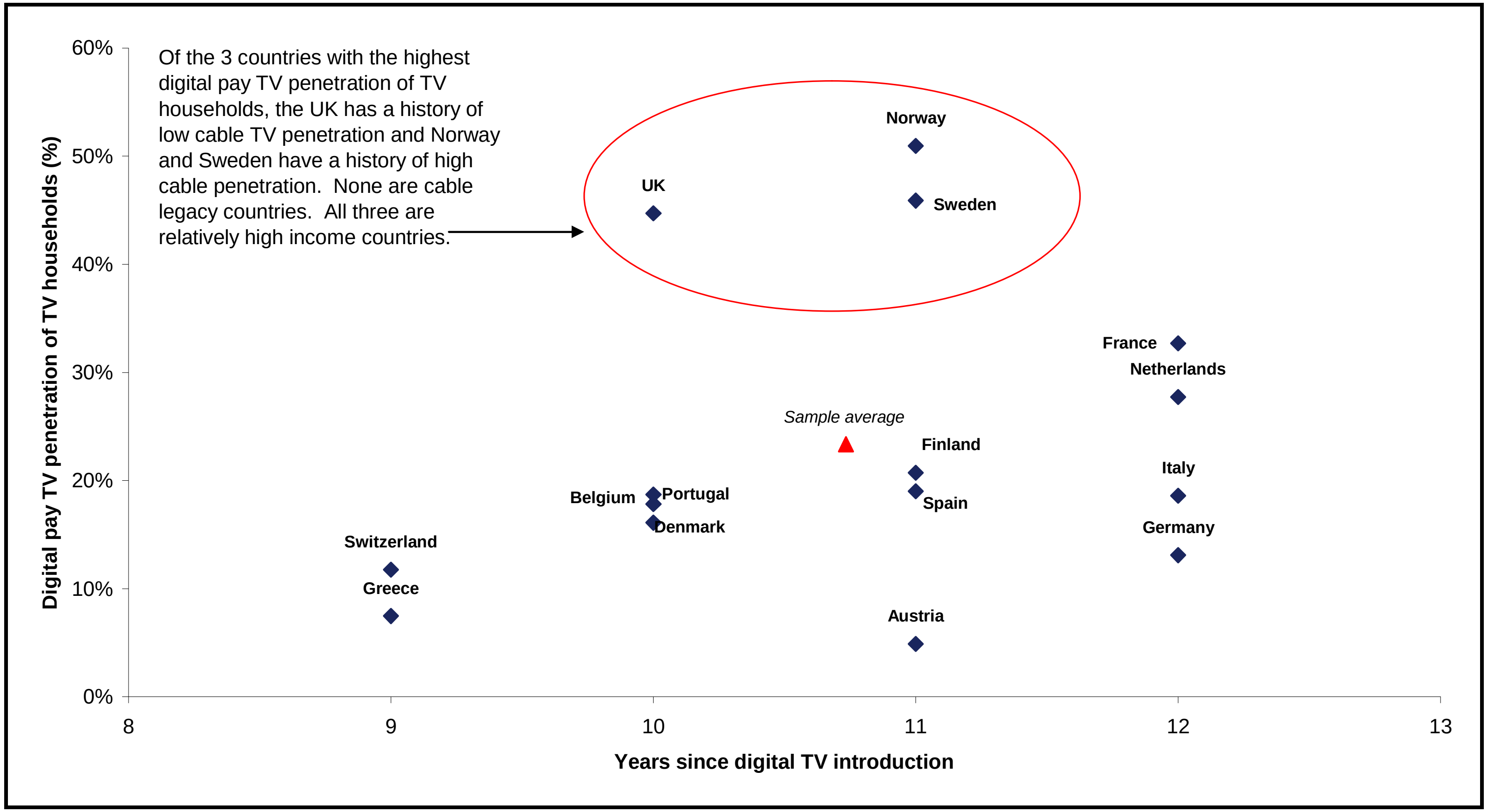
[19] Arguably, mobile TV has extra value features for the consumer such as portability. However, we do consider that the development of this service is primarily driven by telcos.

[20] Note that ultimately we want to combine the launch dates with penetration. We do not have data on penetration of VOD services so we have excluded VOD from the innovation assessment.

4.2 The introduction and development of digital pay TV

In our view, one of the important early innovations in the pay TV sector was the introduction of digital pay TV as this, amongst other developments, enabled a significant increase in the number of channels available for consumers. Furthermore, the extent of development of digital TV in a country is also one supporting indicator of the level of "genuine" pay TV penetration. Legacy cable countries and some of the historically highly cabled countries continue to have low penetration of digital TV, indicating that potentially a significant number of subscribers remain connected to analogue cable networks on a cable access/mini-pay basis.

Figure 6: Digital pay TV penetration and years since its introduction



Source: Screen Digest and PwC analysis

Note: Years since introduction are counted back from mid-2008. For instance, services launched in 2008 or yet to be launched are counted as zero years since introduction and services launched in 2007 are counted as one year since introduction.

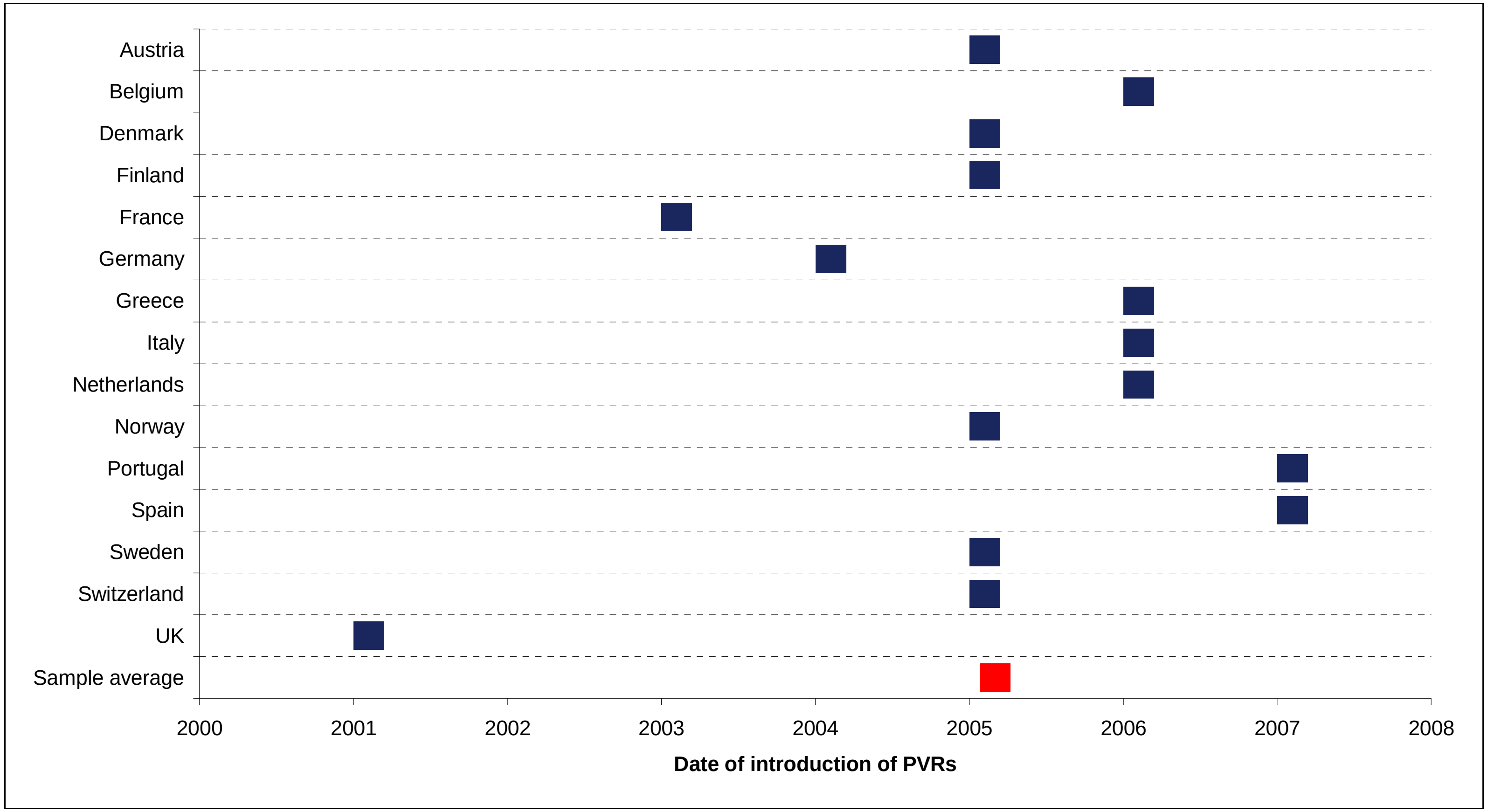
Figure 6 shows both the date of introduction of digital pay TV and penetration of digital pay TV by country. The figure indicates that in all countries, digital pay TV was introduced between 9 and 12 years ago[21]. The chart also demonstrates that three countries stand out as having had more success than others in driving digital pay TV penetration: Norway, Sweden and the UK. In these countries digital pay TV penetration exceeded 40% by the end of 2006.

4.3 PVRs

Figure 7 shows when PVRs were introduced in each of the countries surveyed. Our research identified that for most countries, PVRs were launched during the period 2005 to 2006. In Spain and Portugal, however, PVRs were not launched until 2007. The UK stands out as an early innovator with respect to PVRs – they were launched in the UK in 2001. It was two years later, in 2003, that PVRs were introduced into another country in our sample, France.

[21] It is notable that the introduction of digital TV services in Belgium in 1998 did not generate significant penetration and digital services were "re-launched" in 2005.

Figure 7: Date of introduction of PVRs



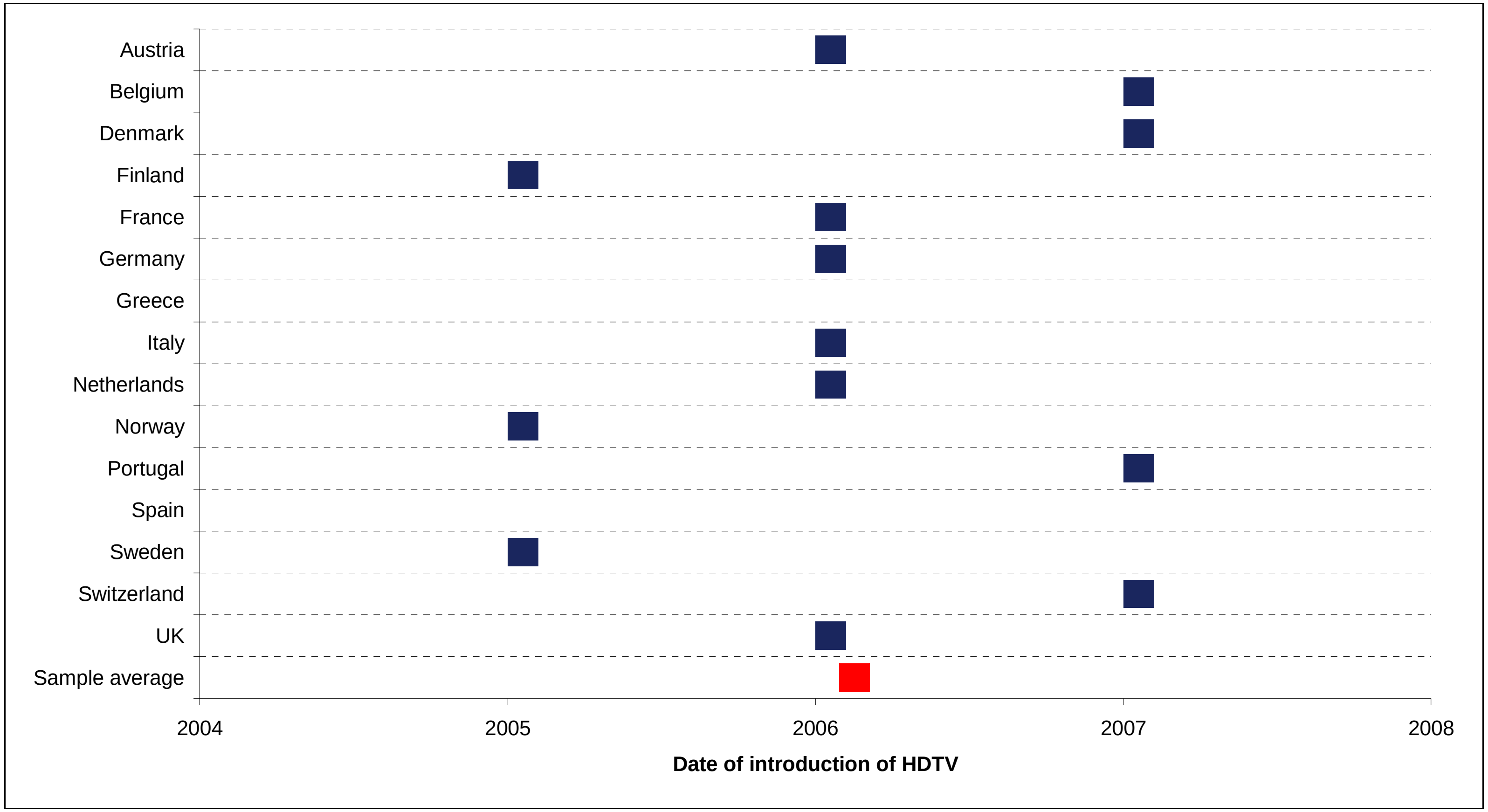
Source: Screen Digest and PwC analysis

4.4 HDTV

As displayed in Figure 8, at the time we conducted our research, HDTV had not been introduced in Greece or Spain, where it has only recently launched nationwide[22]. In Finland, Norway and Sweden, HDTV was introduced in 2005. Six countries introduced the service in 2006 (Austria, France, Germany, Italy, the Netherlands and the UK) and the remaining four countries (Belgium, Denmark, Portugal and Switzerland) did not introduce HDTV until 2007.

[22] Nationwide HD services were launched in Spain at the end of January 2008.

Figure 8: Date of introduction of HDTV



Source: Screen Digest and PwC analysis

Table 11 shows the HDTV channels that we have identified in each country.

Table 11: HDTV channels

Country	HDTV channels identified	Number of HD TV channels identified*
UK	Sky One HD, Sky Arts HD, Sky Movies HD1, Sky Movies HD2, Sky Sports HD1, Sky Sports HD2, Discovery HD, National Geographic Channel HD, History HD, SBO HD1 (PPV), SBO HD2 (PPV), BBC HD, Luxe TV HD and Channel 4 HD.	14
Belgium	TMF Live HD, Arte HD, Brava HDTV, Prime One HD, Prime Sport HD, Kinepolis, VTM HD, National Geographic Channel HD, Discovery HD, HD1 (Euro1080), EXQI HD and Luxe.TV HD.	12
France	13ème Rue HD, Arte HD, Canal+ Hi-Tech HD, Cinecinema Premier HD, Disney Cinemagic HD, HD1 (Euro1080), Luxe TV HD, M6 HD, National Geographic Channel HD, NRJ 12 HD, TF1 HD, and TPS Star HD.	12
Sweden	Discovery HD, National Geographic Channel HD, History Channel HD, Voom HD, Silver HD, Canal+ Film HD, Canal+ Sport HD, SVT HD, TV4 HD, TV1000 HD and Viasat Sport HD.	11
Denmark	Silver HD, National Geographic Channel HD, HD1 (Euro 1080), TV2 Sport HD, Canal+ Film HD, Canal+ Sport HD, History Channel HD, Discovery Channel HD, Voom HD, Silver HD and TV1000 HD.	11
Norway	Canal + Film HD, Canal+ Sport HD, Silver HD, Voom HD, National Geographic Channel HD, Discovery HD, History Channel, Luxe TV HD, TV1000 HD and Sport HD.	10
Finland	Canal+ Film HD, Canal+ Sport HD, National Geographic Channel HD, Discovery HD, HD1 (Euro 1080), Silver HD, Voom HD, TV1000 HD and Viasat Sport HD.	9
Germany	Premiere HD, Anixe HD, ProSieben HD, Sat.1 HD, Campus TV HD, Discovery HD, HD1 (Euro1080) and Luxe.TV HD.	8
Italy	Sky Cinema HD, Sky Sport HD1, Sky Sport HD2, Next: HD, National Geographic Channel HD.	5
Netherlands	Discovery HD, National Geographic Channel HD, HD-NL (Euro1080), Film1 HD and Sport1 HD.	5
Austria	Discovery HD, Premiere HD, Pro Sieben HD, Sat 1 HD.	4
Portugal	Luxe TV HD and HD1.	2
Switzerland	Discovery HD, Premiere HD.	2
Spain	Canal+ HD**.	1
Greece	None identified.	0

Source: PwC Research
**Not including trial channels or those only available in restricted geographical areas.*
*** Introduced nationwide at the end of January 2008.*

The country with the largest number of identified HDTV channels is the UK (14), followed by Belgium and France (12). Denmark, Sweden and Norway each have at least 10 HDTV channels. Spain has one nationwide HDTV channel, which was only recently launched (at the end of January 2008). We have not identified any HDTV channels in Greece.

4.5 Indicator of innovation launch dates

In Table 12, we combine the number of years since introduction of the important pay TV sector innovations for which we have launch dates. This demonstrates that France and the UK emerge as the top countries in terms of relative early introduction of the innovations whereas Portugal, Spain and Greece emerge as the countries with the latest launch dates. The difference in the aggregate number of years that the innovative services have been available between the top and bottom country – at 8 years – is considerable.

Table 12: Indicator of innovation based on launch dates of all innovations

Country	Number of years since introduction of digital pay TV	Number of years since introduction of PVRs	Number of years since introduction of HDTV	Innovation introduction indicator = sum of preceding columns
France	12	5	2	19
UK	10	7	2	19
Germany	12	4	2	18
Finland	11	3	3	17
Norway	11	3	3	17
Sweden	11	3	3	17
Austria	11	3	2	16
Italy	12	2	2	16
Netherlands	12	2	2	16
Denmark	10	3	1	14
Belgium	10	2	1	13
Switzerland	9	3	1	13
Portugal	10	1	1	12
Spain	11	1	0	12
Greece	9	2	0	11
Sample average	*11*	*3*	*2*	*15.3*

Source: PwC Research

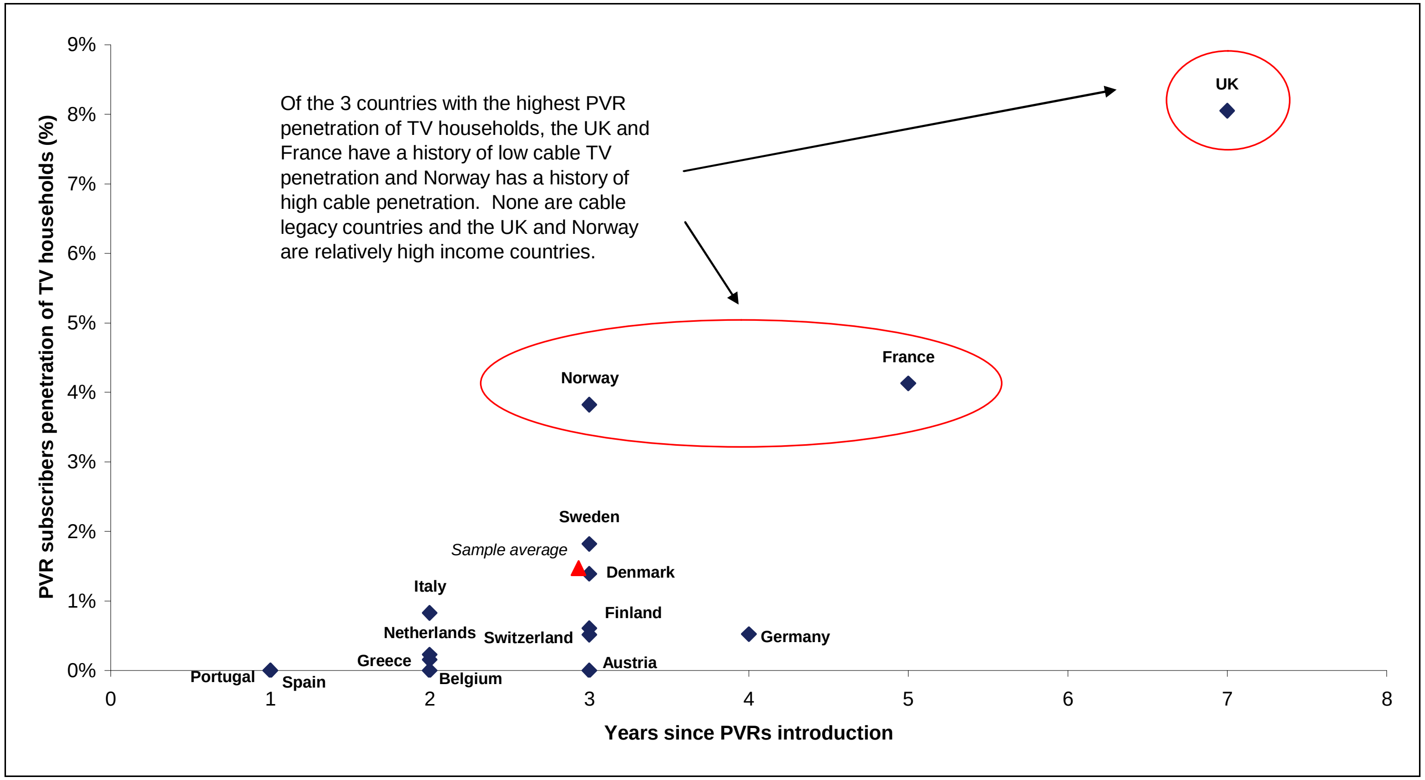
4.6 Innovative services penetration of TV households

As discussed, in addition to considering when innovative services were introduced, we also considered take-up. We focused on the pay TV sector innovations that we consider are particularly important for consumers and for which we also had penetration data (digital TV, PVRs and HDTV). We did not have reliable data for VOD. We present these data in the sections that follow. (We presented digital TV penetration and years since introduction above.)

4.7 PVR penetration of TV households

In Figure 9 we combine the date of introduction of PVRs with PVR penetration of TV households.

Figure 9: PVR penetration of TV households vs. date of introduction



Source: Screen Digest and PwC analysis

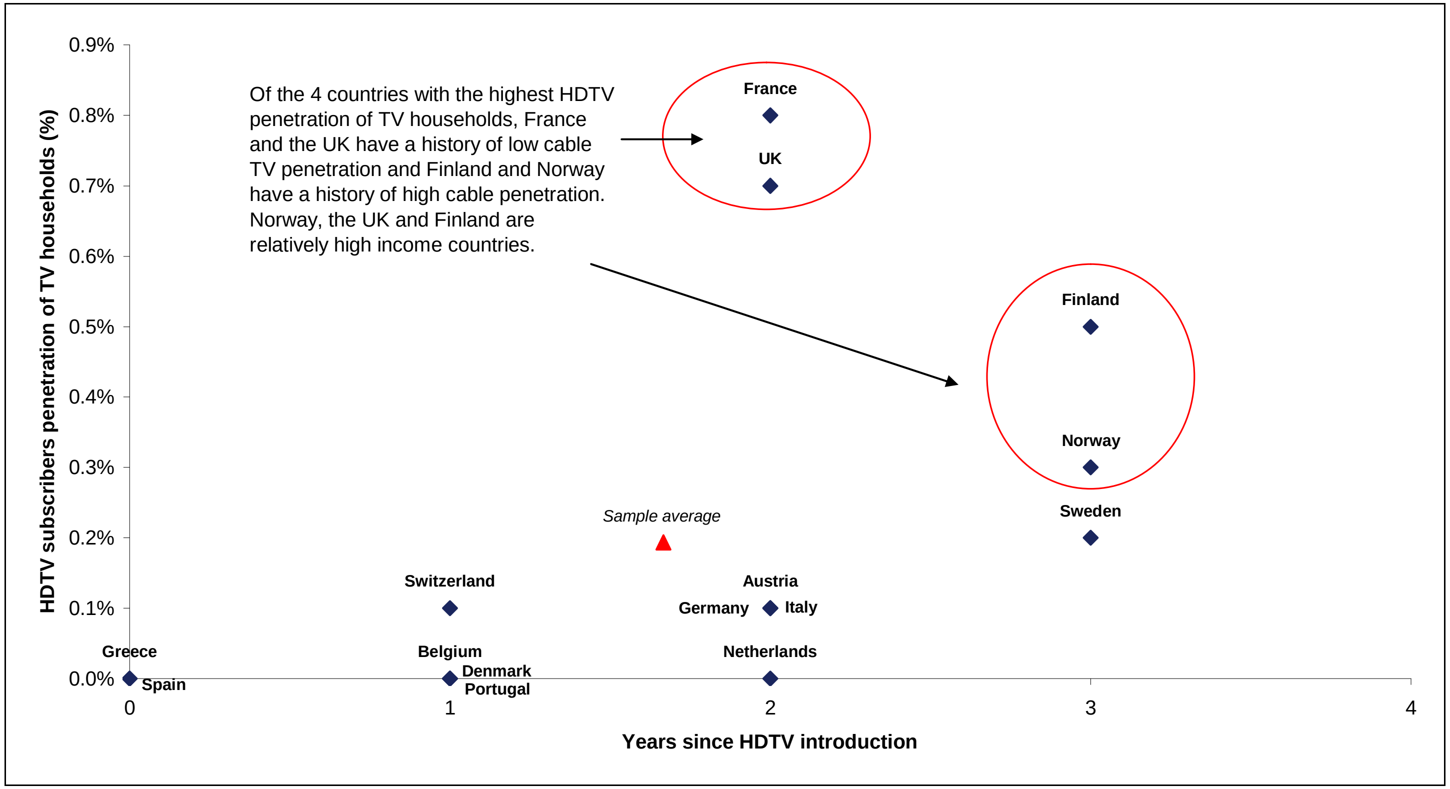
It is notable that:

- Following relatively early introduction in the UK and France, subsequent PVR take up has been relatively high in those countries;
- 6 countries introduced PVRs 3 years ago. Of these, Norway has achieved PVR penetration of TV households of around 4%, but over the same period PVR penetration of TV households has grown to only around 2% or less in Sweden, Denmark, Finland, Switzerland and Austria; and
- Other sample countries with recent PVR introduction have negligible PVR penetration of TV households.

4.8 HDTV penetration of TV households

Figure 10 combines the data on HDTV penetration of TV households with the launch date of HDTV for each country.

Figure 10: Penetration of HDTV vs. date of introduction



Source: Screen Digest and PwC analysis

Based on Figure 10, we make the following observations:

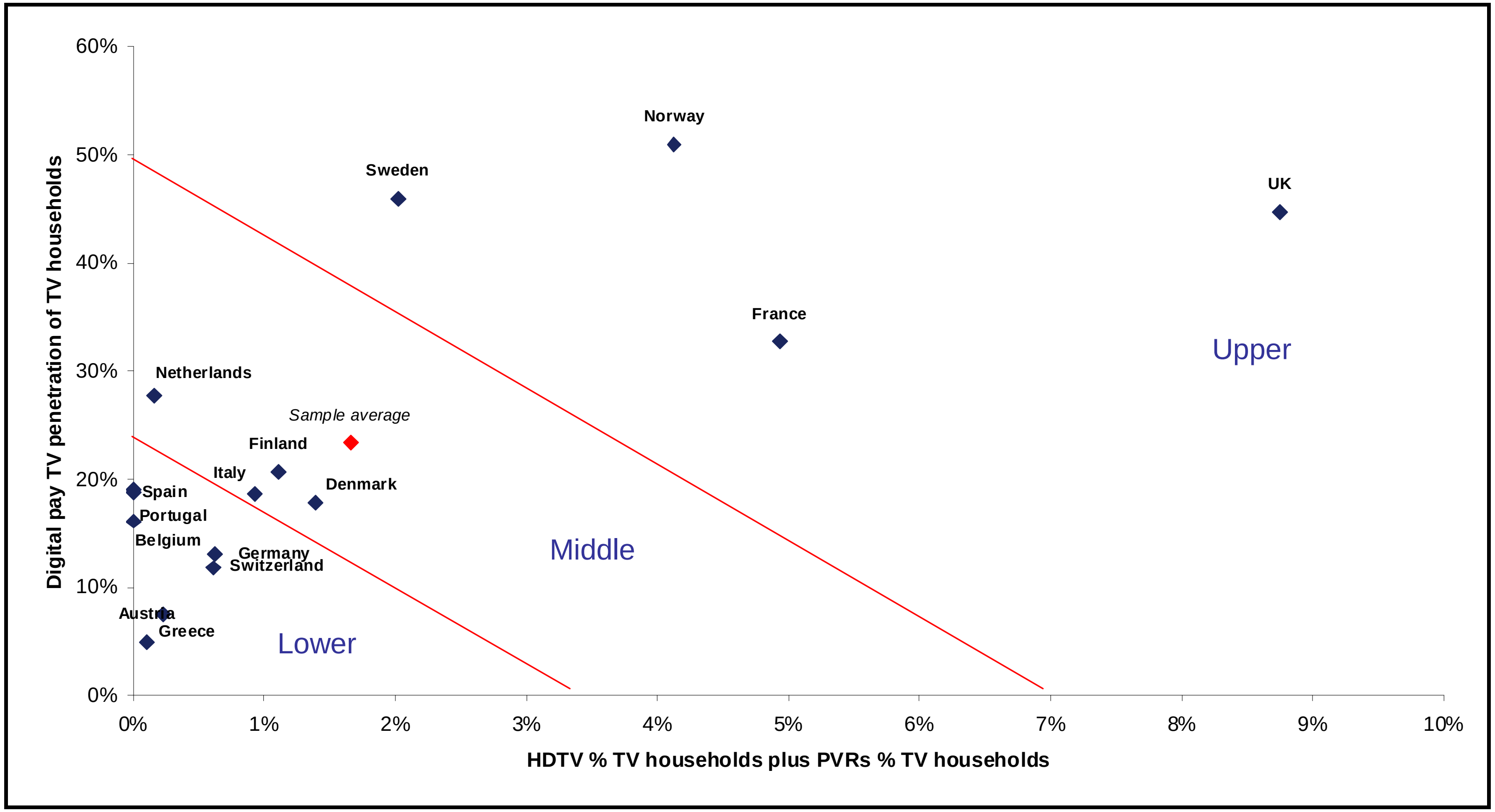
- In the UK and France, which introduced pay HDTV two years ago, penetration of TV households is the highest in our sample;

- HDTV was introduced in Norway, Finland and Sweden three years ago but penetration of TV households is less than in the two leading countries in our sample; and
- while pay HDTV was introduced in Austria, Germany, Italy and the Netherlands two years ago (in the same year as France and the UK), penetration of TV households is lower in each of these countries than in the leading countries.

4.9 Innovation penetration assessment

Based on the penetration data we have available for the sample of countries, we compare the countries according to take up of digital pay TV on the vertical axis, and the combined penetration of PVRs and HDTV on the horizontal axis. This comparison is presented in Figure 11.

Figure 11: Innovation penetration assessment



Source: Screen Digest and PwC analysis

Based on these data, the following observations can be made:

- The UK is the leading country in terms of both take up of digital pay TV and take up of PVRs and HDTV, followed by France and Norway;

- Sweden has achieved relatively high digital pay TV penetration of TV households but has not had as extensive take up of PVRs and HDTV as the UK and France (or Norway);
- The Netherlands has achieved moderate digital pay TV penetration of TV households but take up of PVRs and HDTV has been minimal;
- Denmark has achieved relatively little digital pay TV penetration of TV households, but of consumers in Denmark that have digital pay TV, a relatively large number have either PVRs, HDTV or both; and
- Greece, Germany, Austria, Spain, Portugal, Belgium and Switzerland are the “laggard” countries with respect to these innovations.

4.10 Overall innovation assessment

As a final step, we combine our two innovation assessments, as shown in Table 13.

Table 13: Overall innovation assessment

Country	Innovation introduction index	Innovation penetration assessment	Overall innovation assessment
France	19	Upper	Upper
Norway	17	Upper	Upper
Sweden	17	Upper	Upper
UK	19	Upper	Upper
Austria	16	Lower	Middle
Denmark	14	Middle	Middle
Finland	17	Middle	Middle
Germany	18	Lower	Middle
Italy	16	Middle	Middle
Netherlands	16	Middle	Middle
Switzerland	13	Lower	Lower
Belgium	13	Lower	Lower
Greece	11	Lower	Lower
Portugal	12	Lower	Lower
Spain	12	Lower	Lower

The table indicates that four countries emerge as the leaders in terms of the innovation services we assessed – France, Norway, Sweden and the UK. Sweden's position in the table is primarily based on its performance in respect of digital TV – early launch and successful penetration. The UK and France's success is also a function of digital TV launch and penetration but there has been additional success in the penetration of PVRs and HDTV in these countries. Norway has experienced higher take up of PVRs and HDTV than has Sweden, but less than that in France and the UK. Greece, Portugal, Spain, Belgium and Switzerland can be described as "laggards" in respect of introducing and driving take up of pay TV innovative services.

5 Concluding remarks

5.1 Introduction

In this final section of the report we provide some concluding remarks regarding the research and analysis we conducted. The objective of the project was to establish a resource that can be used to assess and compare the outcomes for consumers relating to pay TV services in a sample of European countries, in terms of prices, consumer choice, and innovation. We established such a resource, and in this report we have analysed a subset of the data for 15 countries in order to compare and highlight some of the key differences in consumer outcomes across these countries.

In the three main sections of this report we have presented:

- Background information to the pay TV sectors in each sample country, including estimates of "genuine" pay TV subscribers;
- Data on choice and value of pay TV offerings in the sample countries; and
- Indicators illustrating the history of introduction of innovative services and their subsequent penetration of TV households.

5.2 Comparability of pay TV sectors across countries

Throughout this report we have emphasised that there are substantial difficulties inherent in comparing pay TV sectors across countries and also difficulties in obtaining consistent data on the prices of pay TV and subscribers to pay TV. We have emphasised that any such comparisons should be made and interpreted with great care. In particular, there is the potential for data to suggest outcomes for consumers which, upon closer inspection, reflect a vast array of factors which differ between countries that may affect the pattern of pay TV provision and consumption. For example:

- Countries differ in wealth, size, preferences for television, platform types and stage of sector development.
- Pay TV sectors across countries also vary in terms of effective retailer choice, whether platforms are open or closed, and whether consumers pay for cable access rather than for "genuine" pay TV services.
- Pay TV offerings in each country differ considerably in a number of ways, including the number of FTA channels included in packages, the number of lower and higher quality basic channels, the number of premium channels, and overall quality.

A price comparison in the absence of what the price buys is therefore not meaningful. As we have shown in Section 3, package offerings vary significantly. Ideally prices should be adjusted to take into account any differences in quality of service in order to conduct a proper assessment of value for money, although this is outside the scope of this study.

Nevertheless, subject to these caveats, we have conducted a transparent comparable assessment that demonstrates what consumers actually experience, in terms of prices, number and types of channels, based on our analysis of selected packages. The assessment of packages entailed data extraction and analysis based on the offerings of 22 leading pay TV retailers across 15 countries. The resulting data set is a valuable resource that could be analysed further and analogous assessments could be conducted on other packages in our database. Another approach could be to test specific hypotheses and to identify and quantify the drivers of inter-country differences. Such drivers may include the number of TV households, GDP per capita, sector structure, regulatory regimes, legacy cable and cable access TV services, history of innovation etc. Such an analysis was outside the scope of this study.

5.3 Estimates of "genuine" pay TV subscribers

As discussed in Section 2, there are differing categories of consumers who pay to receive TV services. In particular, in legacy cable and historically highly cabled countries, the cable access/mini-pay models prevail. The TV services taken by cable access/mini-pay subscribers contrast significantly with retailer pay TV offerings that provide consumers with a significantly larger number and proportion of higher quality and range of channels, such as those provided by Retailer H or Retailer K. Straightforward pricing comparisons are not possible using existing data, which must be examined to take into account only "genuine" pay TV subscriptions. To make a valid cross-Europe comparison of pay TV pricing for suppliers providing "genuine" pay TV services that include similar levels of "genuine" pay TV content, it is critical to strip out cable access/mini-pay services from the existing revenue and subscriber data, in order to achieve a like-for-like comparison.

We have attempted to estimate the number of "genuine" pay TV subscribers in eleven countries and identified sufficient data to do so in five. This exercise focussed on cable operators and we collated evidence from investor reports, annual reports and regulators. As a result, we have downgraded, sometimes by a substantial amount, the pay TV subscriber estimates from other commonly used sources.

5.4 Overall findings

It is clear from our research that the outcomes for consumers in relation to pay TV in Europe vary significantly across countries as well as within countries. The choice facing consumers in terms of number of retailers, packages and the content of those packages differs, as do prices and the status of the development of innovative pay TV services.

Our comparative analysis of 92 packages based on offerings from 22 leading pay TV retailers in our sample of 15 countries showed considerable differences in terms of prices and content. Of these 92 packages, 16 were not comparable.

- At the level of the most inclusive package we found that the average price across 19 comparable leading pay TV retailer offerings in our sample is PPP €71 and the average number of pay channels is around 76. The maximum price is PPP €117 (for 147 pay channels) and the minimum PPP €45 (for 53 pay channels).

- For thematic packages, the differences are less extreme: the average package containing important sports content (such as live domestic football) in our sample is PPP €43, with a maximum of PPP €70 and a minimum of PPP €9; for important movies packages the average PPP price is PPP €43, with a maximum of PPP €88 and a minimum of PPP €23.

- The UK's pay TV retailer offerings vary for a number of reasons. [REDACTED] The most readily comparable set of packages is with Sky and is shown to be below the sample average for its most inclusive package at PPP €62, and slightly above average for its important sports package at PPP €47 and its movies package also at PPP €47.

Our comparative innovation analysis indicates that four countries emerge as the leaders in terms of the innovation services we assessed – the UK, France, Norway and Sweden. Sweden's position in the table is primarily based on its performance in respect of digital TV – early launch and successful penetration. The UK and France's success is also a function of digital TV launch and penetration but there has been additional success in the penetration of PVRs and HDTV in these countries. Norway has experienced higher take up of PVRs and HDTV than has Sweden, but less than that in France and the UK. Switzerland, Greece, Portugal, Belgium and Spain can be described as "laggards" in respect of introducing and driving take up of pay TV innovative services.

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