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SCCR/20/2 REV
ORIGINAL: ENGLISH
DATE : MAY 10, 2010

STANDING COMMITTEE ON COPYRIGHT AND RELATED RIGHTS

Twentieth Session
Geneva, June 21 to 24, 2010

STUDY ON THE SOCIOECONOMIC DIMENSION OF THE UNAUTHORIZED USE OF SIGNALS – PART II: UNAUTHORIZED ACCESS TO BROADCAST CONTENT – CAUSE AND EFFECTS: A GLOBAL OVERVIEW

prepared by Screen Digest, London

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TYPES OF UNAUTHORIZED ACCESS

Physical piracy

1. Physical piracy has grown increasingly sophisticated over the years, having moved from formats such as VHS to DVD, and lately Blu Ray Discs (BD). Commercial physical piracy has increased in the last five to ten years, attributed to the combination of a range of factors, such as the introduction of optical disk formats; increasing penetration of playback hardware; consistent drop in both prices of blank recordable media and packaged original software. Unauthorized personal viewing/home copying is said to account for merely three per cent of total physical piracy in 2007, having remained static from the previous year, although recent estimates from the U.K indicate that losses to the industry from non-commercial physical piracy may be higher than previously understood.

Hardware based unauthorized access

2. Hardware based unauthorized access can be described as access that is facilitated through the use of specific equipment that enables the circumvention of security measures such as set top boxes (STB), conditional access systems (CAS) and smart cards. Similarly to physical piracy, hardware-based access is also carried out on different levels, both commercial and personal. In numerous cases, circumvention of CA systems is carried out by TV enthusiasts who take it up as a challenge. However, there is a second group for whom this is a commercial business. This group circumvents CAS and then market boxes and hacked smart cards to consumers for a fee. The monetary impact of hardware based unauthorized access is 'impossible to evaluate', according to AEPOC – the European anti piracy association, but it estimates that approximately €1bn is spent every year in the EU on pirated cards and STBs.

Unauthorized re-broadcasting of signals

3. Unauthorized re-broadcasting of signals involves redistribution of broadcast signals without the express consent or knowledge of the rights holder. The re-transmission of broadcast signals is almost always carried out on a commercial basis. This form of piracy is commonly seen in regions where regulations governing such re-transmission are deficient or the enforcement of existing regulations are lax, and is commonly seen in developing markets (parts of Asia, Africa, Middle East). CASBAA (Cable and Satellite Broadcasting Association of Asia), in its 2008 report on piracy, estimated that losses to the industry and the TV value chain (including government bodies) from illegal distributors was in the range of $365m – making unauthorized re-broadcasting one of the most significant forms of unauthorized access and piracy in the Asia Pacific region.

Extra-territorial TV access (grey market)

4. Since content rights are often sold on a territorial basis and for varying amounts, pay-TV operators and rights holders may see the access of signals from outside their region as potentially undermining their business case. This type of access is mainly limited to satellite TV, and in some cases, terrestrial signals, due to the inability to place specific restrictions on where the signals are transmitted. Grey market access has been less common in the past, but with national borders becoming more and more porous and the free movement of people and goods, it has started to become increasingly prevalent. It is worth noting that regulations governing grey market access vary significantly from country

to country. For instance, extra territorial access of signals is deemed explicitly illegal in many parts of Asia and the Middle East, while being considered a contractual violation in others. In Asia, industry-wide losses from extra territorial access in 2008 (resulting from satellite overspill) were estimated to be in the region of $17m – less than 10 per cent of the total estimated losses from unauthorized access/piracy.

Online piracy

5. Digitization of content and growing internet penetration has resulted in online piracy starting to become a much more serious threat than other forms of piracy in many developed markets. Peer-to-peer (P2P) file-sharing remains popular due to the availability of a wide range of content; however, browser-based services such as YouTube have simplified the way content can be watched online, enabling a larger proportion of the population to gain access to video content online. Moreover, viewers are often unaware that the content they are watching is infringing copyright laws, and further feeds into the belief that online content is free.

UNAUTHORIZED ACCESS – A REGIONAL VIEW

North America

6. Unauthorized access of broadcast signals in North America has its origins in the theft of analogue cable signals - known as ‘splicing’. Digital cable and satellite TV theft in the US and Canada are known to primarily take place through the use of cable ‘black boxes’ and modified FTA boxes which circumvent CAS. Canada’s CASST (Coalition Against Satellite Signal Theft) estimated that that there were close to 750,000 illegal pay-TV users in Canada in 2004 – costing the industry approximately $400m in lost revenues.

7. Online piracy is by far currently the biggest concern for rights owners. High broadband penetration levels in both US and Canada have resulted in piracy becoming more commonplace. All forms of online piracy exist in the US and Canada, although stakeholders believe that browser based services are not as popular as P2P. This lack of popularity in illegal browser based services for full length TV shows is a direct result of broadcasters making available their content for free online.

Latin America

8. Physical piracy remains the most common form of piracy seen. However, its impact is primarily on the movie and music industries – and increases in illegal optical disk manufacturing centers and import of vast quantities of optical disks have gone largely unchecked. Argentina and Brazil have only in recent years started handing out custodial sentences to street vendors of pirated DVDs, and local authorities accept that tracking pirate DVD manufacturers is difficult. The tri-border region between Brazil, Argentina and Paraguay is known to be the main entry point for pirated goods heading into Brazil –the largest commercial market in South America.

9. Unauthorized access of broadcast signals in South America is either hardware based (illegal access to cable and satellite via CA circumvention and/or analogue cable theft) or unauthorized distribution of content by local cable operators. In Argentina, it was

estimated that there were approximately 1m illegal cable subscribers in 2003. As a result, two of the country's biggest cable operators have since stopped distributing their premium sports and movie channels in analogue, and only offer them to their digital subscribers. Unconfirmed local press reports state that only 10 per cent of Ecuador's cable TV subscribers are legally obtaining services.

10. Internet piracy is also of some concern in the region, with Brazil and Argentina taking centre stage. With over 20 and 28 per cent internet penetration, downloading of broadcast content is already occurring.

Asia

11. Within the Asia-Pacific countries, types of illegal broadcast signal access vary according to the economic and technological development. In developed countries like Hong Kong and Japan, higher broadband penetration levels are key causes for online piracy. China, despite low broadband penetration levels, has over 87m households connected to the Internet. As a result, online piracy has now reached significant levels in China.

12. Other forms of illegal signal access prevalent in developed regions are hardware based (Hong Kong, Taiwan, Thailand and Southern China) and, to some extent, grey market. Hong Kong is especially prone to grey market access due its large expatriate population and regulations governing satellite signal access. Moreover, its close proximity to China has resulted in significant inflows of hardware capable of being modified for CA circumvention. Despite Chinese laws prohibiting reception of satellite TV, southern China is said to have close to 10m homes receiving signals from neighbouring Hong Kong and Taiwan – either via the grey market route or through CA circumvention. Vietnam also has laws preventing private ownership of satellite equipment. But industry bodies estimate that close to 100,000 satellite systems exist in northern Vietnam – again having obtained hardware from China.

13. In India, Philippines and Thailand, illegal redistribution has been primarily carried out by local cable operators, who distribute selected content and programming (e.g., sport, movie channels) via their analogue networks. India and Philippines' prime source of illegal signal access has also been the analogue cable networks run by local operators, who tend to declare only a small per cent of their actual subscriber base to rights owners and government. CASBAA estimated that industry losses from under-declaration in India were $1.1bn in 2008, while total losses from unauthorized access and piracy for Asia were $1.7bn in the same period.

Europe

14. All the different types of unauthorized signal access are witnessed in some form or the other in the more developed regions of Europe. Analogue cable signal theft has become relatively low due to digitization of networks, relatively cheap access prices, or provision of services as part of housing agreement/apartment rent. Enactment of the EU directive on CA circumvention (CAD) in several European nations has resulted in some success in curbing hardware based unauthorized signal access. In several European countries it is now illegal to sell, advertise or own CA circumvention devices.

15. With increasing broadband penetration, pay-TV pirates have now shifted their focus online. P2P protocol BitTorrent is popular. Sites offering free browser based access

to content have also become increasingly popular in Europe. Increases in broadband speeds combined with digitization of content have resulted in in-browser accessibility of near-broadcast quality content – further encouraging consumers to shift their viewing to online sources.

16. Hardware based unauthorized access remains the key form of broadcast signal piracy in CEE (Central and Eastern Europe) countries like Poland, Czech Republic, and while in Russia and Ukraine, TV distribution is mainly via analogue cable - facilitating signal theft. Online piracy has started to become a key concern in these countries due to growing broadband penetration and lax regulations and enforcement governing online piracy.

Africa

17. Physical piracy remains the predominant form of unauthorized access and piracy in Africa. SAFACT (South African Federation Against Copyright Theft) estimated that in 2005, over 50 per cent of DVDs sold in the country were pirated – up from 10 per cent in 2001. Nigeria is said to have similar levels of piracy, while neighbouring Burkina Faso and the Ivory Coast's pirate DVD markets are said to account for as much as 70-80 per cent of all DVDs sold. Within this segment, movies occupy a significant majority. Following Burkina Faso's concerted efforts to quell piracy, industry sources claimed that counterfeited product not available in the country was being imported from Nigeria.

18. Hardware based and illegal broadcasting of pay-TV signals are the most common form of unauthorized access of broadcast signals. Pay-TV operators Multichoice and Orbit/Showtime estimate that the number of illegal subscribers viewing their services could be several times higher than the legal ones. In a bid to clamp down on pirate viewers, MENA pay-TV operator ART has recently begun to swap out its CA systems, in time for the 2010 football World Cup.

19. A unique form of unauthorized pay-TV access in Africa is public airing of content in 'viewing centres'. Due to the expensive nature of pay-TV, illegal viewing centres that air big ticket sports events like the English Premier League football have become increasingly prevalent. Online piracy is yet to become a major threat due to the relatively low levels of broadband penetration.

Middle East

20. All of the various types of unauthorized signal access occur in the Middle Eastern countries. Hardware based illegal access of pay-TV signals is a key concern for the pay-TV operators. The most common method of CA circumvention is the usage of cloned or hacked smart cards, which are openly sold in stores dealing in satellite TV equipment. Availability of STBs that come with Ethernet ports has also been a concern in the region. These devices allow pirate operators to deliver control words to the STB via the Internet. Efforts by stakeholders have resulted in some Middle Eastern nations banning the import and sale of these products.

21. Unauthorized redistribution of content has historically been a key form of signal piracy, but sustained raids against TV operators has seen these levels drop in recent years. Industry sources estimate that this now accounts for just 1-2 per cent of total unauthorized access and piracy. Small pockets of illegal cable TV operations still exist in Kuwait and Saudi Arabia. Saudi Arabia's 'compounds' – housing complexes where mainly

expatriates reside – are key areas where illegal pay-TV services operate. Illegal distribution of signals is also common in Lebanon, where in 2007, 600-800 illegal operators were estimated to be operating services.

22. Several websites catering exclusively to the Middle East offering movies and TV shows for download have surfaced in recent years. Some of these are financed through the sale of subscriptions for access to pay-TV content. Broadband penetration levels are still low in the Middle East, but are increasing. The Middle East countries' Islamic law has helped fight online piracy, as websites that offer pirated content are blocked by the authorities if they are shown to be hosting un-Islamic content such as pornography. However, blocking non-offending pirated content such as music requires the rights holder to prove copyright infringement, which is often a long drawn-out process.

ACCESS BARRIERS AND CAUSES OF PIRACY

23. Access barriers are barriers to the unhindered consumption of content, the presence of which often results in the personal consumption needs of viewers being unmet. As a result, viewers try to circumvent or bypass these barriers in an attempt to satisfy their entertainment requirements. Access barriers can be categorized into the following forms:

Consumer and industry barriers

24. Consumer and industry barriers are barriers to the access of broadcast signal that can be controlled or manipulated to certain extent by the consumer or by industry players. Some of the primary barriers of this form, such as costs of access (for pay and free TV) and availability of distribution technologies and competition are examined below.

25. Cost of access to broadcast services remains one the most cited reasons for unauthorized access to broadcast signal/content piracy on an individual level in almost all markets surveyed for this report. Monthly access fees to basic pay services - which usually include FTA channels and a few low tier pay services – ranged from 0.7-25 per cent of monthly per capita GDP, while top level subscription packages which include movies and sport ranged from 2-100 per cent. Although access fees cannot be cited as the sole reason for unauthorized access of broadcast signals, markets where top level access fees as a proportion of monthly per capita GDP were high, or where income inequality is high, tend to witness higher levels of unauthorized access and piracy.

Content exclusivity and competition

26. Competition between multiple operators offering similar services has a positive impact on consumer level prices, helping to keep cost of services low and offering them at multiple price points. In the absence of competition, operators will be free to constantly increase the cost of services – forcing once-legal subscribers to start looking elsewhere for cheaper, often illegal, alternatives. For instance, a significant number of major sporting events are aired exclusively on Sky in the UK. As a result, consumers unwilling to take Sky's premium packages (retailing at £47, including sports and movies for residential connections) due to pricing considerations may tend to turn to either the grey market (acquiring services from cheaper EU alternatives such as Greek operator Nova or Poland's Cyfra+) or online sources. In markets such as India, however, where there is heavy

competition between satellite operators and the cable industry, subscription prices for even premium content is nominal – and individual consumer-level unauthorized pay-TV access is very low.

Policy and regulatory barriers

27. Policy and regulatory barriers can be defined as barriers to broadcast signal access that have come up as a result of actions/policies by various non-consumer stakeholders such as the government, industry bodies, international regulation and individual companies – all of which are relatively beyond the control and manipulation of the end consumer. The different types of barriers in this category are:

Non-availability of content

28. Non-availability or delayed availability of content in certain markets can be cited as reasons for unauthorized access of broadcast signals and piracy. Non-availability often occurs as a result of the windowing strategy adopted by broadcasters and film studios when releasing their content into different markets. Examples from Australia indicated that popular TV shows released in the U.S often took months before being aired in Australia, by which time pirated material entered the market either via online downloads or physical copies sourced in South East Asian countries like Malaysia and Thailand. In other markets, non-availability of niche or ethnic content has resulted in the uptake of grey market access. In Asia, Hong Kong has a large grey market due to the presence of a largely expatriate working population.

Content regulation

29. Regulations governing the availability of content can also create conditions ripe for piracy. Strict censorship laws in the Middle East countries, resulting in the non-availability of broadcast content/TV shows has been often quoted by as a key reason for both online and physical piracy of content to proliferate in these markets.

30. In both China and Vietnam, private citizens are not allowed to own satellite reception equipment or access non-permitted content/channels. This has resulted in the proliferation of online piracy and in the growing number of households with illegal satellite connections in South China and Northern Vietnam. Industry bodies estimate that there are close to 10m illegal satellite homes in southern China which receive signals from Hong Kong and Taiwan, while northern Vietnam has close to 100,000 illegal satellite homes. Similarly, non-limited availability of legal online download services such as iTunes in developing Internet-connected markets such as Brazil and China can also result in increasing incidence of online piracy.

METHODOLOGY

31. Screen Digest maintains a continuously updated database of technology and media market trends, collected using primary research methodology. Screen Digest employs over 40 analysts across three continents, devoted solely to tracking media market and technology developments. As part of their day-to-day research methodology, Screen Digest analysts regularly conduct interviews with market players and industry bodies,

meaning that the majority of the information with respect to technology, distribution platforms, technology, etc., within this report is derived from direct contact with original sources.

32. As the act of copyright piracy and unauthorized access is clandestine, the collection of data on these trends and its impact is a complex task, and reliable data is often unavailable. For the purposes of this report, primary research has not been conducted on unauthorized television access and its impact on the TV ecosystem. Data sourced for carrying out the analysis has been obtained from third party providers such as regional anti-piracy organizations, broadcast associations, rights owners and distribution platform operators, by way of interviews and examination of previously conducted economic analysis and existing literature. As a result, the methodologies used in the calculation of the impact of unauthorized broadcast signal access and piracy will vary considerably between sources, and as such, have been used for illustrative purposes only. A table explaining the methodology used in the various sources cited, where available, is provided in the appendix section of this report (see Table 19).

GENERAL OVERVIEW AND DESCRIPTION

33. This report seeks to provide a qualitative analysis of unauthorized access of broadcast signals, and as such has been structured into different chapters, which focus on different aspects of unauthorized access and piracy. Examination of the different types of unauthorized access and its origins are examined in the first section of the report entitled 'Unauthorized Access – The Different Types'. Furthermore, the impact that these various types of unauthorized access have on the television ecosystem and the wider economy are then detailed in the chapter 'Global Impact of Unauthorized Signal Access'.

34. Drawing on the work from these two chapters, a regional analysis of the types of piracy and its impact has been detailed in the chapter 'The Impact of Unauthorized Signal Access – A Regional View'. Where possible, unauthorized access and its impact have been quantified using existing data collected from local anti-piracy bodies, governmental agencies and from other stakeholders in the value chain (broadcasters, pay-TV operators, content owners, etc.). As a result, the data may not be directly comparable due to the methodologies adopted during calculations, and is primarily for illustrative purposes.

35. Finally, we examine the various causes that could enable or aid spread of piracy. While this report does not condone unauthorized access and copyright piracy in any form, it is important to understand that certain policies, regulations or business models employed by various stakeholders in the television ecosystem, be it individual governments or companies, may aid in increasing the uptake or adoption of piracy – either knowingly or unknowingly – and it is important for stakeholders to be aware of it. Where possible, regulations governing copyright and broadcast have been examined on a regional level, and specific examples have been provided. However, the reader must keep in mind that regulations and its enforcement can be vastly different between even neighboring countries operating in the same economic/political sphere (as seen in the EU), and as such, the definitions of 'piracy', 'copyright infringement' and 'unauthorized access' may vary considerably between countries. A notable example of this would be extra-territorial access of broadcast signals. Extra-territorial access of signals, also known as the 'grey market', although considered illegal in many countries (China, India, Middle East, Viet Nam), is considered explicitly or tacitly legal in others (Canada, Hong Kong – until 2002). In others still, it may simply be a case of contractual violation between the platform operator and end-user (who agrees only to use the service in a given territory), or between a broadcaster and other members of the value chain. In this report, we have sought to

highlight local differences, and in cases where stakeholders have specifically referred to such access as illegal, or provided estimates for industry losses incurred as a result of grey-market access, we have indicated as such.

36. In some countries examined for this report, national level legislation has been based on previously drafted global copyright policies/regulations such as the Rome Convention. As a result, several technologies that are currently used for distributing programming and broadcast signals (legally and illegally) may not be covered within these previously established legislations, and new national level policies have, in many cases, been instituted to address these issues. Similarly, a form of signal usage may be considered as fair use in one country, while being categorized as piracy/copyright infringement in another. Where possible, specific aspects of regulations that are unique to a particular country/region have been highlighted.

UNAUTHORIZED ACCESS – THE DIFFERENT TYPES

37. The method by which broadcast signals have been 'stolen' – either for personal use or for commercial purposes – has changed vastly over the past several decades. The introduction of the digital signal and the digitization of production, distribution and reception of these signals – the broadcast value chain – have not come without its own setbacks. Digitization of signals, while enabling newer improved forms of conditional access and encryption, has also enabled content pirates to now access and re-distribute better quality content. Most would argue that encryption of signals and the hacking of such encryption is a forever ensuing game of 'cat and mouse' – with no clear end in sight. The different types of unauthorized access of broadcast signals are detailed below:

Physical Piracy

Tab. 1 Physical Piracy – Key Points

Easy availability of recordable medium (DVD, CD) and recording hardware has caused a rise in physical piracy;
There has been an emergence of commercial optical disk factories dedicated to producing pirated products, with key markets including China, Malaysia, Nigeria and the Ukraine;
It is difficult to determine the source of content stored on pirated physical products, and as a consequence, there is ambiguity surrounding laws under which these forms of piracy are covered;
The initial investment for content pirates is low, with high potential returns. Content is obtained for minimal cost, and falling physical media prices has minimized recurring costs;
Content pirated is primarily restricted to movies and music, however, copies of boxed-set TV series are also pirated widely;
Consumer willingness to commit to purchasing legitimate products is diminished in the presence of low-cost pirated alternatives, resulting in losses to the industry from lower sales and lower tax-based revenues for government. MPA estimates losses of $2.4bn to motion picture industry alone in 2004;
Falling costs of storage mediums (hard disks, USB drives) has also encouraged personal viewing/home copying – accounting for 23 per cent of UK losses from physical piracy;
Fair use provisions under copyright/broadcast law vary between countries. Copying of broadcast signal for home viewing is permitted in most countries, however;
Stakeholders prefer to target commercial pirates rather than risk criminalizing consumers making

38. Physical piracy can be claimed to be one of the most common and oldest forms of piracy seen worldwide. Technology has come a long way since the days of the VHS cassettes and VCR – where copying of both pre-recorded media (movies, TV shows) and broadcast signals were commonplace and eventually accepted.[1]

39. While copying of legally obtained broadcast signals for personal use by the legal viewer has been generally approved under most national/international copyright regulations, copying of broadcast signals (including movies) and content onto optical disks/storage devices for commercial purposes has been a concern for all elements of the TV value chain. The introduction of optical disks and hard disk based storage media has brought with it not only a better quality digital product that lasts longer and has a larger storage capacity, but also the ability to duplicate content in a much easier and cheaper manner, while maintaining quality and preventing degradation.

40. Physical piracy has grown increasingly sophisticated over the years, having moved from formats such as VHS to DVD, and lately Blu Ray Discs (BD). This is despite the fact that anti-piracy software such as CSS (Content Scrambling System), used on DVDs, and AACS (Advanced Access Content System), used on BDs, have been revised and improved multiple times (albeit as a result of being compromised). Software enabling the copying of both DVDs (such as DeCSS, DVD Decrypter) and BDs (Blu Ray Disk Ripper 1.5), are freely available online from numerous websites, indicating that the copyrighted content on physical media is far from secure.

41. With physical piracy, it is in most cases difficult to identify the source of the copyrighted content found on the physical medium – whether or not it has been copied by accessing (authorised/unauthorized) the broadcast signal or from a legal (physical) copy of the content. Moreover, studies examining physical piracy often do not indicate whether the content that is distributed illegally via physical mediums contains film, music or broadcast content, making the task of estimating losses from solely unauthorized access difficult to valuate. A hypothetical example that illustrates this situation clearly is the availability of pirate copies of entire TV shows/programs – it would be near impossible to determine whether the source of each episode of the show on a pirated physical medium was a broadcast signal (by unauthorized copying of the signal) or from the DVD/CD/Bluray box set of the show which has been legally released/acquired. In such a scenario, there arises the question as to what legal provisions (if they exist) are violated – broadcast laws or copyright laws.

42. Physical piracy can be distinguished into different types, based on the benefit derived from the act of piracy. Benefit-oriented piracy essentially revolves around whether or not the final copied product is intended for home use/private viewing, or whether it is intended for commercial re-distribution, i.e., piracy carried out by the copier of the media/signal to derive commercial benefits or remuneration from the sale of such pirated products.

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[1] The Betamax case of 1984, where the US Supreme Court ruled that home videotaping of content for personal use did not constitute copyright infringement, can be said to have set a precedent with relation to consumer rights to record TV shows, i.e., broadcast signals.

Commercial Piracy

43. Commercial physical piracy can be considered to be occurring when audio-visual content is pirated for the purposes of earning remuneration through the commercial sale of the counterfeit product. Commercial piracy, though prevalent during the days of the VHS/VCR, has increased in the past several years, with the increase attributed to the combination of several different factors coming into play simultaneously, such as the introduction of optical disk formats (VCD/DVD), increasing penetration of playback hardware and consistent drop in both prices of blank recordable media and packaged original software.

44. Commercial physical piracy's impact on the value chain is different from non-commercial piracy. Piracy of a commercial nature results not only in the loss of sales income which would have been generated from the sale of the legitimate product, but also lowers potential tax and other duty receipts that the government may have made from a legal sale. This is much more significant than in a home-copying environment, since the consumer has already displayed their inclination to pay for a product by buying the unauthorized copy (albeit at a reduced rate). Commercial piracy is an attractive business, as in most cases, initial investment in obtaining the material to be pirated is low, being limited to purchase of limited number of legal copies of the original product to be pirated, obtaining illegal copies of the movie leaked directly from a point in the production/distribution chain (studios, editing suites, etc.), downloading of a pirated copy from the internet or recording the movie using a camcorder during its theatrical release window.

45. Camcording is the process wherein a copy of a motion picture is made or captured during its theatrical release by setting up recording equipment within the cinema itself – and in a large number of cases has been known to happen in collusion with cinema staff. MPA estimates that over 90 per cent of pirated movies originate from camcordings, which then end up being distributed online via peer to peer sites, and in duplication factories from where they are then distributed to the public via street vendors, car boot sales, local markets and lately, online auction sites. The whole process – from camcording to the street vendors worldwide – is estimated, in some cases, to take just a matter of days[2]. In the motion pictures industry, pirated physical copies appear almost simultaneously alongside the theatrical release, mainly as a result of camcording. In some cases, copies appear even before theatrical premiere, potentially heavily damaging the rights holder's box office revenues. The MPA (Motion Pictures Association of America) estimates that revenue losses due to commercial physical piracy accounted for approximately $2.4bn in 2004[3].

46. Although commercial physical piracy's main impact can be said to be mainly on the motion pictures and music industry, where packaged media (movie and music CD/DVD) has been traditionally more in demand than TV content, the Internet has played a crucial role in disseminating information about TV programming worldwide. As a result, information about broadcast content from all over the world is now widely available, resulting in greater demand for these shows by audiences worldwide. US TV shows such as Lost, Prison Break and 24 are prime examples of this phenomenon – being distributed both legally and illegally all over the world in not just the English language speaking countries, but in places as far as Asia and the Middle East. Still, physical piracy for TV programming is a relatively small component of overall physical piracy – limited to pirated

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[2] Motion Pictures Association of America: Anti Piracy in Asia Pacific (online)

[3] Motion Pictures Association of America Report 2004: 'Worldwide Study Of Losses To The Film Industry & International Economies Due To Piracy; Pirate Profiles'

copies of box sets of entire TV series, which invariably appear for sale only after completion of the airing of the show/programming on TV. Physical piracy in this instance will have more of an impact on broadcasters that are yet to air the content in their respective markets, as pirated uptake has the potential to negatively influence advertising revenues. For example, a TV programme aired on US cable and satellite TV networks may often be legally released in other markets, such as Australia and Asia, much later – by which time pirated copies of the product may be available. Moreover, in many cases where TV programming/content is illegally distributed, there clearly appears to be a problem in determining the source of the pirated material – whether the copy has originated from a packaged medium (DVD/Blu-ray) or from a broadcast signal that has been copied without authorization, and later distributed by copying into physical mediums. As a result, in countries where copyright and broadcast laws are ambiguous as to the level of protection offered to the various players under the different laws/regulations, stakeholders may often find that they have to first determine the origin of the unauthorized copy prior to pursuing legal action.

Personal viewing and home copying

47. Personal viewing/home copying basically comprises products that are either intended for home use, or pirated products that are lent to or borrowed from colleagues, friends, family and do not involve a commercial transaction between the parties involved. Examples of these are borrowing of DVDs, burning of DVDs or copying onto a mass storage medium (such as USB sticks). Personal viewing or home copying of legally acquired content/broadcast signal is in itself not necessarily unauthorized, and such copying is often protected by regulations governing fair use (such as in the UK, where copying of broadcast signals for home viewing is permitted). These regulations, where implemented, have often been subject to widespread debate as to what level of sharing and copying falls under the fair use provision, and where the fine line between it and copyright infringement lies. Therefore, impact estimates of losses to industry from personal viewing/home copying may vary significantly between countries depending on the regulations governing fair use of copyrighted material.

48. A recent example from the US highlights quite well the potential for conflict between different stakeholders in the TV value chain, and the ambiguity surrounding copyright laws, broadcast laws and the fair use provision. Cable operator Cablevision's deployment of a network based PVR (nPVR), enabling its customers to remotely store on its servers vast amounts of broadcast content, was subject to litigation by major US content owners including Time Warner and Fox. The content owners argued that storage and redistribution of their content violated copyright laws, constituting an unauthorized retransmission. However, this case is close to being settled, after the US Supreme Court upheld the decision of a local appeals court that ruled in favor of Cablevision, stating that its nPVR service did not violate copyright laws.

49. Empirical data on losses sustained by the copyright owners and the larger value chain has traditionally been scarce on this sort of unauthorized access, due to the relative difficulty in not only identifying the act itself (due to the fact that it takes places between friends and family, who are unlikely to be detected in engaging in such activity) but also in assigning a quantitative value to the actual act.

50. Personal viewing/home copying based access is said to account for 23 per cent of total physical piracy in 2007, having remained static from the previous year[4]. However,

[4] IPSOS 2007: Digital & Physical Piracy in GB, Wave 5, November 2007

recent estimates from the UK indicate that losses to the industry from non-commercial physical piracy are around £207m[5] – higher than losses sustained from physical piracy for commercial purposes – and indicating that consumer mindset and attitude to different forms of piracy have a larger role in the impact on the audio visual sector than one might expect. It must, however, be noted that the UK estimates include losses sustained by the entire audio-visual industry and from all forms of content - including motion pictures and television, and therefore overall losses incurred by piracy of broadcast signals alone are much lower, accounting for the fact that motion pictures remain a more highly pirated form of audio-visual content. The MPA (Motion Pictures Association of America) claimed that worldwide revenue losses due to illegal personal viewing and home copying of motion pictures accounted for approximately $1.3bn in 2004[6].

51. It is also worth noting that regulations governing criminalization of consumer usage of pirated goods and unauthorized access are largely non-existent in most parts of the world, with both industry bodies and government organizations preferring to target commercial pirates and the facilitators of such commercial piracy. Stakeholders interviewed for the report, from government bodies to rights owners, have typically indicated that they prefer to target their investigations on commercial pirates rather than end users. This partly stems from the fact that not only are the financial returns obtained from pursuing legal action against consumers likely to be very low when compared to the costs associated with carrying out such legal action, but also because of wanting to avoid alienating a future customer base.

HARDWARE-BASED UNAUTHORIZED ACCESS

Tab. 2 Hardware-based Unauthorized Access – Key Points

Methods of unauthorized access of broadcast signal are changing as the industry undergoes digitization. This stems from the introduction of better encryption, set top boxes and CA systems;
Conditional access systems (CAS) are used by rights holders to protect their content and extract higher revenues from consumers through differential access prices;
CA circumvention can be carried out to access either entire signals, or selected content/channels;
Non-commercial access and circumvention of devices is carried out by enthusiasts, for personal consumption. Information on how to do this, as well as equipment available, is widely accessible via the Internet;
Commercial pirates provide unauthorized signal access and hardware to other users, often at substantially discounted rates. EU CA Directive now prohibits CA circumvention and commercialisation of circumvention enabling devices and services;
Hardware piracy is now shifting towards set-top boxes with Ethernet ports – enabling key-word sharing via online servers. This is increasingly popular in the Benelux markets, Nordics and the Middle East;
Smart card piracy is still a key issue in some regions. Some countries have banned sale of blank smart cards. AEPOC estimates EU losses from pay-TV piracy at €1bn.

52. Prior to the introduction of digital distribution of broadcast signals, content distributed via analogue terrestrial and analogue cable rarely made use of devices such as set top boxes (STB) or conditional access systems (CAS), despite the fact that early forms

[5] Oxford Economics Report, March 2009 – 'Economic Impact Of Legislative Reform To Reduce Audio-Visual Piracy'

[6] Motion Pictures Association of America Report 2004: 'Worldwide Study Of Losses To The Film Industry & International Economies Due To Piracy; Pirate Profiles'

of CAS were designed for analogue systems. Unencrypted signals were simply accessed via plugging the coaxial cable from the aerial or cable network directly into the TV set. This lack of signal encryption and lack of addressability of the end subscriber gave rise to widespread unauthorized access of pay-TV signals via analogue cable systems, and exists in countries where analogue cable infrastructure is still in existence.

53. Hardware based access, in the context of unauthorized broadcast signal access, can be described as access that is facilitated through the use of specific equipment(s) that enables the circumvention of security measures put in place by rights owners and content distributors. Security measures used by these rights holders and distribution platforms (such as cable, satellite, etc.) usually take the form of set-top box based smart card or integral conditional access systems.

54. Set top boxes (STB) are devices used to decode and display TV content delivered by either broadcast (cable, satellite and terrestrial) or via unicast systems like IPTV.

55. Conditional access systems (CAS) are the encryption and control systems used to protect delivered content from being decoded outside of the authorized network of STBs. CAS includes an encryption system at the transmission side and a companion decryption system in the STB, usually activated using a smart card.

56. In the context of conditional access systems, smart cards, or integrated circuit cards (ICC) are plastic cards that contain embedded microprocessors, capable of storing conditional access information on them, which are essential to decrypt and access the broadcast content sent to the set top box.

57. The purpose of using a combination of these various devices is to ensure that the content rights holders and/or distribution platform providers are able to provide access only to those members of public who have paid for the content/programming, and/or for those falling within a defined geographical region for which the distributor has obtained rights of distribution. This secondary use of conditional access systems is of immense importance, as in many cases it forms a crucial element of rights negotiations and contractual obligations between rights holders and the licensees. Rights for programming, be it sports, movies or other forms of content, are sold on a regional basis and often the value of these rights will vary considerably between the regions. For example, the US rights for the 2008 Beijing Olympics were sold to NBC for $893m, while Canada's CBC acquired the domestic Canadian rights for $45m[7].

58. While combinations of security devices are essential to rights holders and the wider TV value chain, they can also be said to introduce 'exclusion benefits', wherein certain sections of the population are excluded from having access to selected types of content or programming unless they pay for the access – benefitting rights owners and platforms operators who collect such access fees. While the introduction of exclusion benefits is completely legal and stimulates economic activity at all levels of the TV value chain (creation of jobs, additional taxes for the government through sales of such content, etc.), such legal exclusions are also one of the primary motives for pirates to attempt circumventing such systems.

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[7] IOC (2008): 'Olympic Marketing Fact File'

59. Hardware-based unauthorized access - where it is carried out by accessing either the entire broadcast signal or certain sections of it - is in many cases covered under existing broadcast laws (and in some cases, content/copyright laws) of countries. In the EU, many Member States have put in place regulations which implement the CA directive - which seeks to prohibit the manufacture and sale of devices that enable circumvention of CAS/encryption. However, the directive has left it to the discretion of member states on whether or not to prohibit the private use/possession of such devices. Some nations, such as Finland, have made use/possession of these products illegal. In other countries, possession and use of these devices remains a grey area.

60. Similar to physical piracy, hardware based unauthorized access is also carried out on different levels, depending on the end benefit received from the activity – for home viewing/hobby or for commercial purposes. In numerous cases, circumvention of CA systems are carried out by TV enthusiasts who take it up as a challenge, and then post details of their achievement online in specialized hacker forums. The details on how the systems are circumvented, and specific guides to how to recreate the process can also, in many cases, be found online on these specialized forums – enabling individuals to buy off-the-shelf or order equipment online which enables them to attempt circumvention of CAS for broadcast signals by themselves. In such cases, circumvention of these systems are rarely for commercial purposes, and enthusiasts merely want to advertise that they have cracked multi-million dollar systems.

61. There is a second group of signal pirates for whom this is a commercial, and often very lucrative, business. These groups not only seek to exploit the weaknesses in these CA systems, but in many cases will also work actively to devise solutions to circumvent CAS and then market them to final consumers for a fee. The fees in some cases will vary from a one time fee for the hardware sold to the customer (modified set top box or pirated/cloned smart card[8]). In other cases, they charge a fixed yearly fee – often at much lower rates than the legally available services – for providing access to the content and for ensuring that the encryption codes in the set top box and smart card are regularly updated and working. This is done through the use of card sharing websites, or through the use of set top boxes with integral Ethernet ports – through which updated encryption codes can be sent to the box from the pirate operator's website/servers. These unauthorized pay-TV systems are often available at a third or even a quarter of the original price. The monetary impact of hardware based access is 'impossible to evaluate' according to AEPOC – the European anti-piracy association, but it estimates that €1bn is spent every year in the EU on pirated card and STBs[9].

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[8] Pirated or cloned smart cards are copies of a legitimate smart card, which are then distributed to enable users of the pirated smart card to gain unauthorized access to broadcast signals. Pirated smart cards contain all the encryption coding present on the original card, and makes the STB believe that it is reading a legitimate card.

[9] AEPOC (2009): The Problem, http://www.aepoc.org/index2.htm

Unauthorized Re-broadcast of Signals

Tab. 3 Unauthorized re-broadcast of signals – Key Points

Two forms of unauthorized rebroadcasting – redistribution of entire signals of other pay TV operators, and redistribution of selected content via registered or unregistered pay TV operations;
This form of unauthorized access is difficult to detect and consumers are often unaware that they are receiving pirated signals;
It is also difficult to litigate against, as the burden of proof is in many cases on the rights holder or broadcaster whose content is rebroadcast without consent;
Unless inadvertent, unauthorized re-broadcast is always carried out for commercial gains by existing pay TV operators;
Form of signal theft occurs primarily when regulations and regulation enforcement governing this form of unauthorized access are less stringent, or where censorship prohibits legal access to certain content;
Most commonly seen in developing countries within Africa, Asia Pacific, Latin America, Middle East, all of which have large analogue cable networks and where enforcement is less strict;
CASBAA estimates losses of $365m in Asia Pacific from unauthorized rebroadcast;
In the Middle-East, Lebanon is estimated to have 600-800 cable networks redistributing content, with the trend also occurring widely in Saudi Arabia's housing compounds. These compounds typically house wealthy expatriates – indicating consumer ability to pay for legal content is not a major factor aiding unauthorized retransmissions.

62. Unauthorized re-broadcasting of signals involves redistribution of broadcast signals (both free and pay) without the express consent of the rights holder/broadcaster, and in most cases, without their knowledge. The re-transmission of broadcast signals is almost always carried out on a commercial basis. This form of unauthorized access is commonly seen in regions where regulations governing such re-transmission are deficient, or the enforcement of existing regulations is less stringent.

63. Illegal re-transmission of broadcast signals is generally carried out by existing pay-TV operators/distributors who want to either avoid paying access for selected type of content or are not allowed access to the content due to existing national regulations. In some cases, only selected content is re-distributed illegally, while the majority of the content is acquired legally and paid for. In other cases, entire pay-TV networks are created and operated illegally – without the consent of the national broadcast/media regulators and built on signals pirated from other pay-TV operators and broadcasters.
In both cases, this form of access involves extensive technical knowledge about broadcast signals and signal distribution, and hence, is almost always carried out by professionals for commercial reasons. Moreover, in both cases a number of violations of existing copyright and broadcast laws may occur. In the case of registered operators illegally re-distributing signals obtained from legal sources (such as cable/satellite operators re-distributing channels by using a legally obtained STB and service from another provider), this may also violate contractual obligations between the original content/service distributors and the (illegal) re-distributor.

64. Neither of these types of unauthorized access are easy to detect, since the end consumer will rarely know whether they are receiving illegally distributed signals – as they will often be under the impression that by paying the operator monthly fees for the services

obtained, they are obtaining legally available content. Of these two types, detection of the first type of illegal retransmission – where only selected content is redistributed – is even more difficult as the pay-TV operator will be legally registered with concerned authorities and will be authorised to distribute some or most content. In such cases, detection of unauthorized access and piracy will become the responsibility of the content owner or local distributors of the content, who may not have the resources at their disposal to deploy piracy detection technology or campaigns. Detection of unauthorized access will involve actual monitoring of pay-TV operator signals – a time consuming task which will require access to both manpower and financial resources. Even if the unauthorized access is detected, proving it may be a burdensome task, as the burden of proof may fall on the license holder to establish that the pay-TV operator has indeed accessed and re-distributed the content without permission from the rights holders.

65. Unauthorized re-broadcast is commonly seen in developing markets (parts of Asia, Africa, Middle East, Latin America), where regulations and/or regulation enforcement may be less stringent. CASBAA (Cable and Satellite Broadcasting Association of Asia), in its 2008 report on piracy, estimated that losses to the industry and the TV value chain from illegal distributors was in the range of $365m, and one of the biggest causes of unauthorized access and piracy in the Asia Pacific region[10]. The AAA (Arabian Anti Piracy Alliance), an anti-piracy association operating in the GCC (Gulf Cooperation Council) region in the Middle East was also of the opinion that although regulations and regulation enforcement governing pay TV theft were improving in the region, much needed to be done in terms of the actual legal procedures that followed the detection of such access. In Latin America, although reliable up-to-date data was unavailable, a number of news reports and anti-piracy bodies indicated that this form of piracy was especially common in countries like Bolivia, Ecuador, Peru, etc. Both the AAA and CASBAA have said that the judicial process involving pay-TV theft was onerous and often placed the proof of burden on the rights holders, rather than the other way around.

Extra-territorial TV Access

Tab. 4 Extra-territorial TV access – Key Points

Extra-territorial TV access refers to the reception of signals (satellite/terrestrial) outside their intended coverage area;
This is important to rights holders/owners as content rights are sold on territorial basis. The reception/distribution of signals from other territories could affect local rights holders' ability to recoup investment from the local market;
Normally considered to be a contractual violation, rather than copyright/broadcast law violation – and depend on local regulations;
Especially prevalent in areas with high level of migrant population – parts of EU, Hong Kong, Middle East;
Hong Kong permits extra territorial access of FTA satellite signals for private residents, with residents able to receive signals targeting mainland China;
Access to overspill satellite services is illegal in countries such as India, and many territories in the Middle East.
Widespread debate surrounds the subject. The European Court of Justice is currently hearing cases pertaining to grey market access
Previously permitted in Canada – Court ruling banned extra territorial access in 2002, with CASST estimating losses at $400m per annum at the time.

[10] CASBAA, October 2008 : 'Digital Deployment, Asia-Pacific Pay-TV industry study'

66. Extra-territorial pay-TV access (often referred to as the ‘grey market’) refers to the reception of broadcast signals by viewers/broadcasters/platform operators outside of the legal coverage area. Since content rights are often sold and distributed on a territorial basis and for varying amounts, pay-TV operators are often concerned by the access of international party signals within their legal coverage area. However, this could be less of a concern for broadcasters (especially free to air broadcasters).

67. This could be considered as more of a contractual violation (between broadcaster and rights owner, and between broadcaster/pay-TV operator and subscriber) than a clear-cut case of copyright violation. Since content rights are sold on a territorial basis, contracts between rights owners and broadcasters or pay-TV operators often stipulate the areas in which the content can be distributed. The reception of signals by subscribers outside of these areas would therefore be a contractual violation, depending on the terms of the agreement. Similarly, pay-TV subscribers are also often contractually bound to access the services only in certain geographic regions (determined by the distribution rights between operator and rights owners), and the access of these services outside of these areas could constitute a contractual violation. While in some countries extra-territorial access of services is deemed illegal (China, India), others consider it to be legal (Hong Kong). As a result, there is considerable debate taking place as to whether or not extra-territorial access should be considered a violation of content/copyright laws, broadcast laws or both. A case pertaining to extra-territorial access of content is currently being heard in the European Court of Justice (ECJ) (see pg.38).

68. The grey market is mainly limited to satellite TV, and in some cases terrestrial signals, due to the inability to easily place specific restrictions on where the signals are transmitted. However, in most cases, consumer-level losses from grey market access are lower than other forms as the services are often legally procured and paid for in the country where the service is legally available, just that its end usage is in a different country.

69. The grey market has historically been of lesser concern, but with national borders becoming more and more porous and satellite delivery of TV services gaining popularity, this issue has come to the fore. The European Union is a good example of how the grey market operates, due to its open rules on migration of EU citizens within EU nations. Non-availability of specific language/niche content catering to different segments in society within these different countries has often been cited as the prime reason for the existence of the grey market, with consumers having to depend on pay TV services from their home country for receiving niche programming – often seen in European cities/countries with vast expatriate population, such as London, Spain, etc., and also in the Middle Eastern countries where a sizeable percentage of the working population are expatriates. In Latin America, signals of Brazilian FTA broadcasters are often distributed via unencrypted satellite feeds to other channel networks or consumers in the country. This has also enabled cable operators in neighbouring countries to acquire and illegally re-distribute these signals.

70. According to industry sources, the grey market in the EU was often ignored in the past, and in some places even acceptable, due to the fact that content availability across Europe was often unequal, with some countries having access to far greater breadth of programming and channels. Legend has it that the first case of grey market access was in Germany, where a pirated Sky UK smart card was used so that the viewer could get to watch episodes of Star Trek – unavailable at that time in Germany. Whether or not the story is fact or myth, it goes to exemplify the lengths people will go to access programming and content of their choice.

71. Other reasons for proliferation of the grey market are that costs of pay TV services in the country of residence may be comparatively more expensive than services available in other neighbouring countries - prompting consumers to look for cheaper services elsewhere.

72. In Asia, losses from grey market access in 2008 (resulting from satellite overspill) were estimated to be in the region of $17m – less than 10 per cent of the total losses from unauthorized access and piracy[11]. Canadian figures from 2003 indicate that grey market DTH services were used by approximately 600,000 households[12].

Online Piracy

Tab. 5 Online Piracy – Key Points

Unlike music piracy, broadband connections and the associated increased download speeds have been crucial for video/broadcast signal piracy;
Peer 2 Peer (P2P) software is the leading technology for file sharing;
P2P based software (e.g., SopCast) is also now available to distribute live broadcast content, especially sports events, as well as being used for non-real time distribution;
Virtual storage servers (e.g., Rapidshare) provide single click access to copyrighted content;
User generated video hosting sites are increasingly host copyrighted content;
In-browser playback of legal video has resulted in mass market popularity, with unauthorized redistribution via similar means resulting in online piracy being no longer limited to tech savvy users;
Determining the source of copyrighted content is often difficult, and unavailability of online-specific regulations create sufficient loop-holes for pirates to provide unauthorized access to content online;
Little legislation in place to tackle this problem, limited to examples such as France's three strikes law, similar laws in South Korea and the DMCA in US.

73. Although many recent anti-piracy efforts by the content industries, especially the music industry, have been focused on combating peer-to-peer (P2P) file sharing, there are numerous other ways to access content illegally online, and indeed to engage in illicit online file sharing. Unlike music piracy, for which download speeds are relatively unimportant, broadband connectivity and download speeds are crucial for the prevalence of online broadcast signal/content piracy. Due to the relatively large file sizes of TV shows (a 30-minute long standard definition TV show is around 350 MB – roughly 10 times larger than a short pop song encoded as a 192 kbit/s MP3), broadband connectivity is often seen as being the cornerstone of online piracy.

74. While popularized by file sharing services, P2P technology in fact has many legitimate uses (internet telephony company Skype uses a version of P2P; Blizzard

[11] CASBAA, (2008): 'Digital Deployment, Asia-Pacific Pay-TV industry study'

[12] Gregory Taylor (2006): 'Grey to Black – Satellite Piracy in Canada'

Entertainment uses a proprietary version of BitTorrent client to distribute content for its World of Warcraft massively multiplayer online role-playing game). BitTorrent is currently one of the most popular P2P protocols. The BitTorrent protocol is optimized for transferring large files and the majority of TV content circulating on P2P file sharing networks is broadcast quality (or even high-definition Blu-ray disc quality). Needless to say, illegal files distributed over P2P networks are not DRM protected and can be played back on a variety of devices (including portable media players) and burned to CD/DVD/Blu-ray discs.

75. In order for content (legal or illegal) to be distributed using the BitTorrent protocol, a user who has a copy of a file needs to create and distribute a torrent – a small file that contains metadata (but not the actual content). While a number of dedicated sites aggregating torrent files exist – such as Isohunt, The Pirate Bay, etc. - users can easily find torrent files using any internet search engine.

76. The first P2P file sharing networks that achieved prominence (in particular, Napster) were easier targets for anti-piracy efforts than current networks reliant on BitTorrent protocol. The Napster network was boot-strapped to a central server, which, among other things, indexed all the available material. By contrast, sites indexing torrent files, e.g., the Pirate Bay, are divorced from the P2P network operation.

77. Internet file sharing also takes place outside P2P networks. Virtual storage services (e.g., RapidShare, Megaupload) are often used for illegal file sharing alongside their legitimate uses (e.g., online back-up, or legal file sharing). Accessing content hosted on such servers as a rule requires the user to know the exact download URL; although these are not as easy to locate using a search engine as torrent files, multiple sites and forums provide links to illicit copies of TV content stored on such services.

Fig. 1: Peer-2-PeerF (P2P) Networks – How BitTorrent Works

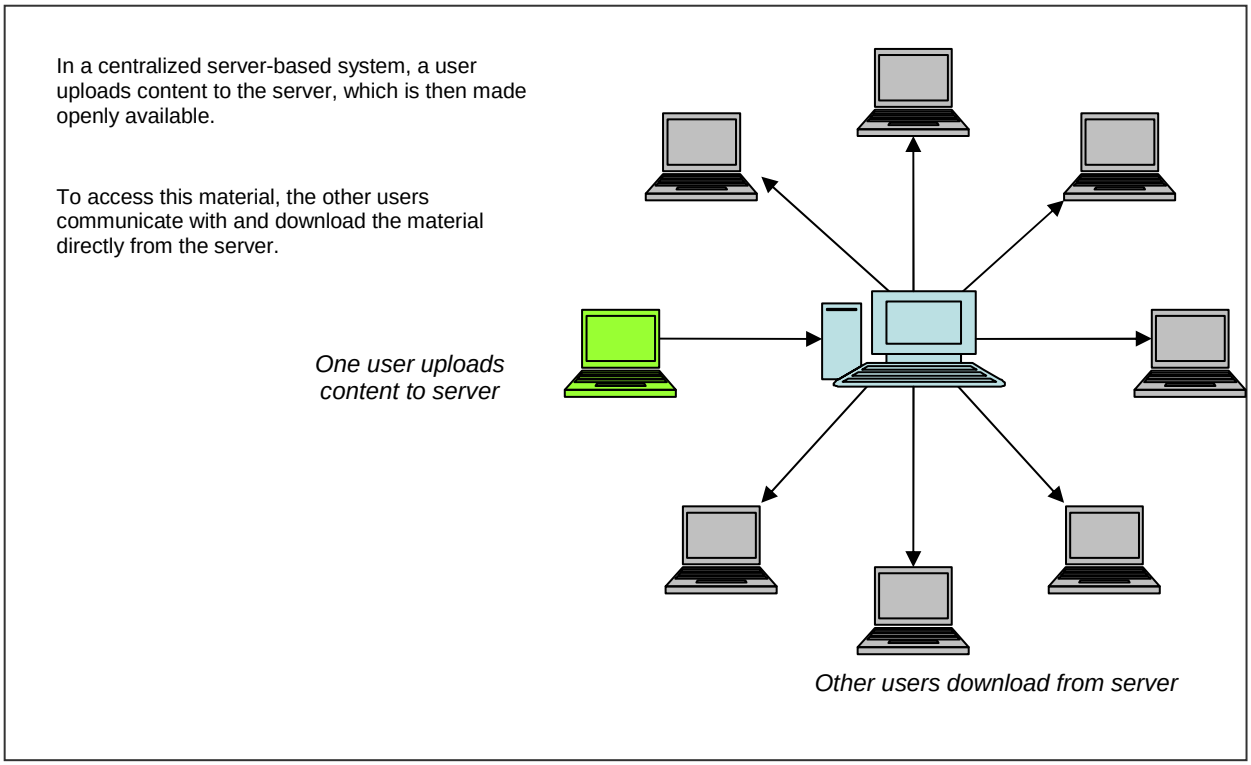


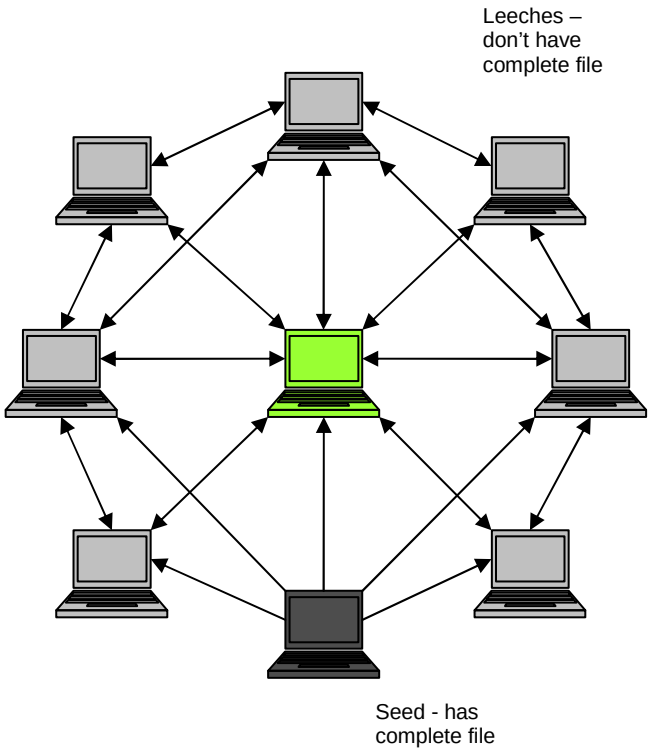
Fig. 2: Centralized Server-based Network

In order to participate in the BitTorrent network and download files, users need to have specific free and legally available software installed such as uTorrent, Azureus;

Latest innovations in BitTorrent now enable users to download a 'magnet link' instead of a torrent file – magnet links connect a user to a seed, and from that seed to others. Each user then also plays the role of a tracker. This helps torrent index sites ensure that they do not host torrent files or any information about the actual file to be shared.

A P2P network is dependent on the number of peers and seeds present on the network. Popular files (movies, TV shows) can have hundreds/thousands of peers and seeds in the network at any given time – helping somewhat to increase the chances of a successful download and faster download/upload speeds.

The BitTorrent software, using the torrent file and tracker, connects to other users sharing the file and downloads parts of the file in a random order. On completion of the file, the pieces are put back together to create the actual file.



78. While engaging in Internet file sharing requires a certain degree of technical understanding, the proliferation of services providing instant in-browser video playback have made both the legal online TV and pirated content a mass market phenomenon.

79. Created to enable users to share home-made videos, user-generated video services (such as YouTube, DailyMotion, MetaCafe, Myvideo.de, Clipfish, to name a few) are often hosts to content which has not been authorized for distribution by the rights owners. Such services not only offer an easy in-browser access to videos, but also a very simple process of uploading and sharing video content. While restrictions on video length are common, that does not stop the users from splitting the longer video files into smaller chunks, which can then be uploaded to the service. For the average user, the boundary between legal and illegal content available on such sites is indistinct at best. This user confusion is further exacerbated by the fact that content owners are increasingly making some of their content legitimately accessible on popular user-generated online video destinations. For example, all major US broadcasters have legitimate 'channels' on YouTube, providing TV show highlights, behind the scenes footage and other content legally.

80. User-generated video services largely cooperate with content owners, responding to their take-down notices for copyrighted material available illicitly, although this is usually restricted to countries where strong copyright laws exist, such as the US and parts of Europe. Content identification technologies, e.g., watermarking solution employed by YouTube, are also proliferating. However, policing the massive amounts of video uploaded to such services everyday is a non-trivial challenge. Moreover, the legal grey area surrounding the fair use clause for copyrighted material often complicates the filtering of infringing content on user-generated video sites. In one instance, a major music publisher used the US DMCA laws to force YouTube to take down a video of a baby dancing to a song, the copyrights to which were held by the publisher. However, a court later decided that the usage of the song constituted fair use[13]. Similarly, YouTube and Viacom are now embroiled in litigation over unauthorized hosting of Viacom's copyrighted material on YouTube. The case, which first appeared in courts in 2007, is currently ongoing and the final verdict, when it is passed, could potentially have serious implications for both the media industry and consumers as to how content is stored and viewed online.

81. Commercial services distributing illegal content on the Internet are not uncommon, especially in countries with less stringent rights enforcement. Often services in such countries try to exploit various loopholes in copyright laws or simply rely on lax law enforcement. It is also not uncommon for illegal commercial services hosted in countries with less strict attitudes to copyright to target Western European and North American markets. Until the constitutional amendments were introduced to Russian copyright law in early 2008, local collecting societies had the right to license any audio-visual content unless the rights holder entered a custom contract with the collecting society that limited the scope of the society's mandate. This provided a loophole for services like allofmp3.com (which distributed music) and zml.com (distributed video content). Their English-language interfaces and prices stated in US dollars (which were significantly below content prices on mainstream legitimate Western online services), coupled with low broadband penetration in Russia, meant that a significant share of their clientele stemmed from abroad.

82. While the instances of piracy discussed above distribute some form of recorded broadcast content, live broadcasts are also subject to internet piracy. It is almost exclusively live broadcasts of sporting events that are pirated on a large scale.

83. User-generated live streaming services (such as Justin.tv, Ustream, Livestream) have been used to illicitly distribute sporting events. With in-browser streaming, such services offer an easy way to access content and have been subject to the same user confusion problem as YouTube and other user-generated video services. Like the non-live user-generated video outlets, such user-generated live streaming services respond to rights holders' takedown notices and attempt to filter copyrighted content (Justin.tv signed a deal with Fox and content identification and filtering company Vobile in August 2009 to pro-actively filter content in real-time). Tech-savvy pirates also resort to P2P networks specializing real-time distribution (e.g., SopCast, TVants), which are particularly popular in China, but are also available elsewhere. In Europe, Netherlands based website MyP2P.eu specializes in distributing live feeds of sports content using P2P networks/software such as SopCast.

84. Similarly to physical piracy, detection of the source of the content is often a difficult task, and there remains ambiguity surrounding whether or not this form of piracy falls under copyright law, broadcast law or both. In some cases, such as the unauthorized live

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[13] CBS News (2008):
http://www.cbsnews.com/stories/2008/08/21/tech/cnettechnews/main4370561.shtml

transmission of sporting events via P2P software like SopCast, it is possible to determine the source of the content - in this case, a broadcast signal. However, many stakeholders stated that a large number of countries are yet to amend existing regulations (copyright and broadcast) to account for online piracy. Some respondents have also opined that ambiguity and differences in copyright and broadcast laws between countries means broadcast signal and content pirates are often able to use loopholes in existing laws to evade punishment. In Spain, a case brought against the operator of P2P site Rojadirecta.com which provided links to sports events broadcast online was dismissed by the court. The Spanish court ruled that since the site did not host the content itself or derive any direct profits from the infringement, they could not be held responsible. Similarly, a case brought against MyP2P.eu by pay TV operator C More Entertainment AB – operators of the Canal+ branded premium channels in Scandinavia – was dismissed by the courts in 2009. The court ruled that MyP2P.eu did not infringe any rights directly as they only provided links to streams already available on P2P software like SopCast. In the UK, on the other hand, a website providing links to video content stored on third party website was shut down in 2007, and its owner arrested but later released. However, it remains unclear as to whether or not copyright/broadcast right laws could have been applied to the case, as the owner was ultimately held for potentially violating trademark infringement rules, rather than copyright laws. With no charges filed in the end, this case exemplifies the complexities involved in litigating against online piracy.

GLOBAL IMPACT OF UNAUTHORIZED SIGNAL ACCESS

85. Data provided in this report has been sourced from multiple organizations, including regional broadcasting organizations, platform operators, anti-piracy associations and governmental agencies. Numbers have been included to provide examples and illustrate the impact of unauthorized access and piracy on the economy, however, due to the differences in methodologies between studies, are not necessarily directly comparable.

Rights owners

86. Content rights owners and local rights holders are those parties most immediately affected by unauthorized distribution of content, as they are denied the opportunity to legitimately monetize their product. Unauthorized access and piracy of broadcast content prevents the rights holders from receiving monetary benefits through payment of royalties, rights values, share of subscription revenues or carriage fees, etc. - which they might otherwise have received had the content been acquired and distributed legally. In the case where distribution of rights for a particular market has been acquired by an individual licensee, the license holder/licensee may forego revenues through re-distribution of this content as a result of unauthorized distribution and access. In markets where unauthorized access is highly prevalent, rights values may reduce over time as the licensee will factor the impact of unauthorized signal access on subscription and distribution revenues into its negotiations. Our analysis of available rights value data from large sporting organizations (such as the Olympics, EPL) does not suggest that rights values have shown an absolute decline over time[14] - although it is possible that the growth in revenues from sales of rights could have been negatively affected due to unauthorized access and piracy. Stakeholders have suggested, however, that smaller sporting bodies, for whom quantitative data on this subject is not widely available, may be affected disproportionately.

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[14] IOC (2008): 'Olympic Marketing Fact File'

87. Studies undertaken in the UK by IPSOS indicated that 21 per cent of viewings of pirated TV shows/content results in lost revenues – after accounting for the fact that not all viewers of pirated content would have paid for viewing legitimate content even if it had been available[15]. In the case of rights owners of smaller, niche content where the viewing population may be more selected and more inclined to pay for content access, these figures can be substantially higher. For smaller players, even the migration of small number of viewers to pirated content (either via physical piracy or online) could have a much larger impact on rights values and future rights negotiations due to the smaller overall audience and the greater proportional impact. Examples of this content would be local language/niche content like TV drama, films, special interest sports whose revenues from both pay TV and international distribution may be minimal due to language and other barriers. Unauthorized access and piracy of content in this case may force content producers to either completely forego producing such content, or resort to producing low cost lower quality content, as has been seen in countries such as Nigeria[16].

Investment in content production, technology, innovation

88. A secondary impact of unauthorized access and piracy is on the investment in content production. Production of content, particularly premium content such as sports and TV drama is expensive and often funded by the sale of rights to broadcasters/channel operators (for TV drama/programming), who in turn, depend on either advertising or subscription revenues – both forms equally dependent on audience viewership/willingness to pay. The unauthorized availability of content has the ability to negatively affect this relationship. Easy availability of unauthorized content and less stringent enforcement of anti-piracy legislation can influence legitimate viewers to shift from legal sources of content (pay TV subscription, watching legally available FTA channels, etc.) to pirated sources, thus adversely affecting rights holder's ability to recoup their expenses. As stated previously, the impact of unauthorized access and piracy may be magnified for smaller players who produce niche content – for whom rights payments will be crucial for funding future productions.

89. The impact of unauthorized signal access on investment in innovation and technology is also one area that needs to be considered seriously. A direct result of the proliferation of unauthorized access and piracy of broadcast signals may be on the rights holder or rights owner's return on investment. Lower profits as a result of falling subscribers/viewers and higher costs from changing encryption technologies, swapping smart cards and pursuing litigation will result in redirecting funds to these activities and away from investment in technology and innovation. In Germany, one of the effects of piracy on satellite pay-TV operator Premiere was on its financial performance – as a result of having to bear additional costs from swapping all its subscriber smart cards and changing its CAS. In developing nations, unauthorized access and piracy can also negatively impact the flow of FDI (foreign direct investment) into the media and technology industries. For instance, large levels of under-declaration in India (roughly 70-80 per cent of the cable subscriber base) can be cited as one of the reasons for the slow digitization of the country's analogue cable networks as even the larger MSO (Multi System Operators) are yet to make profits – potentially keeping away foreign companies who are unsure what the returns on their investment will be. This has resulted in a significant shortfall in funding for network digitization and acquisition of consumer premises hardware like STBs, etc.

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[15] Oxford Economics Report, March 2009 – 'Economic Impact Of Legislative Reform To Reduce Audio-Visual Piracy'

[16] DISCOP Organisation/Basic Lead (2009): 'Fighting Piracy With Creative Solutions: A Qualitative Study of Audiovisual Piracy in Africa'

Jobs

90. One of the results of lower rights values and subsequent lowering of spend on content production are the losses of jobs in the TV value chain. The impact of unauthorized access and piracy is felt not only in the content production and TV distribution industries – which are most prone to the damages from piracy – but in other ancillary industries which support the broadcast industry. Similarly, US-based IPI (Institute for Policy and Innovation) claims that total job losses in the US stemming from copyright piracy of all forms (motion pictures, software, gaming, etc.) were 373,375 in 2005[17].

91. However, results from a survey conducted in Africa opined that physical piracy in the region could have actually led to a creation of jobs and income as more unemployed individuals took to it[18]. The survey went on to state that an increase in physical piracy had led to higher sales and penetration of video display hardware – further creating jobs in retail and increasing national incomes. It also stated that piracy benefited consumers as it forced a reduction in pay TV subscription costs and prices of legal DVD.

Government taxes, revenue

92. The proliferation of pirated content also impacts revenues earned by all elements in the TV value chain, such as government bodies who witness declines in collection of taxes and incomes of various forms – such as income tax receipt from employed individuals, sales tax from legitimate sale of subscriptions/packaged media, lower corporate taxes on reduced profits/turnover, etc. The IPI estimated that annual losses sustained by the US government through the non-receipt of various taxes as a result of piracy stood at approximately $2.6bn in 2005[19], while CASBAA estimates that governments in Asia collectively lost around $247m in 2008[20]. This figure could be substantially higher (in local currency terms, and not accounting for currency conversion rates) in regions of Africa, Asia and the Middle East as a result of prevalence of high levels of unauthorized access and piracy of broadcast signals and broadcast content, and its subsequent detection. Moreover, the mushrooming of online piracy could also have negative effects on ISPs – who are forced to shoulder the burden of not only additional data transfers due to the increasing availability of content online, but also forced to invest in technology that enables detection of illegal file transfers on their network. In the U.K, current government plans to introduce a system of detecting online file sharing and punishing repeat infringers could place a significant financial burden on ISPs – as a result of introducing systems to detect infringement and contacting subscribers via written warnings.

Organized crime, social unrest

93. Several studies have suggested that piracy of copyrighted products, especially physical piracy, is often related to organized crime, due to its relatively lower risk when compared to other forms of criminal activity (smuggling, drugs, etc.) and high profit margins. As a result, end consumers are often unaware that the purchase/consumption of physical pirated products is often feeding into much larger crimes such as money

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[17] IPI (2007): 'The True Cost Of Copyright Industry Piracy To The US Economy'

[18] DISCOP Organisation/Basic Lead (2009): 'Fighting Piracy With Creative Solutions: A Qualitative Study of Audiovisual Piracy in Africa'

[19] IPI (2007): 'The True Cost Of Copyright Industry Piracy To The U.S Economy'

[20] CASBAA (2009)

laundering, trafficking in humans and even terrorism[21]. Other studies from the RAND Corporation indicated that proceeds approximating $20m from the manufacture and sale of pirated DVDs in South America was used for funding Hezbollah, while the pirated DVD distribution network in the UK has been tied to organized crime gangs that also deal in human trafficking, prostitution and forced labour[22].

THE IMPACT OF UNAUTHORIZED SIGNAL ACCESS – A REGIONAL VIEW

North America

Tab. 6 North America – Summary of Key Issues

North America is a mature TV market, but pay TV services and broadband remain expensive when compared to Western Europe;
Origins of unauthorized broadcast signal access are found in analogue cable 'splicing' – NCTA estimated that 20 per cent of pay-TV revenues were lost to signal theft in 1995;
Digitization of networks resulting in unauthorized signal access is now mainly hardware-based/via circumvention of CA systems;
Cable 'black box' and modified FTA satellite receivers are used for unauthorized pay-TV access;
Online piracy is currently the biggest concern for the industry – US is the fourth largest copyright infringer in terms of global consumption, Canada ranks tenth according to BayTSP estimates;
The provision of free online catch up services is resulting in lower online piracy of broadcast signals;
The majority of sites offering unauthorized access to live broadcast content believed to be operating from overseas (e.g., China) – making prosecution difficult;
The US's DMCA regulation has been making some headway into clamping down on unauthorized broadcast signal access, via laws preventing encryption circumvention and online piracy;
Till 2002, extra territorial access of pay TV signals permitted/grey area in Canada; Canada still debating implementation of laws governing online piracy.

94. North America presents perhaps the most mature pay-TV market in the world. Free-to-air TV reception is negligible in uptake, with most households opting for paid-for cable or satellite TV services. A little under two thirds of pay-TV households use cable services, while the remaining third use satellite. IPTV, although growing much more rapidly than cable, which is in decline in the US and relatively static in Canada, makes up a tiny proportion of total pay-TV usage.

95. As a result of the lack of a strong public broadcaster and the subsequent high penetration of pay-TV in the United States (see Appendix Fig. 12), very few households

[21] IFPI report: 'Music Piracy: Serious, Violent and Organized Crime'

[22] RAND Corporation, 2009: 'File Piracy, Organised Crime, And Terrorism'

rely entirely on terrestrial broadcasts, allowing a June 2009 switch off. In Canada, a market-led approach was initially selected, with no firm analogue switch off date set, however, lack of roll-out, led to a new switch-off date of 2011 being selected. Fifteen per cent of Canadian households currently rely on terrestrial broadcasts.

96. In North America, despite recent declines in cable subscriber bases as a consequence of increased competition from satellite and IPTV systems, 60 per cent of households still use cable TV as their main television reception method. The majority of these homes have also been transitioned onto digital services, with the US one of the leading markets in terms of cable digitization globally. Pay-TV services are typically expensive in the US by international standards, with the average household paying $65 per month for their TV. Strong local cable companies, coupled with a channel-led premium content market has resulted in this situation.

97. Lack of substantial competition in the broadband market has led to high prices and lower access speeds than Western Europe being common. Cable broadband access prices in the region are steep, with the average broadband customer in the US paying nearly $40 per month for their broadband connection. Access speeds are also low, at an average advertised speed of 6.8 Mbit/s in 2008, compared with Western European average advertised speeds of over 10 Mbit/s in 2008. Nonetheless, broadband uptake has been strong in North America, with nearly 70 per cent of households signed up to a broadband service. As a consequence, the market has a growing online content industry, with movie and TV streaming and downloading services widely used.

98. Unauthorized access of broadcast signal and signal piracy in the US has its origins in the theft of analogue cable signals - known locally as ‘splicing’. Cable TV theft, however, has not been restricted to splicing alone. The digitization and encryption of cable signals which began in the mid-90’s resulted in cutting back the levels of cable theft. The NCTA (National Cable and Telecommunications Association) estimated that losses from theft of largely analogue cable TV signals in 1995 were around $5bn or 20 per cent of total pay-TV industry revenues. However, digitization of the nation’s cable networks, deployment of digital decoders and increased monitoring of signal theft resulted in losses from unauthorized access accounting for just 15 per cent in 2002, although losses were estimated to have reached $8bn on account of higher consumer pricing[23].

99. Hardware based unauthorized access of both cable TV and satellite signals is prevalent in the US and Canada. Digital cable and satellite TV theft in the US and Canada is known to take place primarily through the use of cable ‘black boxes’ and modified FTA boxes which circumvent operator deployed CA systems and descramble the signals. Although these receivers are designed to be used for accessing only the limited number of free-to-air satellite channels which are available in the US and Canada, the boxes can be modified to enable the circumvention of CA systems. In recent years, concerted legal action against retailers who provide circumvention services and/or devices that are already modified prior to sale have started to pay off, with several retailers settling out of court with both Dish Network and DirecTV. Others have been prosecuted. Canada’s CASST (Coalition Against Satellite Signal Theft) estimated that that there were close to 750,000 illegal pay-TV subscribers in Canada in 2004 – causing the industry approximately $400m in lost revenues[24]. Although the CASST does not indicate which section of stakeholders are accounted for in their estimates, it would be fair to assume that a direct impact of unauthorized access to pay-TV services would be on the channel operators and

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[23] NCTA (2000)

[24] CASST (2004): ‘Broadcasting Industry Applauds Sentencing of Dealers in Illegal Satellite Equipment’

broadcasters who provide content/programming to the pay-TV platform operators. In many cases, channels receive a share of subscription revenue/carriage fees from the pay-TV operators, which are linked to the number of subscribers subscribing to operator's services. A drop in the number of subscribers or unauthorized access of services can, in turn, result in a drop in revenues for channel operators – further affecting spend on content production, investment in technology. etc.

100. Until 2002, under Canadian law, reception of US signals of Dish Network and DirecTV were legal, and circumvention of smart cards was a legal grey area. As a result, Canadian border towns were reported to have seen a large growth in satellite TV stores that specialized in selling pirated/cloned smart cards that were often sold back to US customers who drove into Canada especially for these services. However, following a litigation brought forward by Bell Express Vu – the Canadian satellite pay-TV operator, the Canadian Supreme Court ruled that accessing these services were illegal and contravened the nation's Radiocommunication Act, effectively clamping down on such practices.

100. Online piracy is currently the largest concern of copyright owners in North America. High broadband penetration levels, combined with lowering of hardware (DVD burners, etc.) and storage costs in both the US and Canada have resulted in piracy becoming more commonplace and acceptable. In a study conducted by BayTSP – an online content tracking company that uses its proprietary systems to track usage of its client's content on the internet – the US was the fourth largest infringer of copyrighted content, while neighbouring Canada ranked tenth[25]. The MPA's 2005 piracy assessment claims that the motion pictures industry alone lost close to $450m from online piracy in 2004/2005[26]. Since then, broadband speeds, penetration and the availability of illegal content online have all increased. All forms of online piracy exist in the US and Canada, although some stakeholders believe that unlike in Western Europe, browser-based services are not as popular as P2P for accessing TV programming. Live streaming services and software based on P2P are popular for unauthorized distribution and viewing of sports content, however – with the MLB claiming to have come across 5,000 incidents of its content being stolen and distributed online during the 2008 season[27]. The lack of popularity of non-live illegal streaming services can be attributed to many broadcasters making available their content for free online. Hulu, the online service from ABC/Fox/NBC is an example of one such service. However, other networks whose shows/content is not legally available on the Internet continue to find their programming consumed on UGC and file sharing sites. Univision – one of the largest Spanish language broadcast networks in the US - has found a large quantity of its copyrighted content on YouTube, and estimates that close to 600m

[25] Bay TSP (2009): 'Annual Report. Online Trends And Insight'

[26] Motion Pictures Association of America (2004): 'Worldwide Study Of Losses To The Film Industry & International Economies Due To Piracy; Pirate Profiles'

[27] Sports Business Journal (2009): http://www.sportsbusinessjournal.com/article/61816

viewers have seen these clips online[28]. Among the illegal live streaming sites that exist, stakeholders believe that several of these operate from outside US and Canadian borders – making prosecution extremely difficult.

101. The introduction of the DMCA (Digital Millennium Copyright Act) in the US has enabled rights owners to pursue online copyright infringers more strenuously, and the 'notice and takedown' policy – wherein rights owners can ask ISPs and hosting sites/servers take down copyrighted products found on their sites, has helped tackle unauthorized access and piracy to some extent (see pg. 25). However, no such laws exist in Canada – where according to one respondent, the system in place is that of 'notice and notice'. Rights owners inform ISPs/hosting sites, who in turn notify their customers to take down infringing material. The Canadian parliament is said to be debating new, stricter regulations with regards to online piracy but these debates are still said to be in its infancy.

Fig. 4: North America Overview

[28] Advertising Age (2009): 'Univision: YouTube's Most Pirated Broadcast TV Network'

102. The US DMCA also provides legal protection against CA circumvention – prohibiting the circumvention of encryption used in broadcast signals, except in certain instances. This clause was recently used in an ongoing case brought to court by satellite pay-TV operator DISH Network against Viewtech – a FTA satellite STB manufacturer that they accuse of selling STBs that could be easily manipulated to bypass the DISH Network's encryption, and providing owners of Viewtech STBs free, unauthorized, access to DISH Network services.

Latin America

Tab. 7 Latin America – Summary of Key Issues

TV and media services ownership concentrated between a few companies/groups;
Cable TV remains the dominant platform, although satellite is starting to make inroads;
Physical piracy is the largest concern for rights holders – although content found on physical mediums tend to be movies and music, rather than TV programming;
Huge inflow of blank media through porous borders feeding physical piracy;
High presence of analogue cable networks remain a key cause of individual level piracy. As a consequence, cable networks in Argentina have shifted premium content distribution to digital cable customers only;
Unauthorized re-distribution of signals is a big concern for the TV industry, with cable networks in many countries distributing channels without channel operator consent;
Bolivia, Ecuador and Guatemala are all understood to have high levels of such signal piracy – Brazilian TV signals are regularly found to be distributed via cable networks without authorization;
Within the region, Brazil, Argentina and Chile all have higher than average Internet penetration – consequently online piracy has started to become a growing concern in these markets;
Lack of regulations and enforcement cited as primary reasons for high levels of piracy (all forms). Brazil is in the process of introducing new laws to tackle online piracy, although this could realistically take 1-2 years. Currently relying on existing law and legal precedents.

103. Argentina, Brazil, Chile and Mexico are some of the most developed countries in Latin America with respect to availability and penetration of TV (pay and free) services. Argentina, in this respect, leads the continent with 65 per cent pay TV penetration (of TV households), followed by Chile (32 per cent), Mexico (32 per cent) and Brazil (13 per cent). However, similar to regional leaders like China and Russia, Brazil's 13 per cent pay-TV penetration of TV households translates to 6.7m subscribers – equal to Argentina, and indicating that there is much scope for expansion for pay-TV services in the market. In Bolivia on the other hand, only 54 per cent of the population has access to TV services.

104. Cable TV remains the dominant platform in Latin America, with Argentinean, Brazilian and Chilean cable operators having pay-TV market shares of 61, 67 and 92 per cent, respectively. Pay-TV markets in each of these countries are also highly concentrated, with three or four players in each market taking a lion's share of pay-TV homes. In Chile, for example, cable operator VTR alone accounts for 98 per cent of cable TV homes – or 56 per cent of the total pay-TV market. In Argentina, four cable MSOs

account for 63 per cent of the cable TV market. Of these, two MSOs are owned by media conglomerate Group Clarin. Brazil's cable TV market is dominated by Net Servicos – in which Mexican telco Telmex has a stake via its subsidiary Embratel. Telmex also offers satellite pay-TV services in neighbouring Chile through its Zap TV service. American satellite pay-TV operator DirecTV offers services in most Latin American countries – with a market leading position in Argentina, Brazil and Chile (where it is the sole satellite pay-TV service). IPTV, however, is yet to take off in Latin America, with regulations in several countries preventing linear TV services being offered over telecoms infrastructure. As a result of which, several of the larger telcos have moved to offering pay-TV services via satellite (e.g., Telmex, Telefonica, etc.)

105. Online and broadband penetration levels have been traditionally low in Latin American countries due to the developing (or in some cases, under developed) nature of their economies and fixed line networks. Average online penetration for the region is approximately 20 per cent, with Argentina and Chile leading the way, with 26 per cent of households connected online. Others like Bolivia, Ecuador and Peru fall well below the regional averages. 2007 census data in Peru revealed that approximately 70 per cent of households did not have access to a telephone connection – significantly narrowing the potential market for online and broadband connections[29]. While in Bolivia, Internet services were introduced only in 1995 and online penetration of the population today stands at just 4 per cent – with access mainly restricted to the urban areas of the country. However, among the internet subscribers, 51 per cent use ADSL services[30]. Despite its low levels of penetration, Brazil – by virtue of being one of the largest markets in the region – has the largest number of both online and broadband connected households. Brazil has approximately 8.8m broadband households – more than Canada.

106. Physical piracy remains one of the most common forms of unauthorized access and piracy seen in Latin America. In recent years, the region has seen a large growth in illegal optical disk manufacturing centers and import of vast quantities of optical disks has largely gone unchecked. In Ecuador, it is estimated that 50 per cent of the 80-100m blank discs that were brought into the country from 2002-2006[31] were used for making pirated copies of movies and music, and local bodies estimate that 99 per cent of all physical copies of movies and music sold in the country are pirated – amounting to $52m losses in the form of unpaid government taxes alone. Details of whether or not these estimates also include pirated copies of TV programming – obtained either from unauthorized copying of broadcast signals or from packaged mediums (CD, DVD) – are unavailable. Argentina and Brazil have only in recent years started handing out custodial sentences to street vendors of pirated DVDs (most sentences are suspended), and local authorities accept that tracking pirate DVD manufacturers and their factories is often difficult. The tri-border region between Argentina, Brazil and Paraguay is known to be the main entry point for pirated goods heading into Brazil – one of the largest commercial markets in South America. However, impact of physical piracy has so far been on the movie and music industries.

107. Broadcast signal theft in South America is committed through either hardware-based unauthorized access (illegal access to cable and satellite via CA circumvention and/or analogue cable theft) or unauthorized distribution of content by local cable operators. In Argentina, it was estimated that there were approximately 1m illegal cable subscribers in 2003 – mainly as a result of the economic crisis in 2000-2001, wherein it

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[29] APC (2009): 'Peru: The Battle For Control Of The Internet'

[30] APC (2009): 'Bolivia: Universal Broadband Access: Advances and challenges'

[31] ODAI (2009): http://www.odai.org/index.php/antipirateria/cifras-y-reportes/54-id-comprar-ma-o-pellas-originales

was reported that a large number of legal subscribers churned to illegal cable services due to the increase in costs of legal pay-TV services.

108. Following this, two of the country's biggest cable operators have since stopped distributing their premium sports and movie channels in analogue, which is more easily hacked, and now offer the services only to their digital cable subscribers. As a result, a portion of the subscriber base of these pay-TV operators will now be unable to access premium content, irrespective of whether or not they are willing to pay for the content. Apart from losses in the form of lower subscription revenue for the pay-TV operators, channel operators providing these premium services may also be forced to either bear the increase in per subscriber cost of content (due to a lower subscriber base to which they can sell), or pass on these additional costs to their remaining paying/legal subscriber base. Such a situation, if unchecked and takes place in a market which is price sensitive/elastic, has the potential to lead to a vicious cycle where higher access charges force increasing number of subscribers to turn to pirated/unauthorized services, causing a further hike in content access fees by operators to make up for lost revenues.

108. ABTA – the Brazilian pay-TV association – estimates that 15 per cent of Brazilian pay-TV users are using pirated/unauthorized services. As a result, pay-TV operator Telefonica is currently in the process of changing its CAS and smart cards after having its services hacked by pay-TV pirates. This process entails considerable expenditure. Unauthorized distribution of content via illegal cable networks is also said to take place in Brazil's 'Favela' (slums). Cable operators operating in these areas are known to access broadcast signals from pay-TV operators, and then illegally redistribute it through their networks to households within the Favela. Such unauthorized re-distribution of broadcast signals results in not only loss of (potential and actual) revenues for the rights owners, but the unauthorized re-distribution of cable signals can also cause degradation of signal quality for subscribers on the cable network due to damage to the physical cable infrastructure. This results in further financial hardship to platform operators from repair costs and potential revenue loss from churning customers dissatisfied with signal quality.

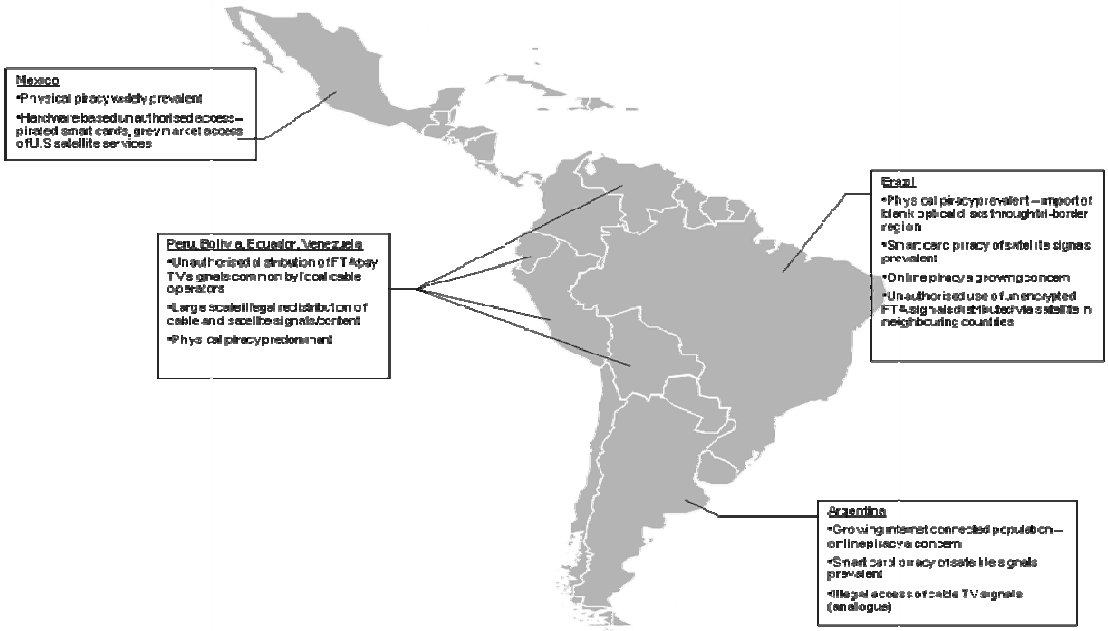
109. Unauthorized rebroadcasting of content was recorded as being a significant problem for rights owners in countries such as Bolivia, Colombia, Guatemala, Panama, and Venezuela, etc, in the 90's. Some estimates pointed out that fewer than 5 per cent of Guatemala's cable operators were paying for content during that period, while data for countries like Colombia and Venezuela were unavailable. Almost 20 years later, this still remains a problem in some of these countries. Bolivia's TV stations and cable networks are often known to broadcast content (particularly TV series and movies) for which they don't have the rights. In a recent incident, a pre-release version of a Hollywood movie which was leaked online, found its way to a national television station which then aired it. Similarly, according to one respondent, Brazilian FTA channels which are distributed via satellite to viewers and cable operators within Brazil are regularly accessed by cable operators in Bolivia and Peru, who then illegally redistribute it to their subscribers. Brazilian broadcaster TV Globo, which has found its signals being redistributed in other Latin American countries, has been in recent times taking action against cable operators in these countries with the aid of local authorities, but they admit that this is an uphill task due to the lengthy nature of the litigation involved, and the ambiguity surrounding broadcast and copyright laws in some countries. Signals from US operators DirecTV and Dish TV were also thought to be widely pirated in Mexico, and local bodies placed the number of illegal cable subscribers at 30 per cent of the total market in 2006[32]. It was also estimated that approximately 12 per cent of Brazil's cable TV subscribers were using pirated connections in 2005, while a total of 300,000 pirated pay TV connections were in

[32] CANITEC (2009): www.canitec.org

operation[33]. Unconfirmed local press reports state that only 10 per cent of Ecuador's cable TV subscribers were legally obtaining services. If true, this could result in significant damage to not only the remaining legal pay-TV operators, but also to the channel operators and the content and programme production industry in the country.

110. Internet piracy is also of major concern in the region, with Argentina, Brazil and Chile taking center stage due to their relatively higher broadband penetration levels. With over 16, 27 and 26 per cent broadband penetration, respectively, downloading and sharing of broadcast content is already a major concern for rights owners. Currently, online forums offering links to sites illegally hosting video content are said to be the most common. In Argentina, a number of websites illegally distributing premium/pay-TV content over the internet have been closed down in recent months, while Brazilian TV channel TV Globo has reported that a large portion of its live content such as sports is being retransmitted online, potentially affecting the revenues it earns from pay per view sales, and sales of subscriptions to its services in international markets such as Europe and Japan. TV Globo is also reported to have found unauthorized online commercial retransmissions of its content/signals in Europe and Japan, as well as sale of pirated DVDs containing content/programming for which it has exclusive rights. Japan currently has a relatively large population of migrant workers from Latin American countries as a result of its guest worker programme with these countries.

Fig. 5: Latin America Overview



111. With Internet penetration set to increase by 15-20 per cent in the region in coming years, illegal online distribution of TV programming and broadcast signals will become an increasingly large source of piracy, and authorities in these countries are yet to tackle the problem on a war footing. The lack of specific regulation to deal with online and digital

[33] Department of Canadian Heritage (2005) : Brazilian Market For Television And Cinema

piracy can be identified as one of the reasons impeding rights owners and authorities from taking more stringent actions against copyright infringers. Brazil, for instance, uses existing copyright regulations formulated under the Rome convention to tackle with online/digital piracy.

112. However, these laws are currently in the process of being revised by the government to include sections on copyright piracy and unauthorized access of content online, who will then table the bill to the Congress for making it legislation. According to one respondent, this process could take anywhere between one to two years. Chile's copyright laws, dealing specifically with online piracy, require rights holders to approach a civilian court, who will then hand out orders instructing local ISPs to block/remove the content. Cooperation from ISPs, however, is limited to content hosted by the ISPs itself[34]. Chile's parliament is now considering a law similar to that of France's HADOPI – wherein repeated copyright infringers could potentially have their Internet access terminated.

113. Overall losses from all forms of unauthorized access and piracy of audio-visual content (movies, music, TV) in Latin America in 2005 were estimated to be around $580m – with Mexico accounting for a large proportion of these losses[35]. While the exact breakdown between media segments and broadcast signals is unavailable, and the lack of available data from other countries in the continent could further skew the proportion of losses attributed to each country, it clearly illustrates and brings to the forefront problems faced by the various stakeholders in the Latin American TV value chain.

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[34] IIPA (2009): Special 301 Report on copyright protection and enforcement; Chile

[35] ODAI (2009): http://www.odai.org/index.php/antipirateria/cifras-y-reportes/54-id-comprar-ma-o-pellas-originales

Asia

Tab. 8 Asia – Summary of Key Issues

Cable TV remains key medium for pay TV distribution in markets like China, India, Philippines – although other technologies like IPTV and satellite are also present;
Physical piracy is prevalent in most markets – especially China and Malaysia;
Extra-territorial access occurs in Hong Kong, Southern China and Northern Vietnam. China and Vietnam prohibit private use of satellite receivers – 10m satellite homes estimated to be in China, 100,000 in Vietnam;
Hong Kong has a large immigrant/expatriate population. Consequently extra-territorial FTA satellite signal reception for private viewing is legal;
The presence of analogue cable systems has resulted in high levels of signal piracy – by both individuals and pay-TV operators in many markets;
Unauthorized redistribution of signals is commonly found in less developed countries such as Indonesia, Pakistan and the Philippines;
In some cases, entire networks of pay-TV service are built on unauthorized signals; in others, selected content is redistributed via existing, largely legal pay-TV networks;
Respondents cite lack of regulation, regulation enforcement and corruption as key causes for prevalence of high levels of signal piracy;
'Under-declaration' of subscribers by local cable operators is a major concern in India – CASBAA estimates that losses to industry are close to $1.1bn per annum;
Overall losses to pay-TV industry from signal piracy were estimated by CASBAA at $1.7bn in 2008;
Online piracy, a key concern in markets such as China, Japan and South Korea, which feature high number of Internet connected homes or broadband penetration;
China is cited as the key region for concern by industry respondents from all over the world. Lax regulation, non-enforcement of existing regulations and strict content censorship laws all given as causes for increasing piracy problem.

114. TV and pay-TV penetration levels vary considerably among the countries in the Asia Pacific region, depending on their state of technological development and economic progress. Australia, Hong Kong, Japan, New Zealand, Singapore and South Korea can all be included in the broad category of developed nations with respect to TV penetration and the level of technological developments and platform availability. Others such as China, India, Indonesia, Philippines, Thailand, Viet Nam, etc., can be grouped into the category of developing nations. Combined, the Asia Pacific region alone accounts for over 50 per cent of the world's legal pay-TV subscribers – indicating its importance to various worldwide stakeholders in the TV value chain (see Appendix Fig. 13).

115. TV penetration of households is between 95 and 99 per cent in the developed nations of the Asia Pacific region, with Japan (99) and South Korea (99) leading the way in terms of both TV penetration and distribution technology used. In the less developed countries, such as the Philippines and Viet Nam, TV penetration of households is much lower, typically between 50 and 75 per cent of households[36]. Pay-TV service penetrations range from 70 per cent (India) to 87 per cent (South Korea). Penetration levels in Japan

[36] MPA (2009): Asia Pacific Pay-TV And Broadband Markets 2009

and Singapore are lower at 60 per cent, and a mere 30 per cent of TV homes in Australia, and 43 per cent in China, subscribe to some form of pay-TV. Despite its low pay-TV penetration levels, absolute number of subscribers in China have now reached 165m (of which 99 per cent take cable services) – far greater than the US or Europe. One of the reasons for the lower adoption of paid-for services in Australia can be attributed to the strong line up of public service and commercial free to air broadcasters, who have also taken the lead in launching HD channels via the terrestrial networks.

116. Broadband penetration of households, as well as broadband access technology, varies significantly within the countries in the Asia Pacific region. Asia Pacific leaders in broadband penetrations are Singapore (76 per cent), South Korea (76 per cent) and Hong Kong (74 per cent), while China (20 per cent), India (2 per cent), Philippines and Viet Nam come in the bottom half of the grid. Despite the lower broadband penetration, China (77m) and India (4.5m) have far greater broadband connections than other Asian Pacific countries like Australia, Hong Kong and Taiwan, while China has already surpassed the US (73m) in broadband subscribers, and has more connections than all central and eastern European countries combined. In step with other regions of the world, DSL remains the preferred access technology for a large majority of the Asian Pacific countries. However, exceptions to this case are China, Japan and South Korea where fibre to the premises (FTTP) deployments are common. Broadband connections via FTTP in both Japan and South Korea account for over 40 per cent of all broadband connections. Despite having a relatively low share of 23 per cent of all broadband connections connected via FTTP, China has approximately 21m broadband households connected via the technology – more than all of Europe and North America combined.

117. In China, Singapore and Vietnam, private ownership of satellite TV services is prohibited under current regulations. However, a large number of households do illegally access satellite services in Southern China and Northern Vietnam due to the availability of overspill satellite signals. Despite the launch of IPTV and its rapid uptake of subscribers, the leading platform in China remains cable TV – accounting for 99 per cent of all pay-TV subscribers. In Hong Kong, although IPTV has the lead in terms of pay-TV market share (52 per cent), cable is not far behind – accounting for 47 per cent share of the market. Pay satellite services are currently not available in Hong Kong, although a number of FTA channels can be received by installing receivers and set top boxes. Cable TV remains the predominant form of receiving pay-TV services in the Philippines, while satellite services are more popular in Thailand. IPTV continues to remain a hard sell in both markets.

118. Within the Asia-Pacific region, types of unauthorized access and piracy witnessed vary according to the economic and technological development of the country concerned. In developed countries such as Hong Kong, South Korea and Taiwan, higher-than-average broadband penetration levels and speeds have been cited as key cause for these nations' larger share of online piracy. A large part of online piracy in the region is on a commercial basis, and monetized via the sale of subscriptions to view the unauthorized content online, through banner advertising, and by charging for DRM-free file downloads. China, despite its low broadband penetration levels, has over 89m internet connections – far greater than any of the EU countries, and just less than US and Canada combined (88m broadband households). As a result, online piracy has now reached significant levels in China. A significant majority of respondents connected with this survey were unequivocal in stating that China's contribution to worldwide online piracy by way of hosting illegal browser-based sites that distribute pirated content are a major concern for broadcasters and copyright holders, and that regulations and regulation enforcement surrounding unauthorized access and piracy were deficient. One respondent opined that premium content owners have in recent years desisted from providing their content to FTA channels or broadcasters – in a bid to stem the growing illegal re-transmission of the content online via P2P software like SopCast and other websites that offer illegal pay-TV services at reduced rates – many of which target audiences from Asia, Europe and the US. Respondents also said that litigation against online pirates in China was near non-existent due to the lack of regulations and complexities involved in pursuing cases.

119. Similar levels of online piracy were also reported as being seen in developed countries like South Korea – which have very high levels of broadband penetration and have the fastest and most developed broadband networks in the region. However, South Korea has in recent months increased its war against online piracy, implementing a 'three strikes law' to deal with repeat infringers – where copyright infringers are warned that their accounts are being monitored for illegal downloads, and in the event that they do not cease infringing activities, internet services are disconnected. Simultaneously, there has been a move towards cooperation between content owners and commercial services that previously offered illegal content. Webhards, a South Korean service offering DRM-free movie and TV show downloads, has reached a distribution agreement with all major TV broadcasters and will compensate them for earlier infringing content distribution; however, the same service still offers content from major Western rights holders without the necessary agreements in place. In 2008, CEO's of five companies which operate Webhard websites (Nowcom, Medianetworks, Kutech, Ezone and iServe) were arrested on copyright infringement charges. Officials claimed that these five websites had a collective membership of over 23m users, who accessed illicit/copyrighted content uploaded and stored onto the Webhard servers. Japan has also recently amended its copyright law, making unauthorized downloads of music and movies illegal. As discussed in earlier sections of this report, the source of the copyrighted content being shared online is difficult to ascertain. However, in the cases of in-browser websites that offer TV programming and P2P services distributing live broadcast content, the source is often easy enough to ascertain – tracing back to broadcast signals that are often redistributed via the internet using computers and TV tuners cards that capture these signals.

120. Other forms of unauthorized access and piracy which are prevalent in developed regions are hardware based access (Hong Kong, Taiwan, Thailand and Southern China) and grey market signals. Hong Kong is especially prone to grey market access due its large expatriate population and lack of regulations governing it. Laws in Hong Kong currently permit residents to use satellite receivers to view FTA channels available in the country due to signal overspill. Moreover, its close proximity to China has resulted in significant inflows of hardware capable of being modified for CA circumvention, further enabling users to access pay TV signals without authorization or payment. This has also been true for Philippines, Thailand and Vietnam – where the availability of pirated/cloned smart cards has caused losses to not only local satellite pay-TV operators, but content owners, channels operators and the rest of the TV ecosystem.

121. Despite Chinese laws prohibiting reception of satellite TV, southern China is said to have close to 10m homes receiving signals from neighboring Hong Kong and Taiwan – either via the grey market route or through circumvention of CA systems. Vietnam has similar laws to China – preventing ownership of satellite reception equipment. But industry bodies estimate that close to 100,000 satellite systems are in place in Northern Viet Nam – again having obtained hardware from countries such as China[37]. In both cases, it would be fair to assume that few of the stakeholders in the TV value chain (excepting for hardware manufacturers) obtain any monetary compensation from these satellite homes in Viet Nam and China, who consume their content. In certain cases, channels are able to derive additional advertising revenue from wider distribution, however, measuring this additional distribution may be difficult due to lack of adequate audience measurement systems.

122. Illegal redistribution of signals is understood be heavily prevalent in markets such as India, Indonesia, Pakistan, Philippines, Thailand and Viet Nam. In several cases, entire networks have been built on distribution of pirated signals, and stakeholders face an uphill

[37] CASBAA (2009)

task in prosecuting pirate networks. Prevalence of corruption and deficient regulations have been cited by respondents as the main causes for illegal redistribution in the Philippines and Thailand. In both countries, the lack of a centralized judicial system, together with the burden of proof being placed on rights holders has resulted in the slow progress of copyright infringement cases. In the Philippines, legal measures taken by various parties are starting to pay off. Earlier in 2009, Turtle Cable, a local cable operator who had previously been distributing a large number of channels without permission, signed a legally binding out-of-court agreement to stop its infringing activities. This followed the company facing the prospect of having its operating license withdrawn by authorities. Although the case took over a year to reach this settlement, stakeholders believe that this could set a precedent in the country. Losses to the Philippines pay-TV industry in 2008 were estimated by CASBAA to be $95m[38].

123. In India, the prime source of unauthorized signal distribution has been analogue cable networks run by local operators, who tend to declare only 10-20 per cent of their actual subscriber base. A direct impact of an under-declared subscriber base has been on share of subscription revenues collected by broadcasters, MSOs (Multi System Operators) and local authorities (by way of reduced collection of entertainment and other revenue-linked taxes). Industry consensus indicates that between 60 to 75 per cent of cable subscription revenues are currently appropriated by the last mile cable operators, while the remaining is distributed among the other players in the value chain. The inability to effectively track and monitor the analogue cable subscriber base has been indicated as being the prime cause for subscriber under-declaration, and has become a focal point in both the government's and industry's efforts to digitize the nation's cable networks.

124. CASBAA estimated that losses to the industry from under-declaration in India were $1.1bn in 2008, while total losses from unauthorized access and piracy for Asia were $1.7bn in the same period. However, the Indian regulator has in the past few years introduced several new regulations in a bid to stem the problem of under declaration, and is in the process of introducing greater transparency in the cable industry. The Indian government has also in recent months indicated that it is examining the possibility of having an analogue cable switch off date or 'sunset clause', with analogue networks gradually phased out. However, this is expected to take several years due to the widespread availability of the platform across the country and opposition from last mile operators, among others.

125. Another form of unauthorized redistribution, again carried out primarily by smaller local cable operators, has been the distribution of selected content and programming such as cricket matches and movie channels via analogue networks. In many instances, content owners have found that local operators have been redistributing their content by installing DTH set top boxes, thus potentially depriving rights-holders of their share of subscription revenues. Indian DTH operators currently distribute in excess of 200 channels via their platforms, and provide a wider spectrum of channels (including premium sports and movie channels) than those distributed by analogue cable operators. In most instances, DTH services are registered and fully paid for by the cable operator, but obtained on the pretext that the device is being used in a consumer residence. In an effort to tackle this problem, content distributed via DTH is now finger printed – a process wherein a unique alpha numeric code appears on the TV screen and which enables both the broadcaster and the operator to identify the details of the set top box being used. Indian broadcasters have now been organizing field teams to conduct random checks on cable connections across the country, in a bid to identify the set tops being used for illegal redistribution of content. Once an infringement is located, details of the set top box are passed on to the DTH operators, who then disable/deactivate the boxes. However,

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[38] CASBAA (2008): 'Digital Deployment, Asia-Pacific Pay-TV industry study'

stakeholders have admitted that this process is resource intensive – requiring large teams and significant financial resources to monitor the whole country. Currently, such teams are said to be deployed only when large sporting events such as the Indian Premier League cricket tournament are taking place.

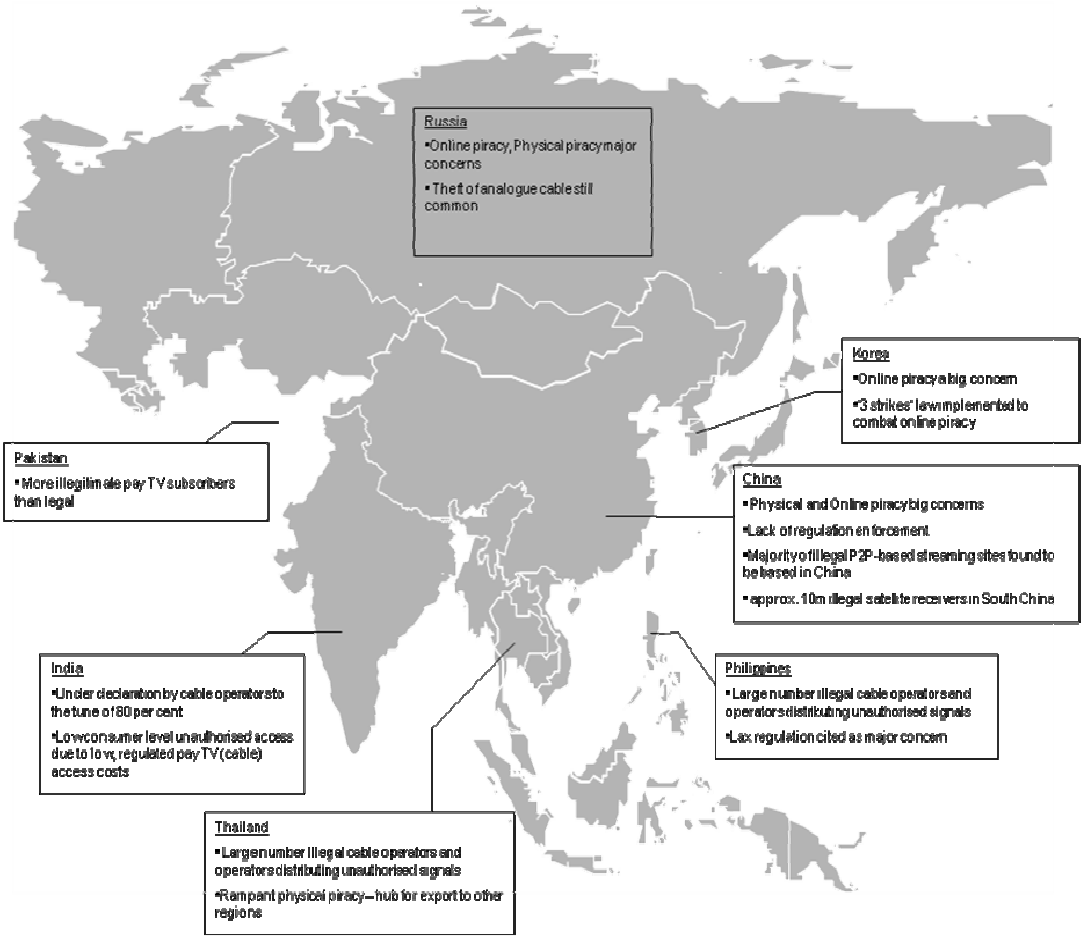
126. A form of copyright violation and unauthorized content redistribution reported by Indian stakeholders has been the usage of pay-TV channel decoders by cable networks in countries like Pakistan and the Middle East.

127. According to one respondent, several instances of channel decoders being smuggled across the borders have been detected in the past, but lack of cooperation from authorities in countries such as Pakistan have resulted in little progress being made. In other instances, broadcasters have stated that they have been in talks with authorities in Sri Lanka and Bangladesh. These respondents have also indicated the need for greater cross border cooperation between these countries.

128. With respect to legal provisions, all stakeholders have felt that despite the sufficient presence of deterrent laws detailing punitive action and even criminal convictions against copyright violators, the slow pace of legal proceedings has resulted in very few actual convictions. However, some respondents believe that the progress made by the Delhi High Court in expediting orders relating to seizure of equipment used for copyright violations, and the so called 'John Doe orders' – pre-obtained court orders for conducting raids against unknown person(s) in anticipation of future copyright violations – have been exemplary. 'John Doe' orders have been especially useful in instances where rights holders have come across the illegal distribution of live broadcasts of cricket matches, and have used these orders to instantaneously shut down these broadcasts and seize equipment.

129. In Pakistan, the lack of data on illegal retransmissions of signals till the recent past had made an analysis of the problem in the country difficult. CASBAA recorded a 36 per cent increase in losses from unauthorized access and piracy between 2006 and 2007 (from $1.1bn-$1.5bn) – primarily on account of the improved detection of unauthorized signal use and the greater availability of data from countries such as Pakistan. However, stakeholders are now starting to receive a better picture of the ground level situation in the country, and initial estimates place the number of illegal subscribers receiving unauthorized signals far greater than the number officially declared. Organizations tackling piracy in the region believe the losses to rights holders and the value chain in the country will increase significantly as additional data comes to light. This exemplifies the difficulties that stakeholders and other related parties face - not just in Asia but all over the world - in quantifying the losses from, and impact of, unauthorized broadcast signal access.

Fig. 6: Asia Overview



130. Indonesia has been noted as having made improvements in its anti-piracy enforcement in recent months, though respondents stated that it is too early to measure what the effects of these actions have been. In India, illegal redistribution has been carried out primarily by smaller local cable operators, who distribute selected content and programming (e.g., cricket matches, movie channels) via their analogue networks. India's prime source of unauthorized signal distribution has also been these analogue cable networks run by local operators, who tend to declare only 10-20 per cent of their actual subscriber base. CASBAA estimated that losses to the industry from under declaration in India were $1.1bn in 2008, while total losses from unauthorized access and piracy for Asia were $1.7bn in the same period[39]. However, the Indian regulator has in the past few years introduced several new regulations in a bid to stem the problem of under declaration, and is in the process of introducing greater transparency in the cable industry.

[39] CASBAA (2008) : 'Digital Deployment, Asia-Pacific Pay-TV industry study'

EUROPE (WESTERN AND CEE)

Tab. 9 Europe – Summary of Key Issues

Digitization of TV platforms in many countries has seen subscribers on analogue systems (terrestrial, cable) decline in recent years;
Unauthorized analogue cable piracy remains minimal in most Western European markets – provision of cheap basic cable via housing societies and ongoing digitization have resulted in this. Still remains a cause for concern in CEE countries;
Opening up of borders in the EU combined with satellite signal overspill has resulted in an increase in unauthorized extra territorial access of broadcast signals – especially in countries with high immigrant populations;
There is ongoing litigation in the European Court of Justice regarding extra territorial access. Court verdict could determine how TV rights are sold in the future;
Hardware-based piracy, via modified set-top boxes and pirated smart cards has historically been prevalent. Easy access to blank smart cards and card programmers gave rise to a large number of pirate card programmers. There were an estimated 10,000 programmers selling pirated cards in Italy in 2001;
A third of all European pay-TV households were estimated to have been using unauthorized pay-TV connections in 2001; over 1m cards in circulation from 2000-2003 in the Nordics;
Ban on sale of blank smart cards has been implemented in some countries, while upgrades to encryption systems and introduction of the CA directive in the EU has seen unauthorized signal access decline in recent years;
Cost of changing encryption system are significant and result in substantial impact on financial performance of pay-TV operators;
Card sharing is a new mode of unauthorized signal access. Spurred on by introduction of STBs with Ethernet ports and high level of broadband penetration and is common in the heavily cabled markets of Benelux and Nordics;
Online piracy a key concern in all Western European, and many CEE countries, with increasing broadband penetration a key cause;
P2P/torrent and virtual storage sites are commonly used for file sharing of copyrighted content. Fifty per cent of all files shared using P2P are estimated to be TV programming/content;
Proliferation of browser based sites offering video content has taken online piracy mass market, with it no longer restricted to tech savvy users;
P2P services distributing live broadcast content like sports are growing increasingly popular, with the tracking of sites and enforcement of regulation an uphill task.

131. Similarly to Asia, European nations can be split into different categories depending on the level of maturity of their TV markets, development of technology and economic progress. Although the types of unauthorized access and piracy witnessed in each of these regions are somewhat different, several overlaps exist. For instance, even within the developed markets, differences exist as a result of varying regulations and regulation enforcement governing unauthorized access and piracy, consumer mindset and technology used in distributing and protecting content.

132. Among the western European markets, the Benelux countries (Belgium, Luxembourg, Netherlands), Nordics (Denmark, Finland, Iceland, Sweden), the UK and Switzerland can be clubbed into one broad category – each market displaying similarities in terms of maturity of free and pay-TV sectors, availability of technology and distribution mechanisms, level of regulation, and broadband penetration. Pay-TV penetration (of TV households) rates in these countries are substantially higher than western European averages of 52 per cent – primarily a result of the widespread deployment of cable TV, or satellite TV, in the case of the UK. In many of these countries, access to basic analogue

cable TV is often included as part of housing agreement. The Nordic countries, for instance, have an average pay-TV penetration of 82 per cent, with Sweden as high as 87 per cent. Switzerland and Netherlands lead the group with penetration well over 90 per cent. Excepting for a few, all western European nations also have access to the major distribution platforms – satellite, cable, terrestrial and IPTV – ensuring that consumers in these markets have sufficient choice between platforms. Pay-TV penetration in Eastern Europe is significantly lower on average than the West at 40 per cent – with Armenia the lowest at 4 per cent and Romania the highest at 78 per cent.

133. Unlike music piracy, for which download speeds are relatively unimportant, broadband connectivity and download speeds are crucial for the prevalence of online broadcast signal/content piracy. Due to the relatively large file sizes of TV shows (a 30-minute long standard definition TV show is around 350 MB – roughly 10 times larger than a short pop song encoded as a 192 kbit/s MP3), broadband connectivity is often seen as being the cornerstone of online piracy. Western European averages for broadband connectivity are currently at 52 per cent, as opposed to central and eastern European averages of 20 per cent. Broadband speeds and access prices are relatively similar among Western Europe countries – with either 2 or 8 Mbit/s download speeds standard in most markets, and top speeds of 50-100 Mbit/s. Access prices for base broadband services (2-8 Mbit/s) are in the €7.50-€13 range in these countries. In Eastern Europe, broadband services are considerably more expensive, with rates ranging from €9-€38 for connection speeds of 0.5 Mbit/s-10 Mbit/s – indicating that there is much disparity in access to broadband connections. As a result, broadband penetration rates between the two halves of Europe are also significant – Western Europe has an average of 52 per cent as opposed to Eastern Europe's 20 per cent. Within the eastern European countries, the Baltic nations, Poland and Czech Republic all have relatively higher levels of broadband penetration than the regional average.

134. Although almost all of the different types of unauthorized signal access and piracy are witnessed to varying degrees in the different European markets, theft of analogue cable signals have become relatively low, or in some cases non-existent, in several Western European markets due to complete digitization of networks in certain countries (Finland, UK), relatively cheap access prices (Denmark, Netherlands), or provision of services as part of housing agreement/apartment rent (Nordics, Switzerland).

135. Hardware based unauthorized access of broadcast signals has been historically one of the most common forms of illicit signal access in the developed European markets – mainly revolving around the use of pirated cards and modified STBs. In 2001, it was estimated that about one in three pay-TV households in Europe was using a pirated service[40]. The same study estimated that in Italy in 2001-2002, as many as 1.5-2m households were using a pirated smartcard to gain full access to satellite pay-TV services from Telepiu and Stream. AEPOC – the European anti-piracy body - believes that due to the relatively cheap and easy manner in which smart cards could be cloned using an off-the-shelf card programmer and software, an estimated 10,000 smart card programmers/pirates were present in Italy during that period, selling cards on a commercial basis for €80-€100 each. Following a switching of CAS and swapping of smart cards in 2002, and again in 2004, the problem was said to have been largely eradicated. However, its damage to the industry prior to the card swap was severe – with the local video association noting a drastic fall in both rental and sales of home video/entertainment – a direct result of unauthorized pay-TV users' access to free PPV movies and content. This form of piracy has consequences for not only the pay-TV operator on whose platform the PPV channels are distributed, but also the content rights holder/broadcaster whose programming is distributed. In cases where the operator provides minimum

[40] Loebbecke and Fischer (2005): Pay TV Piracy And Its Effects On Pay TV Provision

revenue/payment guarantees to the rights holder, such drops in PPV sales as a result of unauthorized access can cause financial damage to the pay-TV operator. Germany's Premiere (now Sky Deutschland) has also faced rampant unauthorized access to its signals in the past – as a result of which its financial performance in 2008 was severely affected by increasing costs, having had to completely overhaul its encryption system. In the Nordics, following a ban on sales of blank smart cards, users of this form of illicit access have dropped. However, it is claimed that well over 1m pirate smart cards were in use from 2000-2003[41].

136. The enactment of the EU directive surrounding CA circumvention, also known as CAD, in several European nations has resulted in the decline of hardware based unauthorized access through cloned cards and hacked STBs to some extent. In several European countries (Denmark, Norway, Sweden, UK), it is now illegal to sell, advertise and promote CA circumvention devices, while in others it is also illegal to own such devices, even if for personal use (Denmark, Finland, Norway). Punishments meted out for violation of these laws include fines and a custodial/prison sentence of between six months and two years. However, hardware-based unauthorized access has now shifted from smartcard cloning and STB hacking to card sharing – a newer form of illegal access, more difficult to detect, wherein control words from a legitimate smart card are shared over the Internet to multiple STBs with Ethernet connectivity, making the box's CAS believe that it is being supplied with a code from a legitimate smartcard. Several online card sharing forums and servers have popped up in recent years, through which these keywords are shared – either free or for a fee. Card sharing forums are especially popular in Western Europe, where a combination of technological advances (improved CAS, smart cards) and stringent regulations has made other forms of hardware based unauthorized access difficult. AEPOC, the regional anti-piracy alliance, believes that pay-TV operators in the Benelux and the Nordics regions have been particularly badly affected by card sharing due to the high penetration of broadband access – on which card sharing services/servers are dependent. Signal overspill by satellite pay-TV operators into other regions of the world, and the ability to access services from multiple operators using a single STB/receiver (as opposed to accessing services from only one operator using a cloned smart card/hacked STB) has made this form of new age unauthorized access even more popular due to the relative ease and safety as the codes are always distributed online – decreasing chances of detection and civil/criminal punishments.

137. The reception of broadcast signals, especially satellite signals, outside the authorized coverage area has in recent years come to the fore in Europe due to the open border policy followed by the EU member nations – enabling citizens of these countries to freely live and work in other member countries. A direct result of the open border policy has been the free movement between nations of not only people, but also goods and services. Non-availability of specific language or niche programming has increasingly resulted in citizens of one country accessing TV services available in other. Satellite pay TV services are the most common form of service accessed in this way as signals from European satellite pay-TV operators continue to be available across borders due to their pan European satellite footprint. Satellite service subscriptions are taken in one country by providing a local address and billing/bank details, following which the boxes are shipped to other countries. Examples of large scale grey market services being used can be found in Spain and the UK, where large number of migrant workers have come in from other parts of the EU to live and work. In the UK, services from Cyfra+ (Poland) and Nova (Greece) are commonly used by the migrant workers from these countries, while there is said to be widespread usage of Sky UK's services in Spain by British expatriates living in that country. Similarly, Tricolor – a low cost satellite pay-TV service available in Russia – is also said to be extremely popular in Ukraine where legal satellite pay-TV services are available only from the more expensive NTV. Although exact numbers are unavailable,

[41] STOP (2009)

local bodies estimate that the number of Russian-registered Tricolor subscribers in Ukraine could range from a few hundred thousand to as much as a million. In the Czech Republic, smaller cable operators have also been found to be illegally re-distributing unencrypted satellite channels – mainly from neighbouring Germany and Austria.

138. Although grey market services and access of broadcast signals by consumers may lead to losses to local pay TV operators and rights owners, stakeholders are also significantly concerned about, and proactive against, the usage of these services in commercial establishments such as pubs, bars, etc., due to the relatively higher value of subscription services taken by these commercial establishments. The European Court of Justice (ECJ) is currently hearing a case brought to it by rights owner, the English Premier League (EPL) and UK pay-TV operator BSkyB against certain pubs in the UK, which were using services from a Greek pay-TV operator for accessing the Premier League matches. BSkyB, which has near-exclusive rights for EPL coverage of these matches in the UK, provides access to commercial establishments at a significantly higher rate than that charged for residential connections, based on the size of the commercial establishment, number of connections taken, etc. The pubs currently facing litigation are accused of having contravened existing copyright legislation by accessing a Greek pay-TV operator's services in the UK – despite the availability of Sky's authorized services in the country. The decision by the ECJ will be of utmost importance, as a judgement against the EPL/BSkyB will set a precedent with regards to grey market access of services and has the potential to change the way programming rights are sold in the EU – changing several elements of the current business model employed by the TV value chain.

139. While Europe's increasing broadband penetration and digitization of its broadcast and distribution networks have reaped benefits for the TV value chain, it has not come without its own share of problems. With increasing broadband penetration, broadcast signal pirates are now shifting their focus online. Consequently, pirated TV shows and movies from all across the world are now available soon after release, enabling not only end users to download and view them for free, but also criminal gangs to make physical copies and sell them in countries where such forms of piracy are more dominant due to lack of broadband penetration. For instance, the ABC show 'Flash Forward' – which was first aired in the United States in September 2009 - was available for users in Europe and elsewhere to download within 45 minutes after the show completed its first airing in the US, and an Italian subtitled version was available within 12 hours – making the release window strategy adopted by rights holders seem ineffective in some ways. BayTSP's study on online copyright infringement listed Europe as being the continent where the largest number of illegal downloads were committed – with six of the top ten countries in its list being European[42].

140. The P2P protocol BitTorrent has become increasingly popular among the relatively more tech-savvy pirates - in Finland, local anti-piracy bodies estimate that the country is home to at least 100,000 active P2P file sharers[43], while a study by Gfk in Spain indicated that approximately 9m users were said to have illegally downloaded copyrighted material in Spain, of which around 2m downloaded TV programmes – while other sources indicated that approximately 58 per cent of Spain's internet users were using the internet to illegally download copyrighted material, and far higher than the European average of 30 per cent[44]. The nation is also said to host a large number of sites indexing torrents, and approximately 200 of these websites have been identified as helping in the unauthorized distribution of

[42] Bay TSP (2009): 'Annual Report. Online Trends And Insight'

[43] CIACP (2009): www.antipiracy.fi

[44] EGEDA (2008): EGEDA Newsletter 51.2008

copyrighted material. The situation has reached such extremes in Spain, that local bodies have termed Spain 'a paradise for Internet piracy[45].

141. Browser based services offering free access to TV content and premium sports like football and cricket have also become increasingly popular in Europe - in-browser playback enables a far greater proportion of the population to access pirated content. The English Premier League alone has dealt with close to 1,800 cases related to websites illegally distributing live football matches online in the last season[46] - indicating the sheer scale of the problem.

142. BRIEN, the anti-piracy body in Netherlands estimated that losses to the media industry from online piracy alone amounted to €180m in 2008 – amounting to 20 per cent of legal sales[47], while in Spain, an estimated 132m movie files were downloaded between June 2005 and June 2006 – a 780 per cent increase from the previous year[48]. Visits to the website EZTV – famous for providing links to torrent files of TV shows from all over the world – has increased by over 50 per cent since 2008[49]. Envisional - a company that specializes in tracking online piracy of copyrighted content - states that data gathered from various websites, torrent trackers and users reveals that online piracy of TV programming has been growing far more rapidly than movies or music, and other online sources say that studies conducted in 2007 revealed that TV shows accounted for almost 50 per cent of all illegal content downloaded via P2P[50]. Although some of the data obtained from these third party sites could not be independently verified, it clearly illustrates that the growing popularity of broadcast content on file sharing sites is an issue that all members of the TV value chain need to take seriously, and tackle on a war footing.

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[45] SGAE (2009): http://www.sgae.es/tipology/notice/item/es/31311.html

[46] The Guardian (2009): http://www.guardian.co.uk/uk/2009/sep/20/premier-league-fights-web-pirates

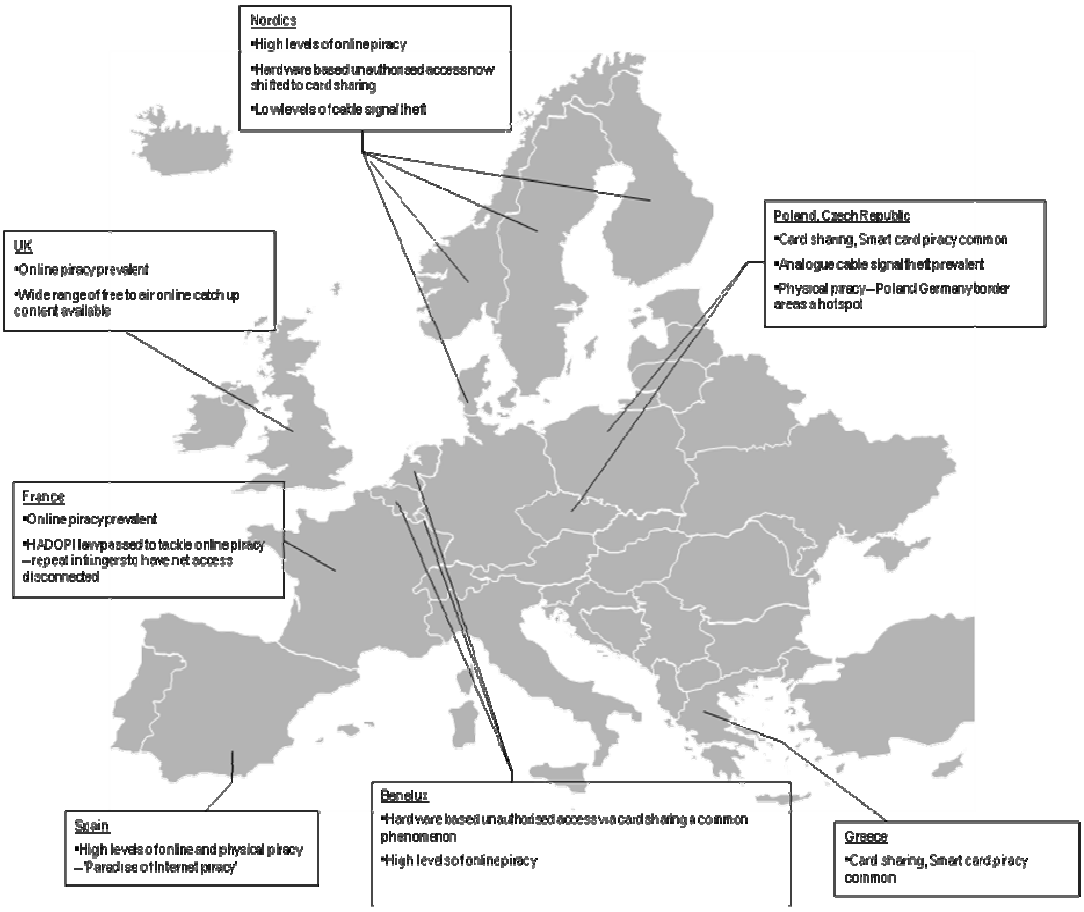
[47] BRIEN (2009): http://www.anti-piracy.nl/piraterij/omvang_schade.asp

[48] SGAE (2005): Strategies Employed In Spain To Combat Piracy

[49] Torrent Freak (2009): http://torrentfreak.com/popularity-of-pirated-tv-shows-still-rising-091004/

[50] Torrent Freak (2007): http://torrentfreak.com/bittorrent-in-focus-tv-series-are-hot/

Fig. 7: Europe Overview



143. One of the direct effects of online piracy, file sharing and the unauthorized viewing of content online is on broadcasters, who having acquired the content from rights owners, will be dependent on audience viewing, and subsequently, advertising revenues. With a fall in viewership because the content has already been illegally viewed through other means, advertising revenues will also tend to fall, affecting broadcaster's financial rewards and their incentive/ability to acquire content in the future. In some cases, a fall in viewership on FTA channels may lead to such content being unaffordable to these broadcasters, and be instead acquired by pay-TV operators – causing further financial burden on consumers.

144. Recently, online piracy has started to become a key concern in several CEE (Central and Eastern Europe) countries (Czech Republic, Estonia, Latvia, Poland) due to their relatively high rates of broadband penetration and less strict enforcement governing online piracy. A notable example of the growing impact of online piracy in the CEE countries is Bulgaria. Bulgaria has witnessed a huge growth in unauthorized online content usage in the past two years, with online access now understood to be even more significant than physical piracy. Although raids are being conducted by authorities to seize servers and LANs hosting copyright infringing material, the slow judicial process and lack of deterrent sentencing ensures that the problem continues to prevail. In the

Czech Republic, anti-piracy body CPU says that although P2P file sharing is common and has even grown, it is virtual storage/cyber locker services that are to be watched for, as they are becoming increasingly popular for the storage and dissemination of copyrighted products. Links to these files are being placed on forums and on social networking sites – enabling even users previously unaware of their existence to be able to easily access pirated content.

145. Despite the growing popularity of online piracy among the younger generation, hardware based unauthorized access and piracy continues to remain the key form of broadcast signal piracy in some of the less developed European markets such as Romania, Russia and Ukraine - where the predominant form of TV distribution remains analogue cable. Smart card piracy of satellite pay-TV signals is also common in many of the CEE countries, Russia and Ukraine. In some of these markets, authorized dealers for satellite pay-TV services were themselves seen to be re-directing customers to unauthorized providers, who in turn, offered potential customers cheaper services. In the Czech Republic, CPU - the local anti-piracy body – estimates that currently 25,000 pirated decoders are in use, while 10-15,000 pirated/cloned smart cards are in circulation[51]. Card sharing forums have also been on the rise, and in Poland, commercial card sharing servers offer their services for €5-7/month, whereas a legitimate connection would cost in the region of €30-€35.

146. Physical piracy is also a key source of pirated content in these markets – and Poland has often been cited as one of the key ports of entry and distribution for pirated goods, which are then distributed into rest of Europe via Germany and other nearby EU countries. The Warsaw Stadium and open air markets operating near the Poland-Germany border have been cited as key areas where physical piracy has thrived in the country. Lithuania holds a similar position, enabling the entry of pirated material into the EU from Russia[52]. Russia's lax regulations governing online piracy have made it a safe haven for online pirates, and especially hosting services for websites that supply copyright infringing content, which have had to shift base from countries like Netherlands and Sweden – previously seen as 'safe'. Despite a trend seen in Bulgaria to move towards online piracy, the Black Sea resorts in the country are still understood to be havens for pirated material.

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[51] CPU (2009): http://www.cpufilm.cz/vysilani_a_kradeze_signalu.html

[52] IIPA (2008, 2009): Special 301 Report on copyright protection and enforcement; Poland, Lithuania, Russia, Italy

Africa

Tab. 10 Africa – Summary of Key Issues

Physical piracy is the most prevalent form of unauthorized content distribution. Heavy presence of large-scale optical disk manufacturing centres dedicated to production of pirated goods. Between 50-80 per cent of all physical copies of content sold are pirated;
Satellite signal overspill also occurs widely, with content from Middle East FTA satellite channels accessed and distributed by operators in North and East Africa. A similar situation occurs with channels from South Africa;
Some South African channels are now no longer distributed by satellite in a bid to prevent unauthorized access and signal retransmission;
African broadcasters increasingly concerned that current and future laws seek to protect only the signal carrying the content/programming, and not the actual content;
Individual level extra-territorial access stemming from the import of smart cards and STBs from Middle East occurs in some of the more wealthy African territories, with an estimated 2m cards in circulation in Nigeria alone;
Unauthorized re-transmission of content by local pay-TV operators (cable) and broadcasters frequent – Nigerian operators said to be distributing premium content illegally acquired from Middle East pay-TV operators;
'Viewing centers' in Nigeria are airing premium content for commercial purposes without authorization. This is a common occurrence throughout Africa. Sharing of pay-TV connections between multiple individuals/households using modified boxes is becoming increasingly common, with devices openly available in Nigeria's Alaba market;
Direct impact of piracy on content producers and broadcasters are that some program makers have now stopped releasing content in local markets, with others forced to cease operations;
Low penetration of Internet and broadband services means that online piracy yet to go mass market as in Europe and North America. Nigeria, South Africa and parts of North Africa starting to witness a rise in levels of online piracy;
Lack of regulation, regulation enforcement and resources for carrying out raids/checks cited as key causes for high levels of piracy.

147. Africa has one of the lowest TV and Internet (narrow band and broadband) penetration levels seen worldwide. Legal pay-TV penetration levels for the North African region (Algeria, Egypt, Libya, Morocco and Tunisia) are around 2 per cent, while for Sub-Saharan Africa it stands at around 9 per cent. Within the Sub-Saharan African countries, pay-TV penetration ranges from lows of 3 per cent (Kenya) to highs of 66 per cent (Angola). These major differences are due to factors such as higher income disparity in countries like Angola, resulting in the greater propensity of these TV households to take a pay-TV service. Moreover, in most African nations, the penetration of TV sets in households is extremely low – between 15 and 20 per cent on average, greatly reducing the potential market size for both pay-TV operators and FTA broadcasters in the region.

148. In line with its pay TV penetration rates, Africa's penetration levels of internet and broadband is also one of the lowest in the world. With internet penetration of the population just over 2-3 per cent and broadband penetration even lower (~0.1 per cent), access to online services and content such as those seen in the developed markets remains a distant future for a large majority of the population. Among the African nations, Nigeria, South Africa and the Northern African countries (Algeria, Egypt, Morocco, Sudan, Tunisia), all have higher than average broadband penetration rates. A key point to be highlighted here is the difference in adoption rates between fixed line broadband and mobile broadband in the region. There are around 650,000 fixed line broadband

subscribers in the continent, as opposed to 6.8m broadband subscribers served by mobile technologies – indicating that the further penetration of internet services into the inner regions of the continent, under served by fixed line operators, will most likely be linked with the deployment and development of mobile services. Currently, mobile broadband services are heavily concentrated in Nigeria and South Africa, and account for over 90 per cent of subscriptions[53].

149. Although empirical data on unauthorized access and piracy levels or its estimated cost to the copyright industries are hard to obtain for the African continent, various industry bodies and other sources continue to believe that physical piracy remains the predominant form of piracy in the region. SAFACT (South African Federation Against Copyright Theft) estimates that in 2005, over 50 per cent of DVDs sold in the country were pirated – up from 10 per cent in 2001[54]. Nigeria is said to have similar levels of piracy, while neighboring Burkina Faso and the Ivory Coast's pirate DVD markets are said to account for as much as 70-80 per cent of all DVDs sold. Within this segment of physical piracy, however, movies occupy a significant majority, followed by music, software, and lastly, TV shows/content. Physical piracy is especially rampant in Nigeria – Lagos's Alaba international market is central to the physical piracy racket in most, if not all, of Africa. Following Burkina Faso's concerted efforts to quell piracy, industry sources were cited in the press as claiming that counterfeited product not available in Burkina Faso was being smuggled into the country from Nigeria. Recording of live broadcasts of selected events (e.g., football matches) and distributing it on optical disks is common in many African nations, according to some respondents. In Tunisia, physical piracy has been rampant with even local stores selling pirated DVDs, which are usually made to order. However, recent government efforts to clamp down on physical piracy have had some effects, with one major French supermarket chain ceasing its sale of pirated DVDs and software[55].

150. Despite industry estimates for unauthorized access of broadcast signals and piracy being scant, hardware based access and illegal redistribution of TV (pay and free) signals appear to be the most common form witnessed. Pay TV operators such as HiTV, DStv, Orbit/Showtime and ART (latter two distributes their signals in the North African countries) estimate that the number of illegal subscribers viewing their services could be several times higher than the legal ones. In Nigeria alone, local pay TV operator Hi TV estimates that approximately 2m pirated smart cards of ART and Orbit Showtime are being used by both individuals and commercial establishments (Hotels, pubs etc). Pirate cable TV services are also common in countries like Kenya, Nigeria and large number of Western African nations – often charging less than a fifth (or even tenth) of legal pay TV services. Some of these networks are completely illegal (operating without permission of local authorities), distributing entire bouquets of channels obtained by using legal STBs and then redistributing it in localised areas, other legal pay TV operators often hack into the networks of existing legal cable/satellite TV networks using a cracked STB and distribute selected channels/content to their subscribers. Legal broadcast networks have also commonly been found to be airing unauthorized content using either residential purpose or grey market decoders. In Nigeria, for example, local broadcasters have openly aired content available from Showtime Orbit and ART by using their decoders – and Hi TV estimates that approximately 2-3m viewers of these broadcasters were viewing unauthorized signals. Hi TV is currently taking legal action against several broadcasters and pay TV networks - such as Communications Trend Ltd which operates services in 12 Nigerian states - that it believes has been redistributing without consent its pay-TV services and programming, especially its premium sports content such as the English Premier League matches. As part of the evidence gathering process, the firm has been

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[53] ITU (2009): Information Society Statistical Profiles 2009 - Africa

[54] SAFACT (2009): Piracy Facts, http://www.safact.co.za/piracy_facts.htm

[55] U.S Department of State (2009): 2009 Investment Climate Statement - Tunisia

working closely with the NCC (Nigerian Copyright Commission) to establish the fact that its signals are indeed being accessed and re-transmitted without consent, as well as that signals of operators such as ART and Showtime who do not have the rights to distribute content in the region are being distributed by pay TV operators and broadcasters.

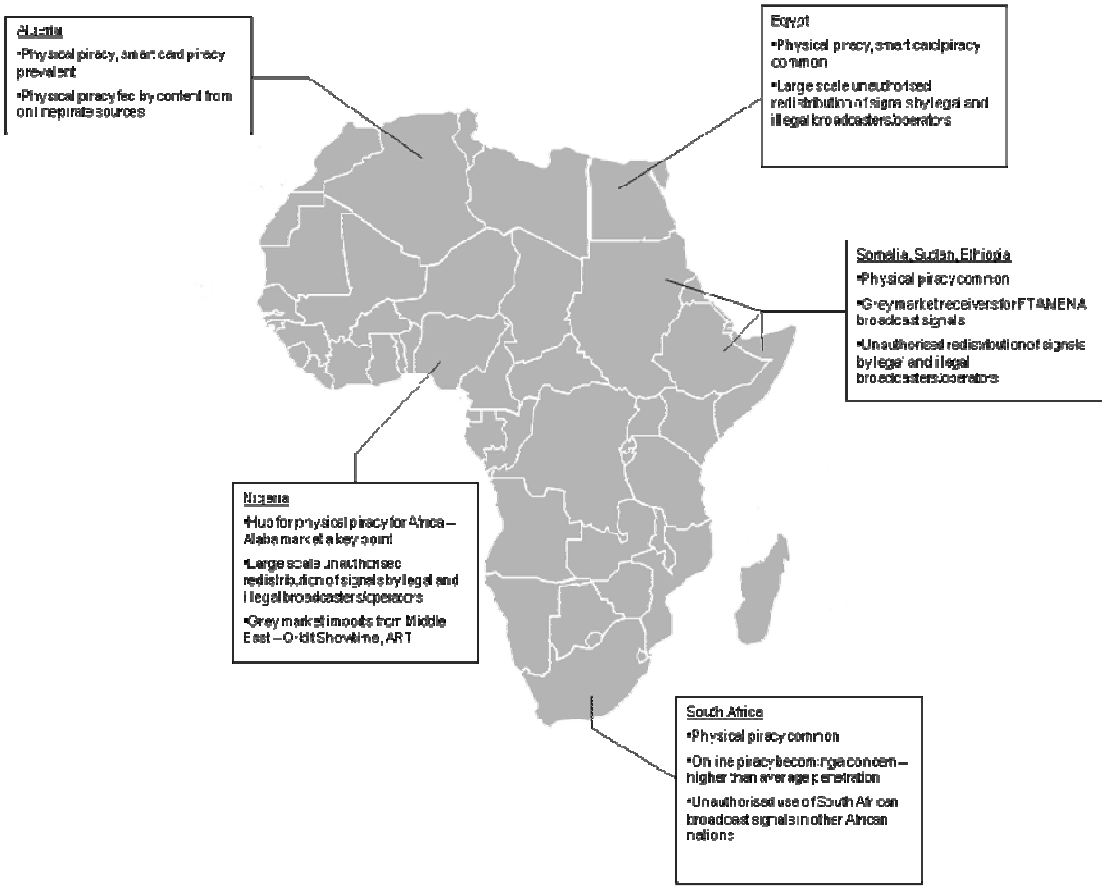
151. In a bid to clamp down on pirate viewers, pan Arab operator ART has recently begun to swap out its CA systems to Viaccess, in time for the 2010 football World Cup – resulting in a significant increase in its costs as a result of having to swap out its entire base of installed subscriber STBs. With the operator having close to 900,000 subscribers, and costs of installing of new boxes at $45-$60/box, ART could be looking at outgoings of $40m-$45m. Hi TV is in talks with ART and Orbit Showtime to disable any smart cards found operating outside its authorized distribution areas.

152. Cases where FTA signals distributed via satellite have been illegally redistributed outside of their authorized countries have also been highlighted by stakeholders in the region. A case in example is the South African FTA platform Vivid. Vivid is a FTA satellite platform aimed at serving regions of South Africa with little or no terrestrial coverage, but an overspill of its satellite signal has ensured that signals can be received in large parts of Sub-Saharan Africa. Although content on the FTA platform is protected via CAS, channel operators in the region report that the encryption has been compromised and that channels aimed at the South African market are now being illegally distributed by smaller localized pay-TV operators in other parts of Sub-Saharan Africa. Consequently, E.TV – a channel on the Vivid platform – has ceased transmissions via the service. Similarly, licensed TV channels in the region are also said to be re-transmitting content acquired from satellites (FTA and pay) without authorization from and payment to the rights owners[56]. Illegal re-distribution of satellite signals is understood to be prevalent in parts of North Africa and regions in the Horn of Africa – where FTA signals/programming from the Middle East are easily available.

153. Other effects of rampant piracy have been the non-availability of specific TV content in national markets. One West African TV producer has now stopped releasing his shows in the local market – instead preferring to sell it online to expatriate audiences in Europe and the US in a bid to prevent loss of sales. Similarly, several program makers and distributors from both within and outside the continent have now stopped selling/distributing their content in some African countries – citing rampant piracy. However, despite such efforts by rights owners to stem unauthorized access and piracy, content downloaded in these markets manage to find their way into the African nations and into consumer hands via pirated DVDs. A direct result of the lack of content distribution is not only on the diversity in programming available within the region, but also on local industry – such as local content distributors, broadcasters - who rely on the availability of this content for their survival. Several businesses, such as Shake TV in Kenya, have been claimed to have closed down as a result of non-supply of content by distributors, who feared piracy in the market would devalue their product.

[56] Africa Media Development Initiative (2005): Somalia – Research Findings and Conclusions

Fig. 8: Africa Overview



154. A form of unauthorized signal access that is largely restricted to Africa is the public airing of content in 'viewing centres' – often using residential connections. Due to the relatively expensive nature of pay-TV in Africa – accounting for up to 100 per cent of monthly per capita GDP in some cases, especially when including premium content like sports and movies, illegal public viewing centers have appeared all over the continent that air big ticket sports events like the English Premier League football, Spanish La Liga, etc. These viewing centers are especially popular in places like Nigeria, where they have come to the notice of local pay-TV operator Hi TV. Residential signals are sold for N6,000 in Nigeria, while commercial subscriptions start from N15,000. In recent months, HiTV's management have joined forces with the Nigerian Copyright Commission (NCC) to clamp down on the number of viewing centres - forcing them to either pay commercial subscription rates or close down the centres. Hi V also states that they have come across several cases where viewing centres (and in some cases households) have been found to be using modified set top boxes that facilitate the legally obtained signal to be split to multiple TV sets – enabling multiple channels to be viewed simultaneously. According to respondents, these devices contravene contractual agreements between the user and service provider, as well as copyright and broadcast rights in the event that the signals are being shared between multiple households. Similarly, authorities in Kenya have also filed cases against several local cable operators distributing signals of broadcasters without permission. Respondents also noted that several instances of radio stations broadcasting commentary of sports/live events for which they do not have the rights/permission have been noted in Africa. In many cases, commentary is provided by radio station staff viewing the event on TV. Respondents noted that these forms of unauthorized broadcasts affect the legitimate rights holder's ability to fully exploit the rights which they have obtained.

Local broadcasting associations and rights holders are currently in talks with national regulators to seek a solution to this problem.

155. Unauthorized access of content online is yet to become a major threat due to the relatively low levels of broadband penetration. However, in both Nigeria and South Africa – where income levels and state of infrastructure are higher than the African average, authorities fear that growing broadband penetration will result in increasing levels of piracy – making it easier for users to both download content and distribute it on physical mediums like optical disks for both personal consumption and commercial purposes. Similar concerns have been aired in North African countries, such as Algeria, Morocco and Tunisia, where internet penetration is much higher than Sub-Saharan African countries. However, some respondents noted that, of late, there has been a spurt in commercial websites that stream African broadcasters and program maker's contents online, targeting African communities settled in Europe and the US. These websites are known to re-broadcast signals/content of local broadcasters via the internet, and often charging a subscription fee from users located abroad. Shortage of resources and inadequate regulations governing online piracy has meant that tracking these websites and their operators has been an uphill task for most broadcasters/channel operators.

Middle East

Tab. 11 Middle East – Summary of Key Issues

Physical piracy continues to be a key concern, and is a major source of pirated material (although mainly restricted to movies and music). Crackdown on street sellers in some countries (Saudi Arabia, UAE) is starting to work;
Broadcast signal piracy has largely gone unchecked until the recent past;
Availability of vast number of free-to-air channels via satellite – resulting 'free for all' consumer mindset – difficulties in promoting pay-TV services;
Hardware based piracy – pirated smart cards, modified STBs – is widely prevalent, and in many cases, circumvention devices and services are openly sold;
Pirate cable TV networks are prevalent in Egypt, Lebanon and Saudi Arabia – 600-800 cable operators are estimated to be operating in Lebanon; estimates for Egypt indicate up to 40 per cent of urban households accessing have unauthorized access to pay-TV signals; Saudi Arabia's housing 'compounds' a key source of broadcast signal piracy;
Lack of regulation and enforcement are cited as key reasons for broadcast signal piracy, with respondents stating that there is lack of transparency in legal process. Positive changes seen in Saudi Arabia and the UAE;
Card sharing is becoming increasingly prevalent, with the import of ethernet enabled STBs already banned in many countries. Bahrain is cited as hub for import of these boxes;
Extra-territorial access common in many countries due to the presence of significant expatriate populations. Satellite services of operators from Africa, Asia and even Europe commonly available. Authorities now conducting raids in airports, sea ports to prevent STBs being brought into the region;
Online piracy starting to become a concern in many countries – although high costs of broadband access and low Internet penetration have contained it so far;
Lack of laws governing online piracy a key issue. Proof of un-Islamic content stored on file sharing websites understood to be one of the main tools in helping stakeholders convince local governments to block access to websites showing unauthorized content;
Some countries also blocking IP addresses known to be used by card sharing servers.

156. Countries in the Middle East all display high TV penetration levels – in the 85-95 per cent range and in line with those seen in developed nations in Europe and North America. Higher than average disposable incomes, despite the high levels of income disparity, combined with low taxation structures in the Middle Eastern countries are contributing factors for the high penetration levels of commercial TV. But the Middle East is also one of the few regions with an abundant supply of satellite delivered FTA TV stations – with over 474 channels in 2009[57]. While the proliferation of free to air services alone cannot be blamed for unauthorized access and piracy seen in the region, the abundant supply of these free services has undoubtedly infused into the consumer mindset that TV services are essentially free – potentially feeding the phenomenon of unauthorized access to broadcast TV signals.

157. Penetration of Internet services among the population in the Middle East, however, is much less developed than TV with averages ranging from 1 per cent (Iraq) to 60 per cent (UAE)[58]. Based on available data, broadband penetration levels appear to be even lower when compared as a percentage of internet subscribers. Broadband speeds available in the various Middle Eastern countries currently range from 64 Kbit/s-10 Mbit/s, and in some countries broadband speeds of up to 30 Mbit/s are available to home users in certain areas. Notable developments have been made by the UAE, and in some respects Saudi Arabia, with respect to broadband infrastructure rollouts. UAE has plans to complete a fibre-to-the-home (FTTH) roll out by the end of 2011 – with capital city Abu Dhabi almost completing its deployment and possibly becoming one of the first cities in the region to provide complete fibre access. One of the key areas of concerns within the region, however, continues to remain cost of access to broadband services. 256 Kbit/s broadband connections are priced from €18-€30, while 8 Mbit/s connections cost anywhere from €43-€422, with Kuwait being the most expensive for broadband access.

158. Unauthorized signal access and piracy in the Middle East has been severe, and has gone largely unchecked until the recent past. While there are several different reasons for the proliferation of piracy, the availability of vast number of free-to-air channels via satellite – the primary method of broadcast signal distribution – has been cited as one of the main reasons, having resulted in the establishment of a 'free for all' consumer mindset. Regulations governing unauthorized access and piracy have also been scarce, and where available, enforcement has been lacking – adding to the overall problem.

159. Although exact figures of illegal subscribers are unknown even to some of the operators themselves, almost all of the various types of unauthorized signal access and piracy covered in this report are prevalent in the Middle East and North African countries, and estimates of illegal subscribers range from a few hundred thousand to a few million. Hardware-based unauthorized access of pay-TV signals is a key concern for the regions pay-TV operators. The most common method of CA circumvention seen in the Middle East is the usage of cloned/hacked smart cards, which are said to be openly sold in stores dealing in satellite TV equipment, and card sharing forums that distribute key words. Despite the recent crackdown by authorities on stores selling illegal pay-TV services, these stores continue to thrive – often being advertised by word of mouth or by placing less obvious advertisements in store fronts, classifieds. Availability of STBs that come with Ethernet ports has also been cited as a concern by stakeholders in the region. These devices are connected to the Internet, through which pirate operators deliver control words and encryption keys to the STB. Concerted efforts by stakeholders has resulted in some of the Middle East nations (Egypt, Jordan, UAE) banning the import and sale of these products, with investigations launched into the importers of the boxes. In other nations such as Bahrain, Kuwait, Qatar and Yemen, regulations regarding the import of these

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[57] Arab Advisors Group (2009): Satellite TV In The Arab World 2009

[58] Internet World Stats (2009): http://www.internetworldstats.com/stats5.htm

boxes are yet to be formulated. IP addresses that are known to deliver the control words to the boxes have also been tracked and blocked by the various government authorities. However, despite the ban in the import and sale of these boxes which originate from China and Korea, the boxes continue to make their way through the borders of UAE and Saudi Arabia via Bahrain.

160. Unauthorized re-distribution of content has been a key form of signal piracy, but sustained raids against operators has seen piracy levels in the GCC (Gulf Cooperation Council) countries drop in recent years. This now accounts for just 1-2 per cent of lost revenues from unauthorized access and piracy according to the AAA. Pockets of illegal cable TV operations, however, still exist in Egypt, Kuwait and Saudi Arabia. Although legal pay-TV penetration rates in Egypt were around 3 per cent in 2008, surveys on pay-TV usage conducted during the same period revealed that approximately 43 per cent of urban Egyptian households had access to pay-TV – indicating the scale of unauthorized broadcast signal access found in the country[59]. Saudi Arabia's 'compounds' – housing complexes where mainly expatriates reside – has often been cited as the key areas where pirated pay-TV services operate. The IIPA in its report on the nation noted that compound management often acquire pay-TV services, which are then illegally re-distributed to hundreds/thousands of homes within the compound. Clamping down on these compounds have not been easy due to the influence they have within local authorities, and rights holders often choose to turn a blind eye to the activity for fear of reprisals[60]. Illegal distribution of signals is also common in Lebanon, where illegal/unauthorized cable TV networks distribute pay-TV channels. In 2007/2008, 600-800 illegal operators were estimated to be operating pirate services[61]. Despite court actions against several of these operators, unauthorized re-distribution of content remains a key issue.

161. Other key concerns in Lebanon, similar to other Middle Eastern nations, are non-enforcement of existing copyright and broadcast laws. Egypt has also had a similar track record with regards to unauthorized access of broadcast signals, but the establishment of economic courts that deal specifically with business related crimes, and formation of units that specialize in intellectual property crimes and advise governmental organizations, and the judiciary have played a big part in clamping down on unauthorized access and piracy in Egypt. In the past 18 months, stakeholders working with the Egyptian Ministry of Information have managed to file 2,000 court cases against signal theft, and confiscate 20,000 illegal STBs and 3,500 pirated smart cards. Moreover, the economic court has now increased the fines for infringement from 5,000 Egyptian pounds to 50,000, and a custodial sentence of six months in prison. In a majority of the court rulings involving copyright infringement, fines of over 5,000 Egyptian pounds are handed out as damages to the businesses affected. These rulings enable rights owners to then proceed with additional civil action for claiming separate damages from the rights infringers. In some cases, stakeholders have reported instances of infringers voluntarily approaching them for settling damage claims out of court.

162. The satellite grey market is one of the other major concerns for pay-TV operators in the Middle East. The presence of a large number of expatriate workers in the region, coupled with a disparate distribution of income has resulted in several sections of the migrant workforce unable to afford the relatively expensive access to pay TV services. As a result, demand for grey market services has increased in the region. Stakeholders estimate that at least 50,000 boxes from Indian DTH operators, Dish TV and Tata Sky, and African operator, Multichoice, are now available in the Middle East, catering to the large

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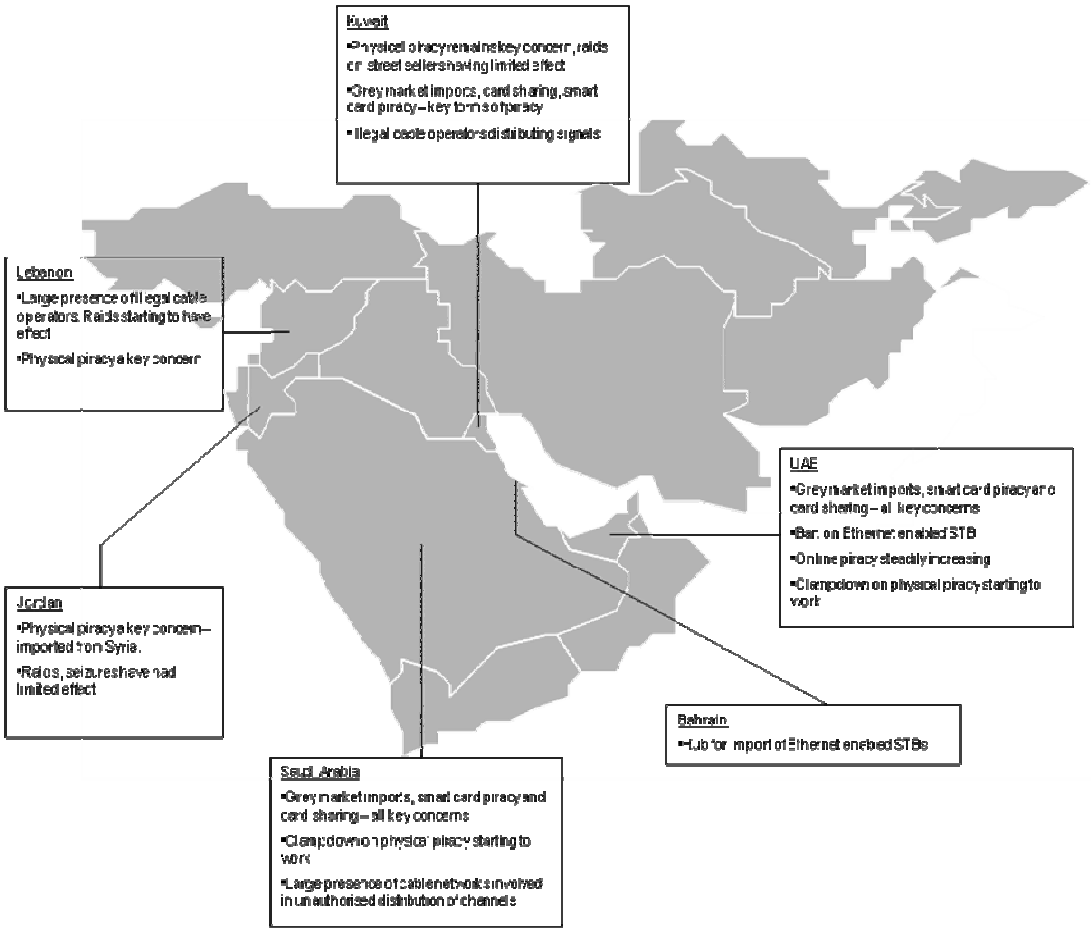
[59] Arab Advisors Group (2008): Egypt Media Survey 2008

[60] IIPA (2009): Special 301 Report on copyright protection and enforcement; Saudi Arabia

[61] IIPA (2009): Special 301 Report on copyright protection and enforcement; Lebanon

expatriate population. Boxes from UK's BSkyB and Sky Italia are also now increasingly available in the Middle East, as are services from pay TV operators located on the Hot Bird satellite – which has significant coverage of the MENA region. Efforts have been underway in these various countries to stop the exodus of grey market STBs, which are often legally obtained from the country of origin with monthly subscriptions paid for. Efforts by the customs authorities in the GCC in targeting the various ports of entry (airport, cargo, etc.) have had some impact on the inflow of these boxes, but stakeholders believe that a constant vigil and frequent raids need to be conducted to bring the situation under control.

Fig. 9: Middle East Overview



163. Physical piracy has also been a key concern, with MPA members seeing that pirated prints of movies and box sets of TV shows flood the markets even prior to theatrical/broadcast launch in these countries. Strict censorship laws, which involve each movie going through stringent editing and dubbing processes, have often been cited as one of the reasons for the time delay in the movie reaching cinemas – by which time pirated prints, often uncensored, have already reached the market. The AAA efforts in clamping down on physical piracy via raids on optical disk factories and local markets have been successful in some countries such as Saudi Arabia and the UAE. Physical piracy is also rampant in Jordan, where pirated DVDs of movies and TV shows are sold openly in shops. Despite constant raids against these shops, the problem remains rampant. One respondent stated that shops which were raided and had their wares confiscated were often restocked and up and running within hours. Its porous borders with nearby Syria – a hub for illegal manufacturing of pirated goods – have been cited as a key reason for the

problem. Despite the proliferation of physical and broadcast signal piracy, authorities are now starting to slowly shift their concerns to online piracy.

164. Several websites, catering exclusively to the Middle East, offering movies and TV shows for download have surfaced in recent years. While some of these are financed through the sale of subscriptions for access to pay-TV content (from signals stolen from operators like ART, Orbit/Showtime), others commercialize the websites through banner advertising. Broadband penetration levels are still low in the Middle East when compared to Western Countries, but with increasing broadband penetration and speeds, the problem is only going to get worse. The Middle East countries' Islamic law has, in some ways, helped fight online piracy on some levels, as P2P and streaming websites that offer pirated content can be quickly shut down or blocked by the authorities if they are proven to be hosting un-Islamic content, such as pornography, uncensored movies, etc. However, this can also be a problem when trying to block non-offending pirated contents, such as music, games, local language content, etc. – where the rights holder has to prove copyright and broadcast rights infringement, which is often a long drawn out and complicated process.

CAUSES OF UNAUTHORIZED ACCESS AND PIRACY

165. In order to better understand the factors that give rise to unauthorized access and piracy, they have been categorized into two types – enablers (direct and indirect) and access barriers, depending on the role they play in user uptake of piracy. Both these factors are, however, intricately linked to each other and, in most cases, cannot function independently of each other. Although some of the factors may very well fall under both of these categories, for the sake of simplicity, the various factors have been slotted under either one of the categories.

Enablers

166. Enablers are those factors which, as the word itself suggest, enables or influences people to carry out acts of copyright infringement – either directly or indirectly. Some of the different types of enablers are:

167. *Motive.* The motive to carry out copyright infringement often lies at the heart of problem, and is by no means to be taken lightly. As has been amply mentioned and exemplified in this report, motive can either be commercial (for gaining profit) or for personal use. Individuals or organizations may resort to unauthorized usage or distribution of copyrighted material for either commercial gains – as in the case of illegal cable operators, pirated smart card manufacturers, etc. - or pay TV consumers who wish to simply reduce their payments for pay TV services while not compromising on their access to entertainment. Copyright infringement is also carried out for personal gains such as the feeling of accomplishment gained by individual hackers/pirates when they circumvent existing CA systems and other security technology.

168. *Mindset*. Consumer mindset towards copyright infringement and piracy is also a key factor that affects the prevalence of this problem in almost all parts of the world. Consumers are often under the impression that piracy is a 'victimless crime' – and that the unauthorized usage of copyrighted material does not affect them negatively, the industry or the wider economy. In other instances, piracy is carried out as a way of rebelling against authority or by people who want to show that they have the skills in circumventing technologies that have taken teams of scientists and engineers significant time and money to create. There is also an increasing trend for consumers to believe that all content

available online is free – and therefore viewing illegal streaming sites or downloading content is therefore 'alright'. In other cases, a simple lack of existing regulation and a lack of fear of enforcement of existing regulation is often a cause for endemic piracy[62]. However, further research into consumer mindsets on a regional/country level will be required to further understand the impact of these factors on piracy uptake.

169. *Knowledge*. Knowledge, or the lack of it, plays a large part in creating and influencing consumer mindsets. As mentioned earlier, many consumers often do not know that a large majority of the content they find online is illegal and has infringed the copyrights of rights owners. In many instances, respondents indicated that stakeholders need to take a more active approach in educating consumers on what forms of content access are illegal, and more importantly, where legal content can be accessed both offline and online.

170. *Technology.* Technology is both an enabler and disabler of copyright infringement. While various technologies have been developed to improve content quality (digitization), protect it (STB, CAS) and efficiently deliver it (IPTV, online, satellite), these technologies have also enabled copyright infringers to gain access to better quality content and replicate and distribute it at far less cost, at greater speeds and without almost any loss in quality.

171. *Access Barriers and Types.* Access barriers are impediments or obstructions to the unrestricted personal consumption of copyrighted content, the presence of which results in the personal consumption needs of viewers being unmet in one way or the other. A by-product of access barriers is that viewers will try to circumvent these barriers – legally or illegally - in an attempt to satisfy their entertainment requirements. Access barriers can be categorized into the following forms, depending on which stage of the TV value chain it is created, and which of the stakeholders can manipulate or correct its effects.

172. *Consumer and Industry Barriers.* Consumer and industry barriers can be defined as barriers to the access of broadcast signal(s) that can be controlled or manipulated to a certain extent by the consumer. Some of the primary barriers, such as costs of access (for pay and free TV), competition between industry players and content exclusivity are examined below.

173. *Cost of access to broadcast services* – such as pay-TV/subscription fees and costs of initial hardware installation is by far one of the biggest barriers to accessing broadcast signals, both on an individual and commercial level. Similarly, individual level unauthorized access and piracy was said to be low when access costs to services were low, or free. Sports broadcaster FIFA, for instance, stated that it was not overly concerned about piracy as a majority of its content was distributed free to air, and therefore the attraction of consumers to illegitimate sources was minimal. Analysis of monthly subscription fees for pay TV, and installation/hardware costs revealed that certain markets were significantly more expensive than others. Monthly access fees to basic pay services – which usually include FTA channels and a few low tier pay services – ranged from 0.7-25 per cent of monthly per capita GDP, while top level subscription packages which include movies and sport ranged from 2-100 per cent. Although access fees cannot be cited as the sole reason for unauthorized access of broadcast signals, markets where top level access fees as a proportion of monthly per capita GDP were high tended to witness higher levels of unauthorized broadcast signal access and piracy. Countries with high levels of income

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[62] IP Academy Singapore (2005): Illegal Downloading And Pirated Media In Singapore. Consumer Awareness, Motivations And Attitudes

distribution inequality, despite having lower top level access fee costs as a per cent of monthly per capita GDP, also displayed higher than average levels of piracy.

174. *Content exclusivity and competition* - Competition between multiple broadcasters and pay-TV operators offering similar services can have a downward impact on consumer level access prices, helping to keep cost of services low and offering them at multiple price points. However, in the absence of competition, operators will be free to constantly increase the cost of services – forcing once-legal subscribers to start looking elsewhere for cheaper, often illegal, alternatives such as hacked set top boxes, cheaper grey market service or online sources where services are available for free/reduced prices. In Argentina, for example, rights to key football events were held by the nation's pay-TV channel and platform operators on an exclusive basis, forcing consumers desiring to view these matches to subscribe to the pay-TV platform's services. On the other hand, heightened competition between several players aiming to serve a single market can also result in pushing up costs for the operators, especially when bidding for key rights such as sports and movies. This will especially be the case in markets where non-exclusivity laws are non-existent. The resulting increase in costs will, in most cases, be transferred to consumers in the form of higher access costs. Content exclusivity is an integral part of the media industry's business model, and broadcasting is no way different. However, exclusive airing of content by channels/pay-TV platforms introduces certain exclusion benefits whereby only consumers willing to pay an additional price/cost will be given access to the content. In the event that the consumer is not willing to, or can't afford to, pay these additional access costs, they will be forced to either forego consuming that particular content, or will look to other alternative sources.

175. *Policy and regulatory barriers.* Policy and regulatory barriers can be defined as barriers to broadcast signal access that have come up as a result of actions/policies by various non-consumer stakeholders such as the government, industry bodies, international regulation and individual companies – all of which are relatively beyond the control and manipulation of the end consumer.

The different types of hard barriers are:

176. *Non-availability of content* – Non-availability or delayed availability of content in certain markets has been oft cited reasons for the uptake in unauthorized access and piracy. This delay can occur as a result of a number of factors such as the release window strategy adopted by broadcasters and film studios when releasing their content into different markets, or due to regulations adopted by different countries with respect to the type and time of content released. With increasing broadband penetration in many markets and the wide availability of copyrighted content online, consumers in many countries have resorted to acquiring their content illegally online – much before its official release in these markets. Immediacy of certain kinds of content, especially sports and certain types of TV shows, has made them especially prone to online piracy. Similarly, unavailability of niche programming – such as specific ethnic or language content can also be cited as a reason for the uptake in grey market services. Grey market services have been found to be especially popular in countries/cities where there is a large migrant population and where specific language programming is not distributed by local pay-TV operators. In UK, for instance, the large influx of migrant workers from other parts of the EEA (European Economic Area) countries has resulted in the increased usage of grey market satellite pay-TV services (Cyfra+ from Poland, Nova from Greece) from these countries.

177. *Regulation* – Regulations governing the availability of content that prevent certain types or kind of content being distributed via either free or pay-TV platforms in a particular country/region can also create conditions ripe for piracy. Strict censorship laws, resulting in the non-availability of broadcast content/TV shows has been often quoted by as a key

reason for both online and physical piracy of content to proliferate in some markets. In China and the Middle East, regulations governing availability of content have resulted in many types of content not being permitted to be screened/aired in the country – forcing consumers to either illegally view the content online, or buy pirated copies from street vendors. Regulations governing mandatory access to certain content types which are of national interest can, however, play an important role in the prevention of unauthorized access and piracy. Mandatory access of national interest programming and events (such as the Olympics, FIFA world cup, etc.) to a nation's public via FTA TV can help in preventing consumers from turning to pirated sources of content, thereby ensuring that all parties in the TV value chain are adequately compensated. The presence and enforcement of strong regulations governing copyright theft also serves as a deterrent to copyright violations, and the lack of regulations or its enforcement are often cited as causes for uptake of piracy in certain regions.

178. *Availability of technology, distribution platforms* – The status of availability of certain technologies and distribution platforms can also play a role in the level of unauthorized access and piracy witnessed. In markets where competition between pay and FTA platforms are healthy and served by multiple operators, consumer level prices will tend to be maintained at reasonable levels – enabling a large proportion of consumers to access legal services. For example, in the UK, a number of legal services are available to consumers for both accessing and viewing their content, either for free or on payment basis. Services like the BBC's iPlayer (free catch up content from the public broadcaster's TV and radio channels) which are now being bundled with leading gaming consoles and mobile phones are examples of how content availability across multiple platforms could help in directing consumers to legally available content. However, in the absence of these market conditions, piracy may proliferate due to consumers' inability to access content at reasonable costs. Similarly, non-limited availability of legal online download services (such as iTunes or local equivalents) in relatively high/upcoming internet connected markets can also result in increasing incidence of online piracy, with consumers having to resort to illegal sources for their content. Moreover, with a proliferation in the number of devices available, consumers place a high value on the portability of their content – and unavailability of legal content in formats compatible with particular devices or platforms encourage consumers to look elsewhere, to other (often illegal) sources.

ACCESS BARRIERS – A REGIONAL VIEW

Platform competition minimal – each area served by 1-2 big operators. High costs of access to service (TV and broadband) when compared to Europe;

Content costs are a significant barrier, with premium content 93-105 per cent more expensive than basic pay-TV;

Income inequality at high levels in the US, although substantially lower in Canada, resulting in segments of the population excluded from consuming premium content and services;

Business model based on content exclusivity - minimal free to air broadcasts of national interest/sports content;

Premium content mainly owned by channel operators, with distribution on all major pay-TV services/platforms, meaning that limited physical availability is not a concern.

US Rose Bowl shifted from FTA broadcaster to pay-TV from 2011 – potentially excluding/affecting 14 per cent of US TV households without access to pay services;

Immediacy and portability key issues for consumers in developed markets;

Availability of wide range of platforms and formats – providing consumers significant choice, at multiple price points;

Online distribution of content by broadcasters (Fox, NBC, ABC) – Hulu, TV Everywhere (Comcast, Time Warner) sets stage for providing consumers content via mediums of their choosing, and reverting advertising revenues back to legitimate service providers;

Low availability of ethnic programming via mainstream operators cited as causes for FTA satellite proliferation (US), extra-territorial access (Canada);

Strong regulations (DMCA – U.S) enabling rights holders/broadcasters to pursue rights infringers offline and online;

Similar laws pertaining to online piracy lacking in Canada.

179. By far one of the largest markets for the production, consumption and export of copyrighted media products, and despite the presence of a complex set of regulations intended to tackle unauthorized signal access and piracy at all levels, the US has faced significant unauthorized access in its own backyard.

180. Cost of access to TV services has often been thought of as one of the most significant barriers to consumption of legal broadcast services, and one of the primary causes for consumers resorting to unauthorized access of broadcast signal/copyright piracy, especially in developing/under-developed regions of the world. An examination of the key North American markets reveals that both Canadian and US pay-TV services are priced in somewhat similar bands – accounting for 0.5-2 per cent of monthly per capita GDP for basic pay-TV access, and 2-3 per cent for premium content. Additional costs incurred in acquiring premium content are the highest in US – with premium content 105 per cent higher than basic services. This is in comparison to 93 per cent in Canada[63].

[63] Comparison of operator pricing. Content available in various services cannot be directly comparable, although top line/premium services include sports and movie channels in all cases.

181. Inequality of income distribution can also play an important role in the uptake of consumption of legal services when compared to the access prices in place. Inequality of income distribution is the highest in the US having GINI coefficients of 41, while Canada is substantially lower at 33 – revealing that large segments of the population in are excluded from partaking in the benefits of content and programming availability, forcing them to look elsewhere for cheaper, often illegal, sources to satisfy their entertainment needs.[64]

182. Content exclusivity is a significant part of the broadcasting business model, with rights owners often auctioning rights to key content (sports, movies, top line TV shows, etc.) to broadcasters or pay-TV platforms on an exclusive basis. In North America, content rights are usually acquired on an exclusive basis by broadcasters/channel operators, who then distribute their channels via pay-TV platforms. Rights are also acquired by pay-TV providers, in which case the content will remain exclusive to that particular provider; however, in North America, this is unusual, with premium content such as sports and movies distributed almost equally across all of the major pay-TV platforms and operators. However, content exclusivity does remain in the form of non-FTA access – forcing consumers to take pay access to cable or satellite services for sports (NFL, NBA) and movies. Platform competition in North America (Canada, US) is also somewhat limited, with each area served only by one cable and both satellite operators – despite the prevalence of several large cable networks in the country. This has contributed to high access costs for customers, forcing consumers unable or unwilling to pay to look at illegal services for cheaper access.

183. Unlike other regions, the North American markets do not suffer significantly from non-availability of content, distribution platforms or technology. To the contrary, a significant amount of content both originates and is exported from the US. Canada, by virtue of its geographic proximity and mostly English speaking population, also has near-simultaneous access to US content and channels, helping to negate the impact of windowing, commonly seen in other markets. Similarly, there are several legal online sources available in North America that provide both free and paid content. Notable examples of these are iTunes, Netflix and Hulu – the free online service started by broadcasters NBC, Fox and ABC – and who have been placing a significant portion of their content online for free, just hours after it has been aired. This has helped to negate some of the effects caused by illegal online file sharing, by driving users back to content owner's websites where they are provided the ad-supported content for free. However, this was not always the case, as one of the reasons for the proliferation of the grey market in Canada – where US satellite services were used in the country - was the non-availability of ethnic programming in Canada by either free or pay-TV platforms[65].

184. Although the availability of technology cannot definitively be said to have had a positive effect on piracy rates, the availability of multiple platforms and technology, ensuring that consumers have access to a broad range of programming across various file formats, will assist in converting a certain number of consumers who had been previously viewing illegal content either off or online, to legal sources. Immediacy and portability are often key issues for consumers in developed markets, and availability of content, at the right price points, to satisfy these needs will often go a long way in preventing legal consumers from turning to illegal sources.

185. However, some factors that do affect unauthorized access of broadcast signals and piracy in both the US and Canada are the multitude of time zones within the countries,

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[64] Equality of income distribution determined using the GINI coefficient. Data sourced from UNDP (2009): UNDP Human Development Report 2009

[65] Gregory Taylor (2006): 'Grey to Black – Satellite Piracy in Canada'

which often results in a significant time delay between same programming aired in different time zones. As a result, programming aired in one time zone often finds its way to file sharing networks prior to the show being aired in other time zones of the U.S and Canada, potentially affecting viewership and advertising revenues for broadcasters in these time zones. North American broadcasters and channel operators are known to often cancel shows/programming mid-season in the event of low ratings – and constant unauthorized access of signals/piracy can affect a show's ratings – potentially ending its airing. As a result, jobs of cast and crew members, as well as of other people connected with these shows can be jeopardized. Non-availability of ethnic language programming, except via selected pay-TV operators or FTA satellite, is also a likely contributing factor for unauthorized access, though there is little published evidence to support this.

186. Unlike Europe, where the EC directive on listed events has ensured that selected national interest programming is available to a large majority of the population via FTA platforms, this study reveals that none of the North American countries have a similar policy in place – ensuring that even national interest programming can be acquired on an exclusive basis by pay-TV channels/operators. The Rose Bowl – a popular American Football championship – will be aired exclusively on ESPN (a pay-TV channel) from 2011 onwards, having previously been on FTA broadcaster Fox. It is estimated that approximately 100m households will have access to the channel by 2011 – indicating that approximately 6 per cent of US pay TV households and 14 per cent of US TV households will thus be excluded from viewing the programming, and will have to turn to other sources[66]. Similarly, the TV rights for NBA games – which historically have been aired on FTA broadcasters – were shared between ABC and ESPN for the 2007-08 seasons. Although specific data indicating whether or not non-availability of national interest programming on FTA is a factor in increasing unauthorized access and piracy, it is fair to say that the exclusion of large sections of the population from national interest programming can invariably result in a certain number of people looking elsewhere to cheaper or illegal sources of the same content. And with the advent of illegal P2P-based streaming software and sites, specialising especially in sporting events, the non-availability of such content on FTA channels/platforms can be seen as a contributory factor to their usage.

187. The presence of the DMCA (Digital Millennium Copyright Act) – an implementation of the 1996 WIPO Copyright Treaty – in the US has enabled rights holders and other stakeholders in the country to take a somewhat more stringent approach to copyright infringement, especially with regards to online piracy. The terms of the DMCA include a clause commonly known as 'notice and takedown' wherein OSP (Online Service Providers, including ISPs) found to be hosting unauthorized copyrighted product can be sent a notice to takedown the infringing material. Refusal or delay by these OSPs to take down infringing content found on their sites/services can result in a lawsuit – as has been seen in the ongoing YouTube vs. Viacom case. In Canada, however, proposals to alter Canadian copyright laws to fall in line with WIPO commitments are yet to be fully implemented, with previous bills brought to the Canadian parliament having been turned down.

[66] This calculation is for illustrative purposes only, and does not take into consideration whether or not all of these excluded households have an interest in the programming, or will attempt to view it even if it was available on FTA.

Latin America

Tab. 14 Access Barriers – Latin America Summary

High levels of income inequality – GINI coefficients from 48-58 – resulting in exclusion of large sections of the population from access to pay-TV;
Low pay-TV penetration levels – primarily caused by high access fees;
Access fees comparable to Europe, North America, but higher when compared to monthly per capita GDP of four of 10 most expensive countries assessed for pay-TV access on a comparative basis, are within Latin America;
One-off costs incurred (installation/hardware) are significant for consumers, at 10-50 per cent of monthly per capita GDP;
Platform competition exists, but is currently low, with cable the predominant form of distribution. IPTV still in nascent stage, barred in many countries due to regulations;
Low online and broadband penetration resulting in minimal availability of legal online services – restricted to more advanced countries like Brazil – has resulted in consumers being forced to look to other illicit sources for content;
National interest content is available via free TV in some countries, reducing the incentives for unauthorized access in these markets;
Significant changes in premium content availability in Argentina in recent periods, with the main football league matches now available via free TV following government intervention; Brazilian league matches also available via FTA TV.

188. Low pay TV penetration in Latin America is due to a multitude of factors. However, access costs to both basic and premium content can be considered the key barrier to adoption of paid-for services in the continent.

189. Access to basic services is priced from €10-€20 – and comparable to those seen in mature markets/developed countries worldwide like Singapore, Sweden and UK (~€15-€20). Premium services (including sports and movies) are priced from €15 (Guatemala) to €77 (Brazil). When compared as a percentage of monthly per capita GDP, basic access accounts for between 3 (Chile) and 11 (Guatemala) per cent, while premium services are considerably more expensive – ranging from 5 (Chile) and 24 (Bolivia) per cent (see Appendix Fig.9 and Fig.10) Incremental costs of accessing premium services (over and above basic access costs) range from 88-166 per cent. Similarly, one time fees incurred for the purchase of hardware and installation/setup costs are also considerably high, ranging from 10-50 per cent of monthly per capita GDP. Despite the introduction of prepaid services with lower basic access costs by some Latin American DTH operators, significant one-off hardware costs by way of STB and receiver purchase has meant that this service continues to remain out of reach for some sections of the population. As a result, pay-TV access costs in the region remain some of the most expensive – with four of the top 10 most expensive countries (for both basic and premium services) in the world being Latin American.

190. Income inequality in Latin America is also extremely high – ranging from 48 (Mexico) to 58 (Bolivia), indicating that large sections of the population could possibly be excluded from even basic access to pay-TV services, forcing them to look elsewhere for cheaper, often illegal, sources to satisfy their entertainment requirements. For instance, a number of legal pay-TV homes turned to cheaper illegal cable TV services following the

recession and subsequent large scale unemployment in 2000-2001, making legal pay-TV services unaffordable for large sections of the population.

191. Latin America is host to a diverse broadcast industry, with numerous public and private broadcasters (free and pay) present in most countries, and the availability of a wide range of content to consumers. Sale of content rights in Latin America is largely on an exclusive basis, in line with business models and practices seen elsewhere in the world. As a direct result of media concentration in the region, key rights for sporting and other content are held by a handful of pay-TV broadcasters and platform operators with links to each other and a cross-media/pan Latin American presence. However, in countries like Brazil, where there exists a strong commercial FTA network, parts of some key sporting rights (Brazilian football league, Olympics, F1 motorsports) are held by these FTA broadcasters, ensuring that majority of the population have free access. However, other content is held on an exclusive basis by pay-TV channel operators, with access limited via pay-TV subscriptions. In Argentina, although key rights to sports events such as the Argentinean Football league have been traditionally held by the nation's pay-TV channels (TyC) and platform operators (Groupo Clarin), following a recent government intervention, contracts providing exclusive rights to pay TV channels have been annulled and transferred to state-owned SNMP, and current indications are that league matches will now be available on FTA TV – widely increasing the reach of these contents to the 35 per cent of TV households that do not have access to pay-TV services.

192. On the face of it, there appears to be sufficient competition between content providers and distribution platforms/operators, indicating that consumers in most large Latin American markets have a choice of services and price points. The only exceptions are with respect to IPTV services. Competition regulations in some Latin American countries currently prevent incumbent telecoms operators from delivering linear TV services via their networks. These telecoms companies have, as a result, had to move into the pay satellite business. Despite the presence of a number of pay-TV operators and platforms, significant competition between services is limited to the larger Latin American markets (Argentina, Brazil, Chile), and even in these markets, cable TV holds a largely dominant position, and accounts for of the majority of pay-TV subscriptions. Platform competition in other Latin American markets appears quite restricted, with many second rung cities/regions served by just one or two cable operators and/or a DTH operator. As a result, the impact of competition (where it exists) on consumer level prices is currently minimal.

193. Availability and range of legal online broadcast content distribution services (such as iTunes or Hulu) in Latin America is currently behind that seen in Europe and North America. The limited numbers of legal alternatives that do exist are mainly located in the three large online markets (Argentina, Brazil, Chile), although there are a few pan Latin-American online services. In Brazil, commercial FTA broadcaster TV Globo offers a selected range of long form content and clips via its website. Similarly, long form content from broadcaster Fox is available on a pan Latin-American basis (in Spanish and Portuguese) via its Mundofox service which was launched in 2009 – and offers hit shows like the Simpsons, 24, Bones, etc. Although a few other online pay-TV and movie download services are available (Netmovies Live, Jump TV Latino), choice of content via these services are limited and access restrictions apply based on the region in which theuser resides (geo-blocking). For instance, Jump TV Latino, despite offering several Latin American channels, has geo-blocked its content/channels in many parts of the continent[67], while Netmovies Live services appear to be currently available only in Brazil.

[67] Jump TV Latino is a paid online TV service, mainly targeting the Hispanic community in US and Canada. However, some of its channels appear to available in parts of Latin America.

194. A primary reason for the limited availability of legal online services has been low levels of broadband penetration in the countries. However, with increasing penetration, the availability of legal alternatives and at affordable price points is essential to ensure that online piracy does not gain a foothold in the region. According to stakeholders, Argentina, Brazil and Chile – three of the continent's largest online markets – have already started to see a growth in online piracy via file sharing networks and streaming sites. However, as a result of low internet penetration and bandwidth availability, this phenomenon is yet to become mass market, as has been seen in North America, Europe and parts of Asia.

195. On the regulatory side, lack of regulations governing online piracy has been cited by stakeholders as a source of concern in the Latin American countries. In Brazil, online copyright infringement cases are currently tried using existing regulations and legal precedents, although the government is currently debating introduction of new laws. Respondents from Brazil were of the opinion that although legal precedents have been set in court for cases involving online piracy, more specific regulations were required.

196. In many Latin American countries, despite the numerous raids against targeting the sale of physical pirated products, the market for these goods continues to thrive. Regulation enforcement, and insufficient custodial sentences handed out to serious/repeat copyright infringers has been cited as causes for the uptake in unauthorized access and piracy in many of these markets. Other stakeholders have opined that a general lack of awareness among both consumers and stakeholders (pay-TV operators, distributors, etc.) regarding copyright laws and legal uses of content/programming could be blamed.

Asia

Tab. 15 Access Barriers – Asia Summary

There are large variations in access costs (basic and premium) between countries – ranging from 10-15 per cent of per capita GDPI;
One off fees (hardware, installation) generally low, but high in certain markets like the Philippines. Prevalence of analogue cable helps subscribers access basic pay-TV services without high initial investments;
Significant income inequality in most countries – high levels of poverty prevent large number of households from accessing even basic services;
Access costs, although lower than other regions, still a barrier due to income inequality;
Content exclusivity present in all but a few markets – India being the notable exception. Government regulations prevent platforms from having exclusive content/channels – forcing operators to compete on price and value added services;
Healthy platform competition in most markets – but certain markets (China, Viet Nam) regulate platform and content availability (ban on private ownership of satellite) – forcing consumers to consume content from illicit sources;
Availability of legal online services limited to few markets like Japan, South Korea – others such as China still lacking, giving rise to consumers looking elsewhere for content/programming;
Regulations governing piracy of broadcast signals/online and enforcement cited as being insufficient – many countries have more number of illegal than legal pay-TV subscribers;
Consumer mindset and lack of knowledge of copyright/IP laws partly to blame for high levels of piracy.

197. Access costs for TV services in Asia vary considerably – from lows of €1/month (India and China) to €45 (Hong Kong) – and based somewhat on the levels of economic and technological development, and average per capita GDP. Basic pay-TV access costs in India and China are some of the lowest in the region - in the €1-2 range - while premium services (including movies and sports) are €6-15. Costs for pay- TV services in the Philippines, however, are considerably higher than other similar economies in the region, with basic access costing €4-6 and premium services in the €10-15 range. Access prices for both basic and premium services in Japan (€25/€60) and Singapore (€15/€50) are similar, while Hong Kong is more expensive with services ranging from €45 to €130.

198. Although the costs of service between the various countries in the region appear to fall within a wide range, several similarities can be brought to the fore when access prices are examined as a percentage of monthly per capita GDP. Developed markets in the region all display relatively low basic access prices as a percentage of monthly per capita GDP – the lowest being Singapore (0.7 per cent) to the highest, Hong Kong (2.6 per cent). Premium services on the other hand range from 2.5 per cent (Japan, Singapore) to around 8 per cent (Hong Kong, China). Costs of hardware and installation – usually a one time fee incurred when a consumer signs up for a pay-TV service – averages around 1-3 per cent of monthly per capita GDP (see Appendix Fig. 11). In the developing regions, however, cost of access to both basic and premium services are a much larger percentage of monthly per capita GDP – ranging from 4-6 per cent (basic) to 10-15 per cent (premium), while hardware costs can be as high as 80 per cent of monthly per capita GDP (Philippines) – resulting in certain sections of the population finding the initial investment required for pay-TV access unaffordable. Moreover, income distribution in these developing countries in the region is also vastly unequal – with GINI coefficients ranging from 35-45. In the developed countries, income distribution is less unequal, with Japan the lowest (25). Exceptions to these are Singapore and Hong Kong, which both have

unusually high income inequality (43, 42). A survey of websites/online forums discussing content prices in Hong Kong has often highlighted high prices of premium content as some of the reasons for consumer level access of unauthorized signals. Stakeholders were also of the opinion that low cost of access to pay-TV services was one of the primary reasons why individual level broadcast signal piracy was low in countries such as India, Taiwan and Vietnam. In Japan and South Korea – access to high speed broadband connections and the relatively advanced technological nature of its people have made them not only more aware of content availability from all over the world, but also the technologies (both legal and illegal) at their disposal to access such content.

199. Regulation with respect to content exclusivity and competition is similar in the Asia Pacific region to other regions, such as Europe and North America. Notable exceptions are India and China. Although pay-TV channels/broadcasters in India are allowed to have exclusive rights to content, local regulations currently prohibit channels from being exclusive on any one platform(s) or platform operator(s). As a result, differentiation on the basis of content availability is extremely limited in India – keeping consumer level prices across regions and platforms largely similar. Consumer level prices on analogue cable – the predominant pay TV platform – is also regulated by the regulator, further ensuring that consumer level prices are relatively stable and affordable. However, despite this, unauthorized access and piracy continues to exist – although it must be clearly noted that unauthorized access of broadcast signals in India is largely due to the vast under declaration by Indian cable TV operators who operate mainly analogue cable networks, and that consumer level piracy is by and large limited. Similar situations also exist in Pakistan, Philippines and Thailand, where a large number of unauthorized cable networks exist that illegally distribute broadcast signals. In all these countries, number of illegal subscribers far outnumbers the legal subscribers accounted for by pay-TV networks.

200. Access of broadcast signals from other territories/countries (free or pay) – via satellite overspill - is considered illegal in some Asia Pacific countries (Australia, China, India), while in others, it is legal for consumers to view content obtained due to satellite signal overspill but not permitted to make these services available on a commercial basis (Hong Kong, Indonesia, Macau, Philippines and Thailand).

201. In China, content and platform availability regulations are currently unfavorable to rights holders, and China's track record in the field of anti-piracy regulation and its enforcement is far from adequate. Distribution of content in China is currently limited to cable and IPTV, while satellite distribution is not permitted. In fact, private ownership of satellite receivers and set top boxes is prohibited under current regulation. Although access prices of services are relatively low, access to pay-TV is restricted in many areas, or in many cases unavailable, due to the non-deployment of cable or IPTV infrastructure in these areas. In such scenarios, satellite TV would be an effective method of content distribution, and would help to minimize the 'programming divide' caused due to non-availability of services. Despite this law, it is estimated that approximately 10m satellite receivers are in use in Southern China – receiving unauthorized signals from neighbouring Hong Kong and Taiwan.

202. Content availability in China is also severely restricted, with all forms of media having to receive prior authorization from the authorities before being distributed – an onerous process, which has been blamed for the uptake in unauthorized access and piracy as availability of most foreign content is delayed considerably – by which time pirated copies (physical and online) have flooded the market. Most foreign language programming/content is prohibited in the country, effectively forcing consumers to either access the content online through its vast number of illegal services, or to acquire pirated physical copies. Although China has adopted the WIPO Internet treaty in principle, it is yet to be implemented – and online piracy has largely gone unchecked. The notable exception is piracy of online games. In recent months, China has started clamping down on illegal online gaming servers, in an effort to protect its growing online gaming industry.

203. Similar to China, both Singapore and Vietnam also prohibit the private ownership of satellite receivers and equipment, in a bid to keep a strict control over content disseminated within the countries. In Vietnam, approximately 100,000 illegal satellite receivers are said to be in use in Northern Vietnam – in the regions bordering China, through which decoders and other hardware are illegally imported[68].

204. A deficient regulatory system governing copyright infringement or the lack of enforcement of laws are also contributing factors to unauthorized access and piracy levels. Most of the developing countries in the region have been cited by the IIPA and CASBAA as having either insufficient policies with regards to copyright, or lax (and in some cases, none) enforcement of regulation. Key markets that have been cited are China, India, Indonesia, Pakistan and the Philippines. Although regulations governing piracy are relatively robust in the developed countries, laws governing online piracy remain a cause of concern for rights holders. South Korea's three-strikes approach to dealing with online copyright infringement has been seen by many stakeholders as a step forward in the right direction. Australia's Supreme Court is currently hearing a case between AFACT (an organization of Australian rights holders) and iiNet (an ISP), to determine whether ISPs have the legal obligation to monitor the activity of users on their networks. A ruling is expected in November 2009, and could potentially set a precedent in Australia's copyright laws.

205. Although healthy competition between traditional distribution platforms exists in most of the Asia Pacific countries, the breadth of services available to consumers which allow them to consume services either via portable mediums, or by allowing them access to the content they desire at a time and place they wish is relatively narrow, unlike Europe or the US. Distribution technologies already available in the US and Europe are starting to emerge in the region, but currently availability is limited to the developed markets such as Japan and South Korea. Both the Japanese and South Korean markets have been known for their fast adoption rates of new technologies and services, and as such, has been a step ahead of the rest of the region when it comes to availability of technology and content. In Japan, AcTVila – a joint venture between tech majors Sony, Matsushita, Sharp, Hitachi and Toshiba - has seen the launch of a range of broadband enabled TVs through which users can access not just movies and TV shows, but also other content like news, weather, games, etc. The AcTVila service also offers an HD download to burn solution. Similarly, the Fujisoft video service now offers download services through the Wii game console – similar to services offered by Sony's PS3 and Microsoft's Xbox 360 in other markets such as Europe and US. Some catch-up services for broadcast content are also available in these markets, as also in Hong Kong (TVB), New Zealand (TVNZ) and Australia (iView). However, in the developing markets, legal catch up and online download services are largely non-existent, or in testing stages. This non-availability of services could be attributed to not only the lower broadband penetration and speeds available – both of which are essential for a mass market success for online content services, but also because of the widespread use of analogue pay-TV networks. However, as previously mentioned, despite the lower penetration of broadband, there exists a clear demand for such services in many of these markets especially among the more affluent section of the population, and the non-availability or delayed availability of such services and content can be said to be one of the causes for the proliferation of online piracy.

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[68] CASBAA (2009)

Europe (Western and CEE)

Tab. 16 Access Barriers – Europe Summary

Low levels of income inequality in Western Europe and CEE – higher than average levels seen in UK, Russia. Lowest in Scandinavia;
Access costs to basic services low – one of the lowest in the world – primarily on account of low-cost provision of cable TV services, often via local councils/housing societies (e.g., Scandinavia, Switzerland);
Premium services considerably more expensive – additional costs ranging from 150-1,500 per cent above basic access costs;
Mature TV market, with sufficient competition between platforms/operators, although some markets have operators with clear market leadership (e.g., YouSee - Denmark, Cablecom – Switzerland, Canal Digital - Scandinavia);
Increasing availability of legal online services catering to divergent consumers needs lags service availability found in U.S, but steady progress seen nonetheless;
Premium content available on exclusive basis – by operator/channel – presenting greater incentive for unauthorized signal access;
Several Western European countries have lists of national interest programming that is aired on FTA TV – ensuring that such programming does not exclude sections of the population based on ability/willingness to pay;
Despite these factors, piracy/unauthorized access continues to be prevalent – indicating that consumer mindset and attitude towards copyright could be an underlying issue. Formation of Pirate party in Sweden (named after P2P site The Pirate Bay) and election of Pirate party members to EU Parliament signs of consumer attitudes.

206. TV markets in Western Europe, and parts of CEE, are largely mature markets and can be said to be at par with the US in terms of availability of services, distribution platforms and content. Most Western European countries are already on track to switch off analogue terrestrial signals – replacing them with DTT – and in large parts of CEE, the process is underway with DTT services having already launched.

207. Despite the similarities between the US and Europe in terms of market maturity, pay TV access costs in Europe are cheaper than the US, and by far some of the lowest in the world, on a Euro basis as well as when taken as a percentage of monthly per capita GDP. Basic access to pay TV services ranges from €12-€20 in Western Europe, while access charges in CEE countries are substantially lower, ranging from €2-€10. Premium services such as sports and movies, however, are substantially higher – with subscribers in Western Europe having to spend an additional 150-250 per cent over and above basic access, while incremental access costs in Eastern Europe can range from 300-1,300 per cent. In the US, premium content is around 105 per cent higher than basic services, while it is 93 per cent higher in Canada.

208. Basic pay TV access costs in Western Europe, when compared as a percentage of monthly per capita GDP, are some of the lowest in the world – ranging from 0.5-1.5 per cent, while premium costs account for 1.5-3 per cent. Although basic access costs in Western Europe tend to be cheaper than the US (1.6 per cent), premium services in Western Europe and US/Canada are largely similar. In the CEE countries such as Czech Republic, Poland and Romania, basic pay-TV costs are in line with Western Europe – from 0.5-1.5 per cent, while access to premium services tend to be significantly higher, accounting for 3-10 per cent of monthly per capita GDP.

209. Income distribution in both Western Europe (31) and CEE (33) are largely similar. Within the West, UK (36) and Italy (36) have the greatest inequality in income distribution, while Russia (39) and the Balkans (37) lead the CEE region. On the other hand, Scandinavia (25) and the Czech/Slovak Republics (25) display the lowest income inequality. Consequently, it is more difficult to draw clear and conclusive trends or equate between high levels of unauthorized access of broadcast signals and income levels in Western Europe. In such a scenario, it is well worth examining the consumer mindset and attitude towards piracy, in conjunction with the legal/regulatory systems in place to not only educate but also regulate the access to and use of pirated services.

210. Currently almost all European countries have in place all the presently existing traditional distribution platforms, such as cable, satellite, DTT/terrestrial and IPTV – though to varying degrees – and there are no regulations in place that prohibit any particular platform(s) from operating (such as those seen in Latin America). Western Europe is also a mature market with respect to availability of over the top distribution platforms and content distribution streams such as portable entertainment devices (iPod+iTunes) and multi-format supporting gaming consoles (Xbox). Console manufacturers Sony and Microsoft will be expanding their online video store service to France, Germany, Spain and UK by end 2009 (Sony), while Microsoft's service will be available in 18 countries across North America, Europe and Asia-Pacific.

211. A pan-European initiative - Hybrid Broadcast Broadband TV (HbbTV) – is also developing an open specification to allow broadcasters to deliver VoD and interactive features over-the-top to the TV screen. TF1, Canal+ and France Télévisions (France), hardware manufacturers Philips and Sony and satellite provider SES Astra are all currently members of the HbbTV project, with more said to join in coming months. The first HbbTV-compliant set-top boxes are due to roll out in Germany before the end of 2009. This project is similar to that of UK's Project Canvas, where it aims to launch an open web-based video platform by the end of 2010. The UK service is backed by broadcasters BBC, Five, ITV and incumbent Telco BT.

212. Similarly, online TV and movie markets in Western Europe are more mature than those elsewhere, as widespread unauthorized access and piracy in parts of Eastern Europe has led to content owners taking a more cautious approach to licensing their catalogues for online distribution in these regions. Many major Western European broadcasters now distribute catch-up through their own websites, typically making content available for between 7 and 30 days post broadcast. In France, for example, around 80% of M6 and Canal+'s programming is available through their web-based catch-up services, while in UK - BBC, ITV and Channel 4 - also make a large majority of their content available online. As a result, free-to-view video viewing accounted for over 99% of all online TV streams and downloads in the UK in 2008. Consumption patterns in other Western European markets and North America demonstrate a similar bias. Given the widespread availability of free content (both legal and illegal) online, most consumers are reluctant to pay for consuming video on the PC. However, the ability to watch shows

pre-transmission holds more value. Some broadcasters, including Five in the UK and ProSiebenSat.1 in Germany, are now delivering certain shows online up to a week before transmission on a rental basis in a bid to persuade users to pay a premium.

213. Some content owners, however, are developing a more radical approach to international windowing. In Germany, Disney-ABC has signed a deal with Deutsche Telekom to distribute subtitled pay-per-view episodes from shows such as Lost and Desperate Housewives just 24 hours after their US broadcast. French broadcaster TF1 has similar deals in place for several US TV series. By offering shows in this early window service providers and content owners alike are hoping to capitalize on

the demand for the latest episodes of high profile series while providing a legal alternative to the many illegal sites already making shows available online in this window.

214. In the CEE, countries such as the Czech Republic, the national broadcaster's channels (CT24, CT Live) have now started to offer content online on a live and archived basis, although only selected content is placed online. Similar services have also appeared in Poland (Ipla, TvBiznes, etc.). However, services are yet to fully develop when compared to Western Europe, indicating that availability of legal content (free and paid) from online services continues to remain limited in the CEE countries.

215. Despite the availability of numerous distribution platforms and content types, content rights in Europe are sold on an exclusive basis for most premium content, as seen in all other parts of the world, and access to major sporting and entertainment content (first run movies, imported TV programming) is mostly acquired by pay-TV operators. Major operators in Europe who have a dominant position with respect to acquisition of TV rights are BSkyB (UK), Viasat/Canal Digital (Nordics), etc. There are, however, several instances where individual channel groups acquire exclusive rights to content (as seen in the US), which are then distributed across all major pay-TV platforms in that country, such as Sport1 (Netherlands).

216. An interesting feature of the European media landscape, though, is its strong commitment to the concept of public service broadcasting. As a result, public service broadcasters in Europe regularly have access to, and produce, programming that is of national interest and importance. In several European countries, regulations also exist to provide these broadcasters with not only public funding, but also to ensure that they have access to important sporting events that are of national interest – and ensuring that consumers in these countries are able to view these programs without having to take a pay-TV subscription[69]. However, the presence of these regulations currently appear to be limited to Western Europe rather than the CEE – indicating that premium interest content is, in many cases, still available exclusively via pay-TV platforms/operators.

217. Despite the presence of regulations governing copyright and circumvention of CAS, regulations surrounding online piracy remain weak in many European countries – Netherlands, Spain, Sweden being key examples. Moreover, action against end-users who infringe copyright laws also remains an uphill task due to European regulations governing privacy[70] – as a result of which ISPs refuse, in many cases, to share details of their subscribers with content owners and other stakeholders. However, the battle against commercial online pirates has been stepped up in recent times, with Sweden's arrest of Bit Torrent tracker The Pirate Bay's founders seen by many as a turning point. In Norway, rights owners are trying to block access to the Pirate Bay website, while similar efforts are also on in the Netherlands. In the CEE, Poland and Lithuania have also stepped up efforts to clamp down P2P file sharing and file sharing servers located within their jurisdictions. Germany, previously seen as a haven for online piracy, has also started cracking down. It has recently fined the cyber locker website Rapidshare $33m for hosting copyright infringing content, while criminal action against YouTube executives has also been initiated. In the UK, the government has started a consultation process to deal with this issue head on, and expects a bill to be brought up in the parliament's final session in late 2009. In Spain, however, piracy (of all forms) continues to proliferate due to weak regulations governing online piracy. In recent months, several cases against P2P services and copyright infringers have been dismissed by Spanish courts, and non-commercial file sharing continues to be legal. However, the situation is being reassessed, and a special

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[69] European Parliament (2008): Article 3a(2) of Directive 89/552/EEC

[70] European E-Commerce Directive

inter-ministerial commission has been formulated to draw up legislation to deal with copyright infringement of all forms. The commission is expected to present its findings by 31st December 2009. France has also recently passed the 'three strikes' HADOPI law, which aims to target repeat online copyright infringers by disconnecting their services. However, implementation of three strikes policies could prove difficult as identifying the transfer of infringing content is a non-trivial technical challenge. Belgian ISP Scarlet was ordered by court in July 2007 to filter and block illegal file sharing of copyrighted works from the repertoire of SAMAB, (Belgian Society of Authors, Composers and Publishers). The court ruling included suggestions on possible technical solutions, including filtering technology of Audible Magic. However, Scarlet appealed against the decision in a little over a year as its attempts to comply with the ruling by throttling P2P traffic and filtering content using Audible Magic solution proved futile. The ISP reported that in addition to causing considerable user discontent, ultimately, the system failed to deter users from illicit file swapping.

218. Clearly, it is more difficult to draw clear and conclusive trends on the causes of unauthorized broadcast signal access and piracy in Europe purely on the basis of few factors such as income levels or platform availability. In such a scenario, it is well worth examining the consumer mindset and attitude towards piracy, in conjunction with the legal/regulatory systems in place to not only educate but also regulate the access to pirated services.

Africa

Tab. 17 Access Barriers – Africa Summary

Endemic poverty and income equality key reasons for low levels of TV, pay-TV and broadband penetration;
As a result, competition between platforms and operators is minimal. Pay-TV market dominated by just a few operators on pan African/regional level (e.g., ART, Multichoice);
Majority of premium content controlled by a handful of pay-TV operators – limiting competition and its impact on access prices;
Limited availability/development of FTA channels in most countries– East African nations mainly access satellite signals from Middle East;
Basic access to services range from 5-25 per cent of monthly per capita GDP, premium content from 40-100 per cent – instantly excluding a majority of the population;
High access costs to premium content promoting unauthorized access of broadcast signals, signal theft and extra territorial access of signals from Middle East;
Low TV and internet penetration, combined with high levels of unauthorized signal access has resulted in limited investment in innovative services;
Online content delivery services almost non-existent – consumers with broadband/internet connections unable to consume/access legitimate content;
Regulations and enforcement of copyright/broadcast law cited as insufficient by industry, with lack of resources and corruption key barriers to tackling piracy;
Poverty, low education levels means awareness of copyright/IP laws non-existent.

219. The availability of pay-TV services in Africa is quite limited when compared to other regions of the world. A limited number of pay-TV operators service the region – majority of who have pan African operations. The biggest in terms of subscriber strength and content availability is South Africa-based DStv, which provides services in almost all of Sub-Saharan Africa. Canalsat Horizon – part of French major Canal+ - provides services in Western Africa, while services from Middle East-based ART and Orbit Showtime are available in Northern Africa and parts of Eastern/Horn of Africa. Other regional providers include TVCabo (Angola), Hi TV (Nigeria), Skyy TV (Ghana), etc. Several smaller regional operators are also present, many of whom resell the Canalsat Horizon and DStv packages.

220. Availability of free and pay-TV channels in the region is also somewhat limited, with only a handful of TV channels operating in most countries. In 2005, it was estimated that only seven (all regional) channels existed in Somalia[71], while Kenya and Uganda both have around 5-10 mostly private TV channels in operation. A similar mix and number of public and commercial TV channels are also seen in other parts of Sub-Saharan. A notable exception is South Africa – where the state of media and communications industry is significantly more advanced than the rest of the continent.

221. A combination of factors such as very low TV and internet penetration rates, limited availability of TV channels (free and pay), combined with high access costs have ensured that legal pay TV services have seen little or no growth in large parts of Africa – stagnating at around 2 per cent of TV households for North Africa and 9 per cent for Sub-Saharan Africa. There are exceptions to this, and a handful of countries - South Africa (23 per cent), Kenya (32 per cent), Uganda (51 per cent) and Angola (66 per cent) – have all fared relatively better than their neighbors with regards to adoption of pay-TV services.

222. Cost of access for pay-TV services in the region varies considerably between operators, and in some cases, between countries. Basic pay services from pan African satellite pay-TV operator DStv start at €2 – providing access to mainly free and a limited number of pay TV channels. However, services from Nigerian based Hi TV begin at €15 and Angola's TVCabo at €20. Premium services – with access to movies and sports – are much more expensive, with DStv's services priced at €45, Hi TV's at €27 and TVCabo's at €68. Although prices of premium pay-TV services are comparable to those available in Europe (€35-€50) and North America (€50-€80), the proportion of these services to monthly per capita GDP is much higher than seen in other parts of the world. Basic pay-TV access costs range from 4 per cent of monthly per capita GDP (pan Africa average) to 25 per cent (Hi TV – Nigeria), while premium access costs range from 42 per cent (Hi TV-Nigeria) to 100 per cent (pan Africa average). A notable exception is South Africa – where basic access accounts for less than 1 per cent of monthly per capita GDP, while premium services account for 13 per cent. In Angola, where pay-TV penetration is the highest in the region, services range from 8-45 per cent of monthly per capita GDP. Moreover, African nations also demonstrate one of the worlds' highest levels of income inequality – with most countries displaying GINI coefficients ranging from 40-50, while South Africa (58), Angola (59) and Namibia (74) have the worst ratios in the region. As a result, the proportion of the total population that are able to afford TV are itself severely limited, further hampering pay-TV growth in the region.

223. Similarly, costs of hardware and installation – usually a one time fee incurred when a consumer signs up for a pay-TV service – are extremely high in Africa. South Africa has by far the lowest hardware and installation costs at 13 per cent of monthly GDP – considerably higher than 1-5 per cent seen in Europe and North America. In the rest of

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[71] Africa Media Development Initiative (2005): Somalia – Research Findings and Conclusions

Africa, hardware and installation costs range from 61 per cent (Angola) to 100 per cent (rest of Africa) – clearly indicating that even basic installation of pay-TV services is beyond the reach of large sections of the population.

224. Premium content in Africa remains largely exclusive to select channels and platforms. Key Sub-Saharan Africa sporting rights for matches from the English Premier League (EPL), UEFA cup, Champions League, South Africa's Premier Soccer League (PSL), FIFA World Cup 2010, etc., are held either by Supersport (pay-TV operator owned by the MIH group - which also owns and operates DStv), Hi TV (Nigerian rights) or ART (North Africa) – effectively ensuring that access to premium sports content is exclusively via the expensive subscription route. Although the entry of Hi TV has enabled viewers in Nigeria to avail of slightly cheaper pay-TV packages, viewers in the other Sub-Saharan African nations have only DStv as a viable pay-TV option. GTV – a pan African pay-TV platform that had several key sporting rights, including national rights for the Ugandan football league and the

EPL - had outbid DStv in 2007, introducing competition for premium content. One of the positive impacts of the competition was the lowering of access prices by GTV, and subsequently DStv. However, following the closure of GTV in early 2009, DStv successfully bid and acquired the rights held by GTV.

225. In line with premium sports content, access to movie and other entertainment content also lies behind the paid-for subscription model, with M-Net (part of MIH) having rights to several first run Hollywood movies and entertainment shows. Similarly, foreign language content (English, Asian, French) is also found only on pay-TV platforms (DStv, Canal Horizon, TVCabo) – limiting the choice of access to households who would want to view these services. However, Arabic-speaking regions of North Africa/Eastern Africa have a greater choice of FTA programming and content due to the availability of Middle East focussed satellite FTA channels.

226. Due to the extremely low penetration of internet among households (~2 per cent) and general lack of available bandwidth, online delivery of content has been essentially non-existent, with none of the international content providers or local channel operators currently running legal online content services (free or paid) in the continent.

227. Although content censorship laws in Sub-Saharan Africa are less strict than the Middle East and North Africa, content restrictions, especially on news, has been considered a problem in the continent. Channels transmitting content not acceptable to governments in the various countries are often blocked out. However, there does not appear to be any regulations precluding any particular distribution platform(s) from operating in any of the Sub-Saharan nations.

228. While copyright laws exist in most of the African nations, current laws are seen to be deficient with respect to online piracy. Respondents were also of the opinion that protection of broadcast signals alone were insufficient, and that the content included/contained within these broadcast signals should also be protected by future regulations/treaties introduced by international bodies such as WIPO. Recent surveys conducted in the continent indicate that regulation enforcement and education of copyright laws among the population continue to be primary concerns for all stakeholders, especially in countries like Kenya and Togo. In Senegal, for example, the anti-piracy squad consists of just 22 members – to police a nation of 13m inhabitants – indicating the scale of the problem[72].

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[72] Balancing Act Africa (2009): 'Investigating audiovisual piracy in Africa'

Middle East

Tab. 18 Access Barriers – Middle East Summary

High proportion of expatriates in many Middle-Eastern markets, with many in low-paying jobs;
Competition between platforms/operators minimal – most markets are served by 1-2 operators), with a subsequent minimal effect of competition on consumer prices;
Cost of access to pay-TV services remains the key barrier in many countries. Despite high per capita GDP in certain markets, relatively high levels of income inequality are present and inhibit overall affordability of TV;
Multitude of FTA satellite signals, but minimal foreign language (non-Arabic) content targeting expatriates;
Limited availability of content – due to lack of technology, strict censorship laws – forcing consumers to look elsewhere;
Broadband penetration low due to high access prices – lack of legal online services targeting consumers;
Unauthorized signal access via smart card piracy and extra-territorial access common due to historical lack of regulation and regulation enforcement;
Government apathy towards piracy in some countries, with copyright and broadcast rights not a key priority;
In other countries (UAE, Saudi Arabia, Kuwait), recent changes in regulation and increased enforcement is starting to act as deterrent.

229. In spite of the high penetration of TV sets in households – between 85-95 per cent and in line with those seen in developed nations in Europe and North America – a majority of Middle Eastern countries display low levels of pay-TV penetration. Higher than average disposable incomes combined with zero/low taxation structures in many of the Middle Eastern countries have all been attributed as underlying reasons for high TV penetration, but this does not seem to have translated into increased take up of paid services. On the contrary, pay-TV penetration for the MENA (Middle East North Africa) region is a mere 8 per cent, while unauthorized access of broadcast signals and piracy has been reported as being rampant by stakeholders.

230. Pay-TV services in the region are available only from a handful of service providers, the largest of which - Orbit Showtime and ART - are pan MENA satellite pay-TV operators. Other localized service providers include Du (UAE - IPTV), E-Vision (UAE - Cable), Mozaic TV+ (Qatar – IPTV) and Neu TV (Bahrain – IPTV), many of whom are also resellers of the Orbit Showtime or ART channel packages. In most markets, competition between services is limited to a maximum of three, maybe four, providers, indicating that (consumer level) price-based competition between operators is typically low.

231. Cost of access – seen in many regions as a key barrier to pay-TV access – remains the prime barrier in the Middle East. Basic pay-TV services from satellite operators and local cable/IPTV operators are priced from €10-€15. A notable exception is Qatar, where basic access prices from local operator Mozaic TV+ are much higher, starting at €45. Cost of access to premium content (sports and movies) ranges from €35-€45 for the satellite operators and €50-€75 for the local operators – indicating that costs incurred by consumers while acquiring additional premium packages go up by 65-250 per cent, depending on the operator and country.

232. When compared to per capita monthly GDP, basic pay-TV access accounts for approximately 0.5-1 per cent and access to premium packages range from 2.5-4 per cent. While on the face of it, access costs as a percentage of monthly per capita GDP are comparatively low when compared to other regions, these figures do not take into consideration the large disparity in household incomes in these countries. A direct result of these countries' wealth from natural resources has been the influx of foreign nationals, who form a large majority of the workforce (skilled and unskilled). In UAE alone, 80 per cent of the country's population was made up of expatriates in 2005[73]. Recent census reports from the UAE highlight the income disparities quite well – with the reports indicating that the household incomes of UAE nationals are more than twice that of non-nationals[74]. Similar conditions can also be seen in other Middle Eastern countries, especially among GCC (Gulf Cooperation Council) members.

233. Although a plethora of FTA satellite channels serving the Middle Eastern countries exist[75], distribution of premium and non-Arabic language content is by and large limited to pay-TV channels available from the region's handful of operators, and primarily from satellite operators, ART and Orbit Showtime – resulting in limited competition between operators, and a relatively limited diversity in the content supplied. In recent months, some key rights to events such as the English Premier League (EPL), which were previously held by pay-TV operator Showtime, have been obtained by FTA broadcasters such as ADMC (Abu Dhabi Media Company). However, these channels are now likely to be encrypted as part of the deal between the ADMC and EPL, and will most likely be distributed via the region's pay-TV operators.

234. Similarly, a large majority of the FTA channels available via satellite cater to the Arabic-speaking population in the MENA region - resulting in the exclusion of the non-Arabic-speaking population, for whom free TV services via both satellite and terrestrial are largely limited. Although services are available via the 'Pehla' (Asian/Indian sub-continent focus), 'Showtime' (Western focus) and 'Pinoy' (Philippines focus) packages offered by ART and Orbit Showtime, and are commonly resold by other operators in most Middle Eastern countries, in many cases, costs of access to these services are prohibitive to population/households in the low and even lower-middle income strata – to which large sections of the expatriate population belongs.

235. Regulations governing content availability are relatively strict in the Middle East, and content that is un-Islamic is not allowed in many markets to be distributed. This includes both broadcast content and movies released in cinemas in the region, which go through a strict censorship process. In Saudi Arabia, for instance, there is a complete ban on the presence of cinemas – forcing consumers to either view movies when they become available (legally) on TV channels (FTA/Pay), or when they become available via the limited number of legal video stores that operate in the country. In most cases, consumers tend to prefer the pirated, often uncensored, copy that arrives in the market prior to the movies being released via the TV/home video window. Although regulations in other Middle Eastern markets are not as severe as those of Saudi Arabia, similar censorship laws exist – considerably delaying the availability of legal content via cinemas and pay/free TV, and forcing consumers to look towards other illegal sources for satisfying their entertainment requirements. Similarly, when compared to Europe and the US, breadth

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[73] UAE Ministry of Economy: UAE In Figures 2005

[74] Arabian Business (2009): http://www.arabianbusiness.com/545582-uae-average-monthly-income-aed1824860

[75] Arab Advisors Group (2009) estimated that approximately 474 FTA satellite channels were in operation.

of legal online video services available in the region is limited – restricting the options available to broadband subscribers and owners of portable media players.

236. Insufficient regulations – especially pertaining to online piracy - and less stringent enforcement of existing regulations have been quoted as being one of the key causes for the rapid growth of unauthorized access and piracy in the region by content owners, broadcasters and pay-TV operators. However, stakeholders dealing with piracy in the region have been largely positive about the steps taken by the various governments in the GCC region of the Middle East in tackling piracy. Notable examples are UAE – which has been handing down deterrent custodial sentencing and fines to pirates (online, physical and hardware), and also working towards shutting down websites and servers hosting unauthorized copyright content and IP addresses known to be distributing pay-TV smart card key words. Saudi Arabia has also recently stepped up raids against sale of physical pirated goods in open markets, and has been blocking access to websites known to be distributing copyright infringing material. Similar steps have also been taken in Kuwait. Several countries in the region have also banned the import of STBs that have Ethernet ports, in a bid to stem the increase in card sharing/keyword sharing piracy. In other parts of the Middle East (Iraq, Jordan, Lebanon and Syria) and North Africa (Algeria, Morocco, Tunisia), although authorities have made efforts in recent years to combat piracy through conducting raids, stakeholders continue to hold the view that both regulations and its enforcement continue to be less stringent, as a result of which piracy continues relatively unabated.

SOURCES

237. The organizations contacted for the purposes of this report include: AAA; ABU; ABTA (Brazil); ACT (UK); AEPOC; AIR IAB; AKTR (Russia); APCM (Brazil); ART (MENA); ASBU; Bush Consulting (Australia); BIG Entertainment (India); CASBAA; Conatel (Venezuela); Czech Anti-Piracy Union; Department of Business, Innovation and Skill (UK); DirecTV (U.S); Dish Network (U.S); EBU; Envisional (UK); Essel Group (India); FACT (U.K); FAPL; FICCI (India); FIFA; Hi TV (Nigeria); IOC; Ministry of Culture and National Heritage (Poland); Ministry of Education and Culture (Finland); Ministry of Culture and Communication (France); Ministry of Communication (Italy); MPAA (U.S, Europe); Multichoice (South Africa); NABA; NDS; IPO (UK); NCTA (U.S); Orbit Showtime (MENA); OTI; Rotana (MENA); SABA; STOP (Scandinavia); Subtel (Chile); Sygnal (Poland); Time Warner (U.S); TV Globo (Brazil); URTNA.

[Glossary follows]

GLOSSARY

ARPU: ARPU is an acronym for Average Revenue per Unit and is equivalent to the average revenue generated by each subscriber in a given period (usually monthly or yearly).

Basic pay-television: the lowest level of service available for which the customer has to pay a monthly fee.

Broadband Internet: High-speed Internet generally taken to be Internet offered at speeds greater than 150Kbits/second. The term cable Internet also generally refers to broadband Internet offered over cable (as opposed to DSL or fibre)

Churn: Churn is an expression of the number of customers leaving a network (cancelling their subscription) in a given period calculated as a percentage of the average number of customers to that network during the period

Conditional Access Systems: Conditional access systems (CAS) are the encryption and control system used to protect delivered content from being decoded outside of the authorized network of STBs. It includes an encryption system at the transmission side and a companion decryption system in the STB, usually activated using a smart card.

Direct Download Links (DDL): downloading/streaming a file by means of a traditional client-server network (cf. peer-to-peer (P2P) network)

DSL**:** Stands for Digital Subscriber Line and refers to a set of technologies used for digital data transmission over a local telephony network. Several generations of technologies are in use at present, including the common (in order of data transfer speed) ADSL, ADSL2+ and VDSL.

File sharing: in the context of online piracy, file-sharing refers to the act of illegally distributing audio-visual content, computer software, video games, and other content. As a rule file-sharing is a non-commercial activity from a user perspective; however, there are commercial activities built around file-sharing (e.g., banner ads on torrent indexing sites). Internet file-sharing occurs on, but is not limited to peer-to-peer (P2P) networks.

Geo Blocking: the use of geo location software to prevent internet users from outside a particular region from accessing a website or its services. Each country in the world is assigned a set block of IP addresses, which forms the basis for geo blocking. Geo blocking is used by broadcasters to prevent users from outside their particular regions/country from accessing programming/content on their website due to limitations in their distribution agreement.

Gini Coefficient: is a statistical measure which is used to measure income inequality. Gini coefficients range from 0 to 100 – with a completely equal society (where all citizens/individuals earn equally) having a value of 0 and a completely in equal society having a value of 100. Gini Coefficient data used in this report has been sourced from the UNDP Human Development Report 2009.

Grey Market: Grey market in this instance refers to broadcast content/pay-TV signals that are accessed outside of the content provider's authorized distribution regions and which results in copyright infringement.

IPTV: Internet Protocol Television IPTV is the delivery over a broadband connection of television content using Internet Protocol within a 'walled garden' environment. IPTV has been widely used by telecoms operators to offer TV over their ADSL networks. IPTV can also be used by cable companies both within their own network infrastructure and as a means of expanding their service reach outside their areas of operation over unbundled third-party DSL networks.

Peer-to-peer (P2P): is a form of internet based network architecture wherein the participants/users are both consumers and suppliers, as opposed to a client-server based approach where the consumer only downloads material from the server/supplier. A P2P network relies on the increasing participating of users to increase the network throughput, and does not use centralized servers to store the material.

Penetration**:** Proportion of households (typically households owning TVs) with a particular service.

Playback hardware**:** Refers to the equipment used to display/listen to material stored on recording media like optical disk, VHS, etc. Common playback hardware are VCRs, DVD Players, Blu Ray players, etc.

Premium television: Single or packaged of high-value channels that contain premium content and command a high customer subscriber fee. Typically refers to recent movie or top-level mainstream sports content.

Progressive download: A system whereby content is transferred over an open or closed network and stored in memory. After a period of buffering, the content may be played out in real time or watched later depending on usage restrictions. At the completion of a progressive download a copy of the file is left on the device unless software intervenes to remove it. Many 'streaming' services in fact use progressive download.

Set-top box: A cable set-top box is an analogue or digital receiver and decoder that converts the signal received to one suitable for a standard television set. The set-top also performs certain conditional access functions and may run the software that enables interactive television services. Set-top boxes are widely used in digital terrestrial, cable, satellite and IP television, but less widely used for analogue services.

Subscribers**:** A subscriber is an individual cable customer, the important distinction being that a subscriber is a single unique unit and thus differs from a subscription or RGU.

Smart Card: In the context of conditional access systems, smart cards, or integrated circuit cards (ICC) are plastic cards that contain embedded microprocessors, capable of storing conditional access information on them, which are essential to decrypt and access the broadcast content sent to the set top box.

Streaming: A method of constantly delivering (usually audio-visual) material over the internet. While traditionally streaming media involved a one-to-one connection between the user and the server, P2P streaming services are now available which use P2P technology to deliver media between many users while constantly accessing the content, unlike traditional P2P where individuals files can be accessed fully only after completing a download.

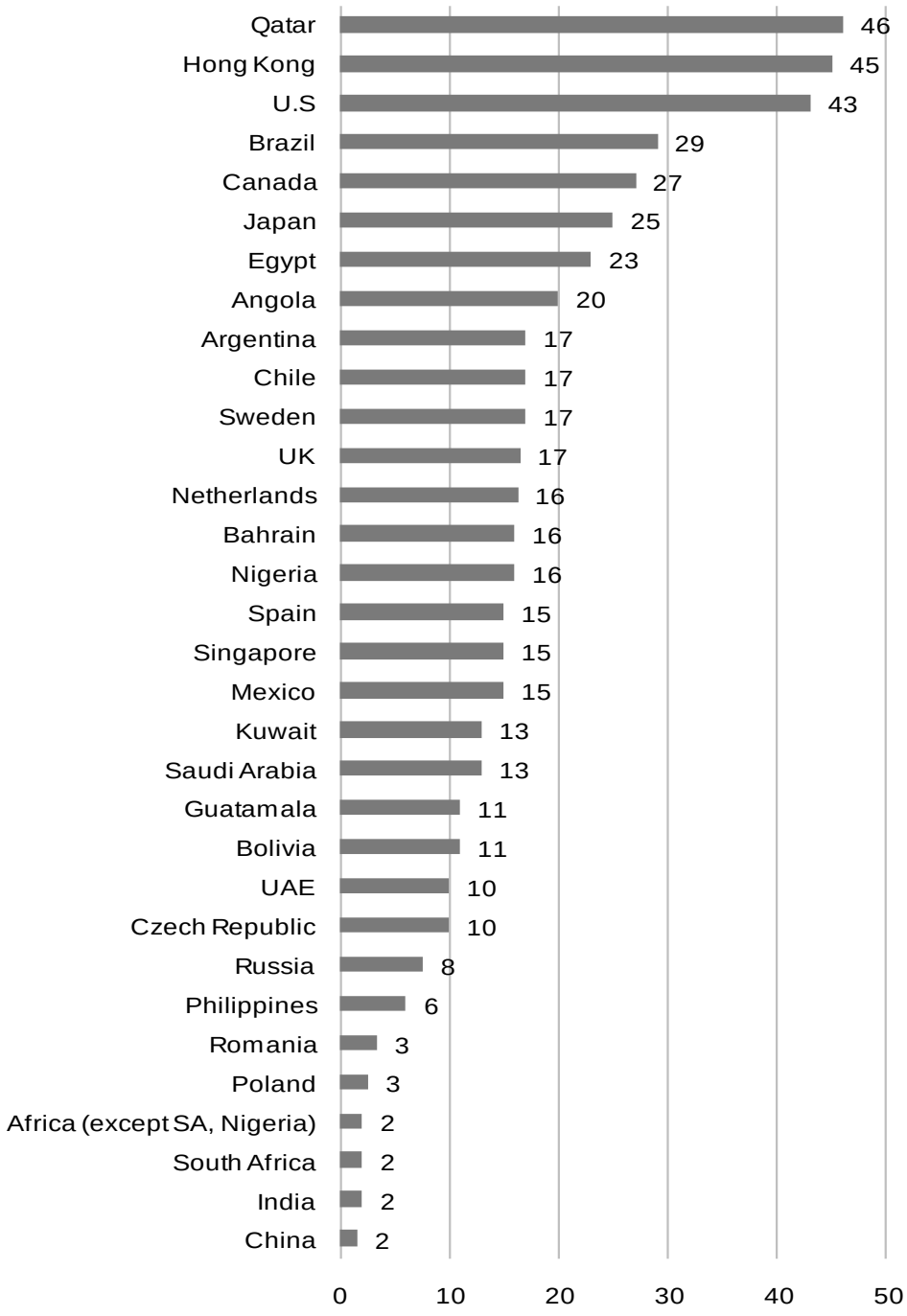
Leaching: In the context of online piracy, leeching websites are those sites that redirect users to third party streaming or DDL websites that offer (mostly illegally) copyrighted material. In many cases, leeching sites perform the role of an online content aggregator – categorizing the copyrighted material available on these third party sites and offer multiple links to various sites for the same content.

User-Generated content (UGC): content uploaded by end-users. User-generated video is currently the most popular online video content (in terms of the number of streams). Sites like YouTube, DailyMotion, MetaCafe, myvideo.de specialize in hosting and delivering user-generated video.

[Appendix follows]

APPENDIX

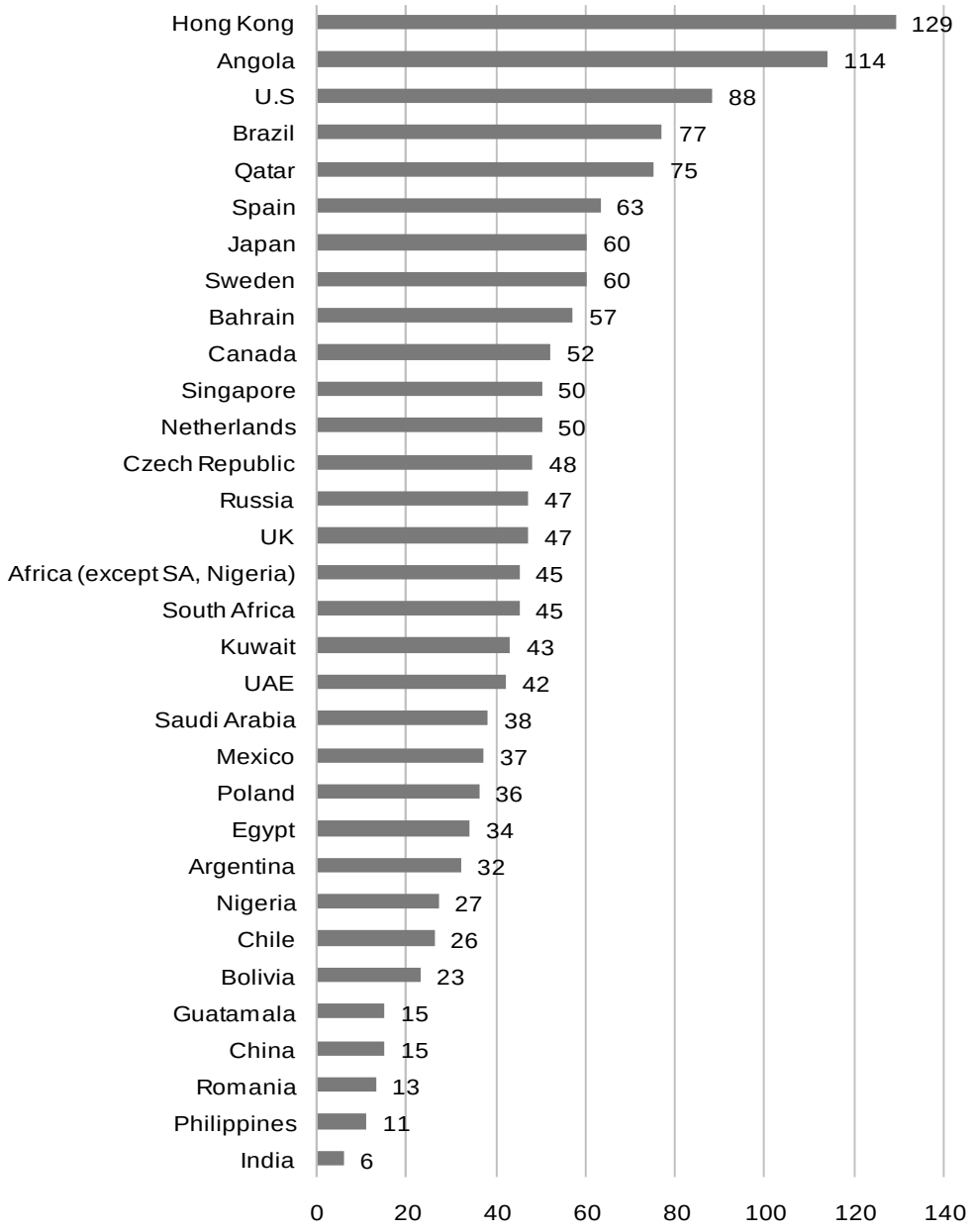
Fig. 10 Basic pay TV subscription cost €



Source: Screen Digest

Note: Where available, basic access prices used are those charged by local pay-TV operators

Fig. 11 Premium pay TV subscription cost €

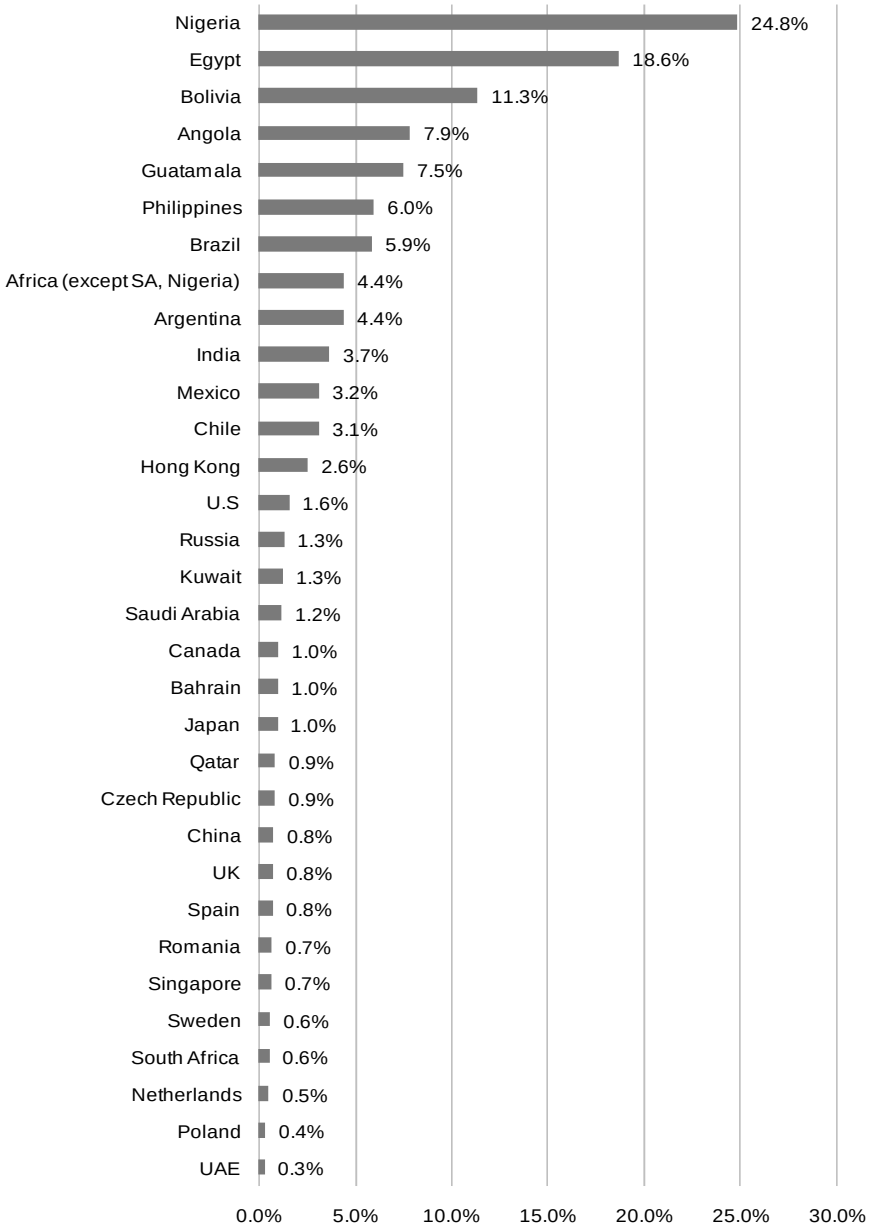


Source: Screen Digest

Note: Where available, premium access prices used are those charged by local pay-TV operators

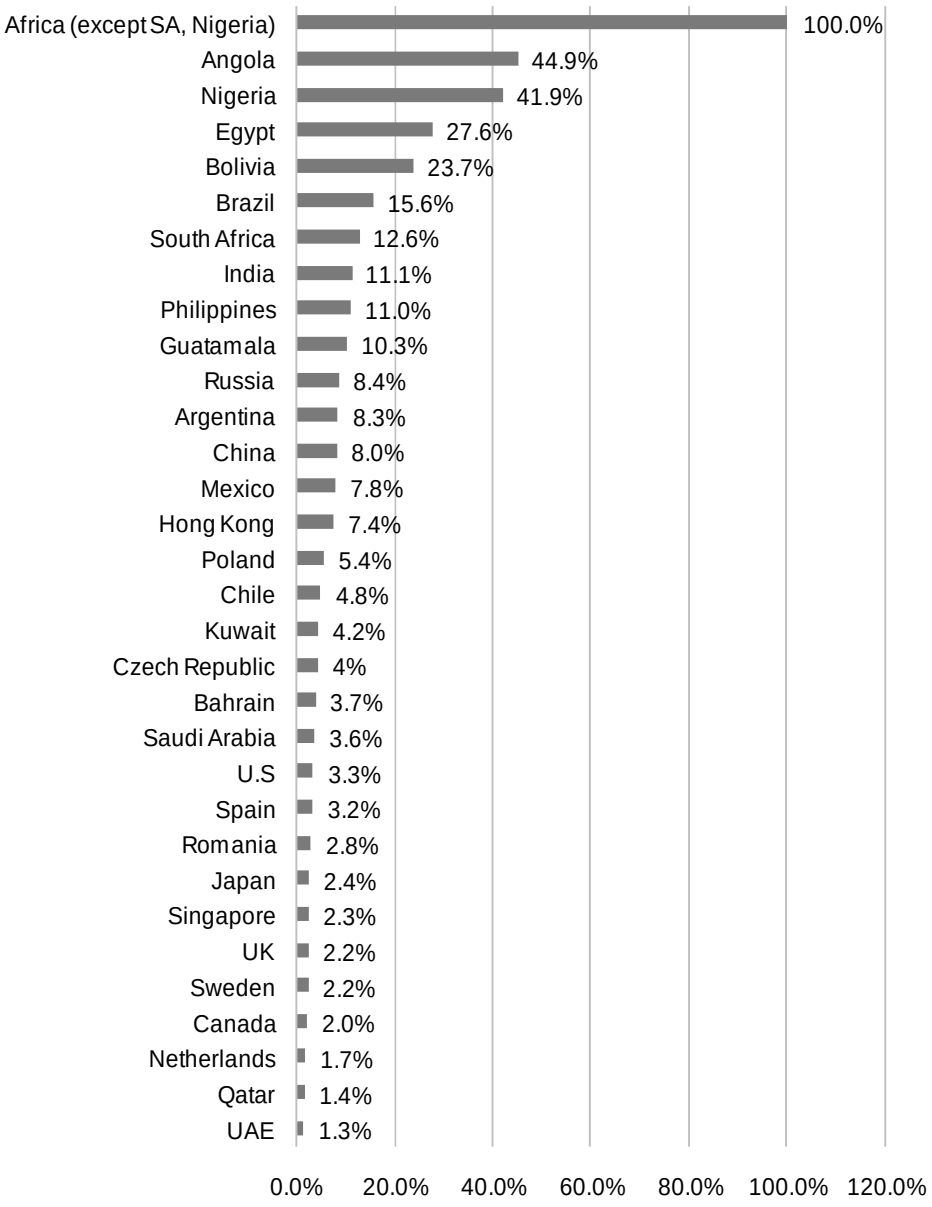
Note: Premium access includes both sports and movie channels

Fig. 12 Basic pay TV subscription cost as a % of per capita GDP



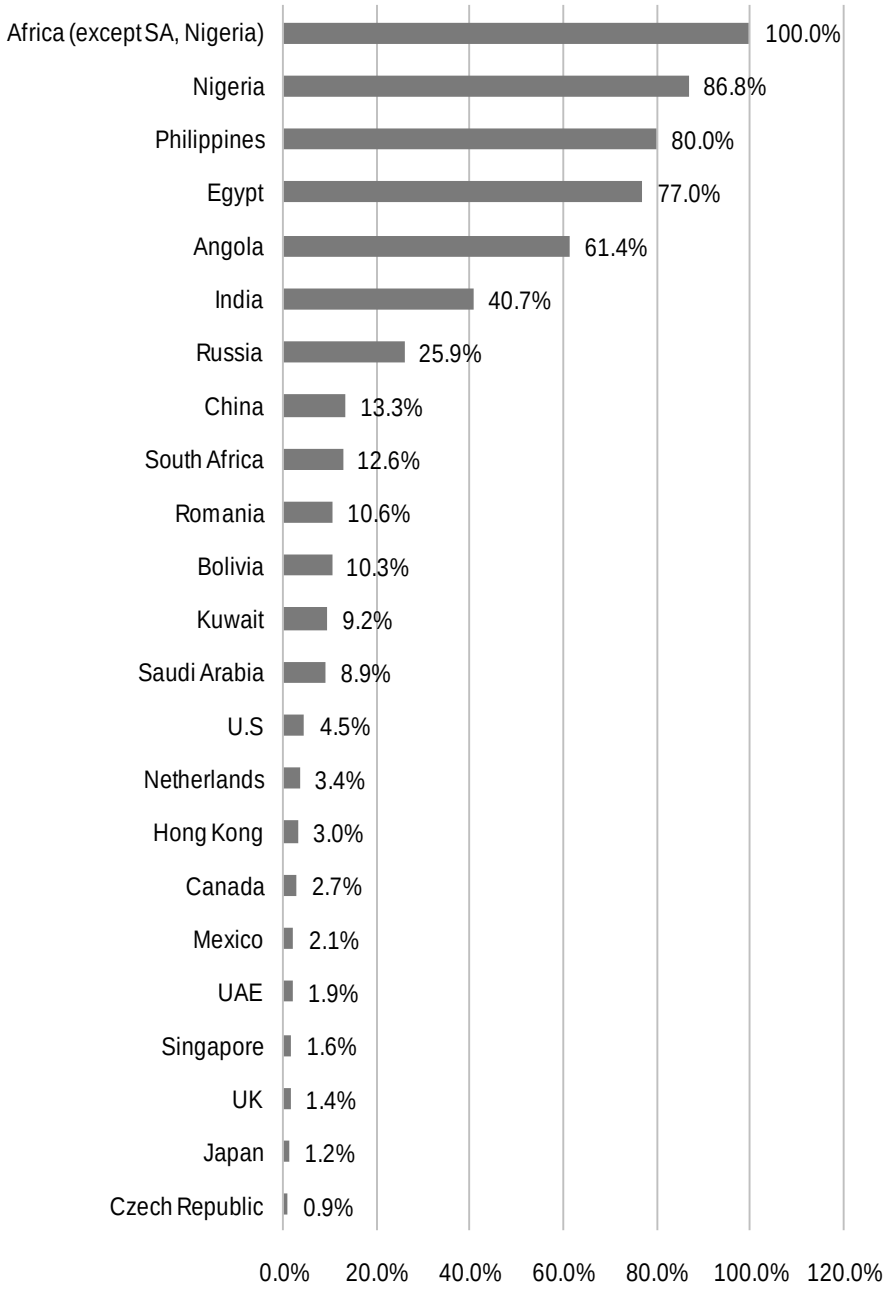
Source: Screen Digest, IMF

Fig. 13 Premium Pay TV subscription cost as a % of per capita GDP



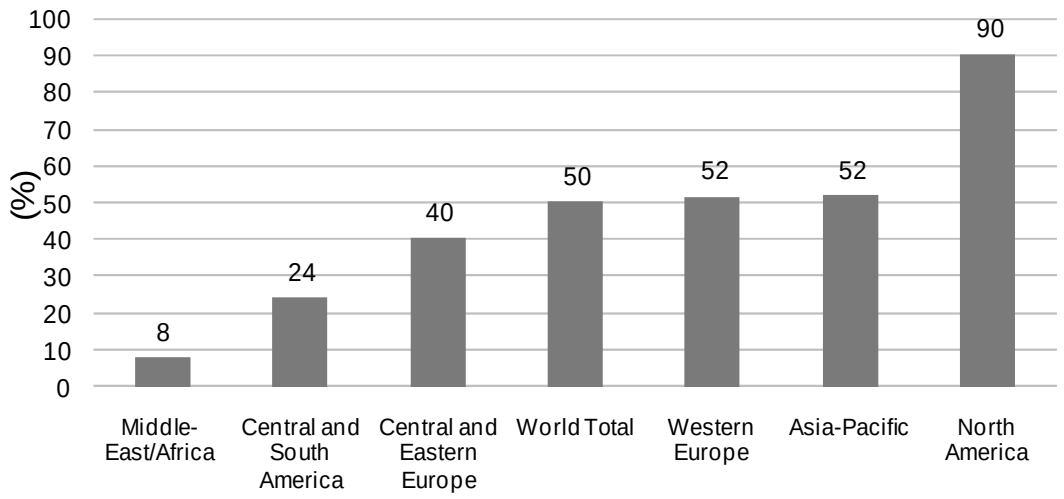
Source: Screen Digest, IMF

Fig. 14 Average Hardware/Installation costs as a % of per capita GDP



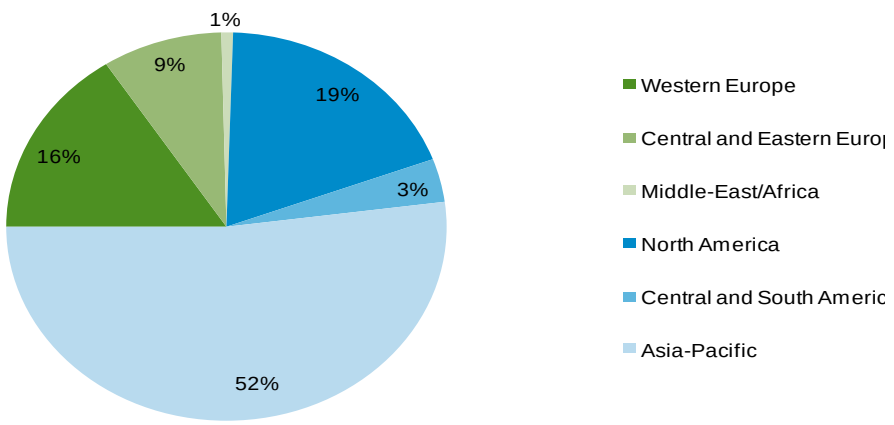
Source: Screen Digest, IMF

Fig. 15 Pay-TV Penetration



Source: Screen Digest

Fig. 16 Worldwide Pay-TV Subscribers (YE 2008)



Source: Screen Digest

Tab. 19: Piracy estimate source methodology[76]		
Reference	**Source**	**Source Methodology**
3,6,26	MPAA Report 2004: 'Worldwide Study of Losses to the Film Industry & International Economies Due to Piracy; Pirate Profiles'	Study conducted by LEK in 22 countries, and based on consumer demand. LEK surveyed 20,600 movie consumers using a number of methods such as focus groups and telephone, internet and in-person interviews. Data from the 22 countries was extrapolated to 42 additional countries using a regression model, and based on country-specific characteristics. Losses from piracy are calculated based on the number of legitimate movies - movie tickets, legitimate DVDs - consumers would have purchased if pirated versions were not available.
4,5,15	IPSOS 2007: Digital & Physical Piracy in GB, Wave 5 November 2007 Oxford Economics Report, March 2009 – 'Economic Impact of Legislative Reform to Reduce Audio-Visual Piracy'.	2000 adults aged 15+, representative of UK's national and regional population/demographic breakdown, were interviewed for the report. IPSOS study measured the proportion of people who are engaged in various forms of piracy, the average number of pirated units and the prices paid per unit, as well as calculating the proportion of pirated units that would have resulted in genuine lost sales.
9	AEPOC (2009)	Obtained via telephone conversation with AEPOC representative – methodology unknown.
10,11,20, 38,39	CASBAA, October 2008 : 'Digital Deployment, Asia-Pacific Pay-TV industry study'	CASBAA estimates are based on survey of industry players, who provide estimates (based on audits, subscriber records, market research and other resources available to the companies) of the number of paid and unpaid connections. These estimates are further adjusted to account for actual consumer demand - the fact that in the absence of piracy, only a portion of consumers would switch to legitimate program streams. This factor differs for each market based on several other factors such as national income, cable price levels, etc., which are also taken into consideration.
12	Gregory Taylor (2006) : 'Grey to Black – Satellite Piracy in Canada'	Original source CASST. Methodology unknown.

[76] Where available, details of methodology used have been obtained from source text/files

16	DISCOP Organization/Basic Lead (2009): 'Fighting Piracy With Creative Solutions: A Qualitative Study of Audiovisual Piracy in Africa'	Qualitative analyses based on survey of 45 Africa-based media professionals. Survey conducted using methods such as mass email and telephone interviews.
17,19	IPI (2007): 'The True Cost of Copyright Industry Piracy to the US Economy'	Data gathered on losses from piracy incurred in 2005 by motion pictures, sound recordings, and business software and entertainment software/video games. A RIMS II mathematical model maintained by the US. Bureau of Economic Analysis (BEA), was further used to measure the lost economic output, jobs and employee earnings that are the economic impact of copyright piracy.
23	NCTA (2003)	Methodology unknown
24	CASST (2004): 'Broadcasting Industry Applauds Sentencing of Dealers in Illegal Satellite Equipment'	Methodology unknown
25,41	Bay TSP (2009): 'Annual Report. Online Trends and Insight'	Bay TSP country ranking based on its client's contents appearing on illegal file sharing and streaming sites, and origin of file sharer/downloader.
27	Sports Business Journal (2009)	Methodology unknown
28	Advertising Age (2009) : 'Univision: YouTube's Most Pirated Broadcast TV Network'	Original source - TubeMogul. TubeMogul tracks publishers' content on the web and provides analysis of when, where and how the content was viewed online. Further details on data collection methodology unknown.
31,35	ODAI (2009)	Methodology unknown
32	CANITEC (2009)	Methodology unknown
33	Department of Canadian Heritage (2005): Brazilian Market for Television And Cinema	Original source ABTA, Jornal do Commercio. Methodology unknown
37,67	CASBAA (2009)	Obtained via telephone conversation with CASBAA representative – methodology unknown.
40	Loebbecke and Fischer (2005): Pay-TV Piracy And Its Effects On Pay-TV Provision	Methodology unknown

41	STOP (2009)	Obtained via telephone conversation with STOP representative – methodology unknown.
43	CIACP (2009)	Methodology unknown
45,48	SGAE (2005, 2009)	Methodology unknown
47	BRIEN (2009)	Methodology unknown
49	Torrent Freak (2008)	Methodology unknown
50	Torrent Freak (2007)	Original source – Sumo Torrent, a bit torrent index/aggregator site. Data based on usage patterns of a sample of 400,000 users.
51	CPU (2009)	Methodology unknown
54	SAFACT (2009)	Methodology unknown
59	Arab Advisors Group (2009): Satellite TV In The Arab World 2009	Data estimated using questionnaire based surveys and face-to-face interviews with 700 respondents aged 15+ from different parts of urban Egypt. Sample is said to be proportionate to the population demographic according to official figures. Respondents were 15 years old and older.
60,61	IIPA (2009): Special 301 Report on Copyright Protection and Enforcement	Estimated losses due to piracy are calculated by IIPA's member associations. Piracy levels are also estimated by IIPA member associations and represent the share of a country's market that consists of pirate materials.
62	IP Academy Singapore (2005): Illegal Downloading and Pirated Media in Singapore. Consumer Awareness, Motivations and Attitudes	Data estimated using telephone surveys and face-to-face interviews and observations of 1000 respondents. Sample size representative of population demographic of Singapore.

Tab. 20: The evolution of Bit Torrent

Note: Swarm refers to all users sharing any portion of the given file

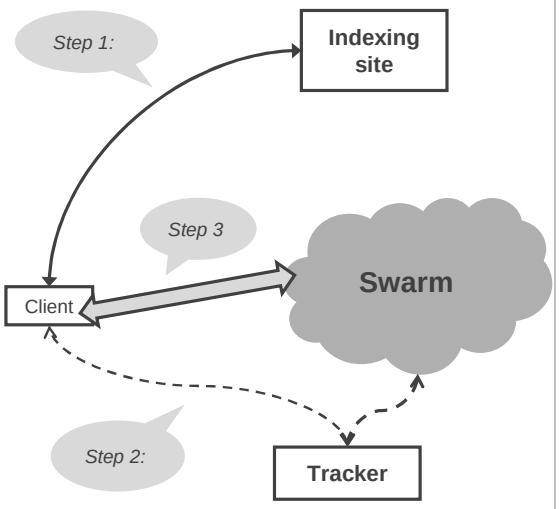
Traditional tracker-based Bit Torrent mechanism

Step 1: User searches for and downloads a torrent file, opens it with a BitTorrent client

- While it is common to obtain torrent files/links to torrent files from indexing sites (such as mininova.org or thepiratebay.org), links to torrent files can also be found using any search engine (e.g. google.com or bing.com)

Step 2: Client checks in with the Tracker to receive information about other peers in the swarm; this is step is regularly repeated as long as the client is switched on

Step 3: Client downloads content file from the swarm



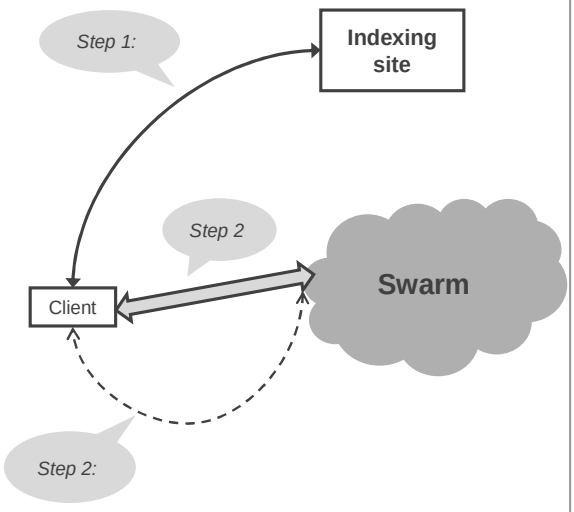
*Note: client is part of the swarm

Distributed trackerless Bit Torrent mechanism

Distributed BitTorrent networks function in a very similar way to centralized tracker models, except there is no connection to a tracker server required: instead, the client obtains information on other peers directly from the swarm – i.e. each client effectively acts as a tracker

Step 1: instead of a torrent file, users have to obtain a hash key (thepiratebay.org uses 'magnet links')

Step 2: using the hash key, client joins the swarm and in addition to exchanging the file, also exchanges the information about other peers in the swarm with the peers it connects to



*Note: client is part of the swarm

[End of Appendix and of document]