



FINAL REPORT

Supporting Subtel in developing a regulatory framework for the launch of DTT:

Country Appendices

Country Profiles

- UK

- Spain
- Italy
- France
- Australia
- New Zealand
- US

The UK has very high digital penetration due to its well established DTT and DTH markets and represents “the” best practice in DTT roll-out

2006-2007

General Indicators	
Population (millions)	60.7
HH (millions)	25.8
GDP (US\$ bn)	2,322
GDP (US\$ per capita)	38,250
Total Adv Market (US\$ bn)	35.2
% of GDP	1.5%
TV advertising (US\$ bn)	8.5
% of Advertising market	24%

TV Market Indicators	
TV HH (millions) (% of HH)	25.6 (99%)
PayTV HH (millions) (% of HH)	12 (47%)
Digital penetration (millions) (% of TV HH)	21.1 (83%)
DTT HH (millions) (% of TV HH)	9.3 (37%)
DTH HH (millions) (% of TV HH)	8.3 (32%)
Cable HH (millions) (% of TV HH)	3.5 (14%)
of which digital (millions) (% of TV HH)	3.3 (13%)
IPTV HH (millions) (% of TV HH)	0.2 (1%)

Sources: Informa 2007, CIA World Factbook, The Economist, USD / GBP conversion at 2006 rate: 1.84

Other relevant TV market peculiarities

Key players

Analogue

- **4 key players (and five channels):**
 - BBC (PSB operates 2 national terrestrial channels) ~ 30%
 - ITV (CSB with public remit) ~ 20%
 - Channel 4 (PSB) ~ 10%
 - Five (CSB) ~ 5%

DTH

- **BSkyB monopoly**

Cable

- **Virgin media monopoly** (merger of NTL Telewest and Virgin Media)

IPTV

- Homechoice (now owned by Tiscali) launched IPTV services in 2003
- Expected launch from Orange, Virgin Media and BSkyB

Industry structure

- **2 transmission service providers:** National Grid Wireless (NGW) and Arqiva
- **Arqiva recent acquisition of NGW** subject to competition commission inquiry

HDTV development

- HDTV **first launched with cable** in December 2005
- **April 2006 launch on DTH**
- **First UK trial of HDTV on DTT in 2006** (MPEG-4, 64-QAM)

Mobile TV

- At present, there is a lack of spectrum for mobile broadcasting (DVB-H) although a **mobile TV service based on the DAB broadcasting standard was launched with little success** to date (the service was dropped in July 2007)
- Many **trials of other broadcast technologies** underway (O2 trialing DVB-H)
- Vodafone and 3 offer basic mobile TV services over their 3G networks

Key elements of regulatory framework for DSO

Key policy priorities

- **Access to FTA DTT for all HH**
- **Spectrum efficiency**
- **Increased offering of content**, enabling FTA broadcasters to **compete against growing take-up of Pay-TV platforms**

DSO timeframe

- First DTT platform launch (On Digital / ITV digital) in November **1998** with pay model
- **Freeview** (consortium between BBC, NGW, BSkyB, ITV and Channel 4) launched in **2002**
- **Regional ASO** started in October **2007** (completion expected end **2012**)

Regulation on technical aspects

- **DVB**
- **Common standard MPEG2 imposed** (was most efficient at the time)
- **Currently considering to allow upgrade to MPEG4**: however, this will require STB upgrade
- Mix of 16 QAM and 64 QAM (with **64 QAM recommended**)
- **MFN accepted for complexity / cost reasons** but **future plans for SFN post ASO**
- **Regulator chose not to mandate phone modem** for interactive services: wifi return path options currently being investigated but **likely to leave decision up to market**
- **Common EPG mandated**

Spectrum allocation

- **6 MUXs allocated for DTT**
- **MUXs allocated to MUX operators** (2 BBC, 1 ITV, 1 ITV/Channel 4 and 2 National Grid Wireless) by regulator in public process (**1 given for free to BBC, rest allocated through beauty contest**)
- **Digital Dividend will be auctioned or assigned via beauty contest from Q3 2008** to allow **widest possible range of uses**, including local DTT, additional national DTT, HD, mobile TV, broadband wireless, etc.
- **ITV and NGW can sell channel slots** within their MUXs to **3rd party broadcasters**
- **2 MUXs (ITV and ITV/Channel 4) have obligations in terms of spectrum usage** (to be reserved for ITV, Channel 4, Channel 5 and S4C Wales programming)

Sources: Informa 2007, Ofcom Website, Interviews

Key elements of regulatory framework for DSO

License duration and obligations

- **12 year digital license awarded to MUX operators - conditions for renewal yet to be decided**
- **Channels have a content provider license (unlimited duration)**
- **Coverage obligations:**
 - Initially only in terms of towers to be dedicated to DTT (equivalent to reaching ~65% of the population) in first 4 years
 - Currently 98.5% for PSBs by 2012, 90.5% for all other MUXs by 2012
- **Not more than 10% of the MUX capacity may be used for non-TV broadcast content (limitation to interactive services to guarantee)**
- **Obligations to fully use frequencies**
- **No separate licenses** are in place for national and **regional** broadcasting
- **Separate licenses awarded to the transmission operators** (e.g. Arqiva)
- **No authorisation** is required to launch a **PayTV channel**
- **Separate licenses for PSB and CSB:**
 - Analogue licenses of CSBs were replaced in with **digital licenses**, which included additional requirements regarding **targets for DSO**
 - PSB **BBC** is regulated according to its founding charter with **specific DTT obligations**
- **DTH coverage will complement** (FreeSat service to be launched in 2008) **DTT** in order to cover population that cannot be reached by DTT

Business models and cost impact

- **Originally Pay-TV** (ITV Digital), **FTA since 2002** with the launch of Freeview
- **PayTV platforms recently launched** (TopUpTV and Setanta) but currently showing **limited results**
- **Exceptional budget increase to BBC** to support DTT launch

Key elements of regulatory framework for DSO

Impact on industry structure

- **Regulatory framework** provides for 3 key entities:
 - **Channels:** BBC, ITV, etc
 - **MUX operators:** BBC, ITV, Channel 4 and NGW
 - **Network operators:** NGW and Arqiva

Other

- **Success factors of Freeview:**
 - FTA model
 - Varies channel offering (vs. analogue TV)
 - Leadership role given to BBC
 - Strong government support
 - (HDTV has proven to be a less important factor)
- **Digital UK** is a cross-player industry body entrusted to coordinate stakeholders in the management of the digital transition (regulator sponsored creation of this body to support transition to DTT)
- **Must offer agreements in place:** PSBs must offer their channels to all main distribution platforms on FTA basis

Country Profiles

- UK
- **Spain**
- Italy
- France
- Australia
- New Zealand
- US

Total digital penetration in Spain is high mainly due to DTT and DTH penetration

2006-2007

General Indicators	
Population (millions)	45.1
HH (millions)	14.3
GDP (US\$ bn)	740
GDP (US\$ per capita)	16,400
Total Adv Market (US\$ bn)	8.9
% of GDP	1.2%
TV advertising (US\$ bn)	3.9
% of Advertising market	44%

TV Market Indicators	
TV HH (millions) (% of HH)	14 (98%)
PayTV HH (millions) (% of TV HH)	4 (29%)
Digital penetration (millions) (% of TV HH)	7.2 (51%)
DTT HH (millions) (% of TV HH)	3.5 (25%)
DTH HH (millions) (% of TV HH)	2.1 (15%)
Cable HH (millions) (% of TV HH)	1.4 (10%)
of which digital (millions) (% of TV HH)	1 (7%)
IPTV HH (millions) (% of TV HH)	0.592 (4%)

Sources: Informa 2007, CIA World Factbook, The Economist, USD / Euro conversion at 2006 rate: 1.26

Other relevant TV market peculiarities

Key players

Analogue • 5 key players:

- RTVE (State owned and subsidised) ~ 25%
- Telecinco (Mediaset – 50.1% share) ~ 20%
- Antena3 (owned by Grupo Planeta) ~ 20%
- Cuatro ~ 6%
- La Sexta ~ 2%

DTH

- **Digital+** (owned by Sogecable) is the **only DTH player**

Cable

- **Cable market less developed** than in other leading European TV markets
- **Ono monopoly** (currently acquiring rival Auna); negotiations to be completed in 2008

IPTV

- The main players are Orange TV (owned by France Telecom), Telefonica's Imagenio, Jazztel, Ya.com and SB3

Industry structure

- The Spanish **transmission services provided by Abertis**

HDTV development

- Digital+ (DTH) is hoping to begin HD broadcasting in 2007
- Ono and Telefonica have also stated an aim to launch HD

Mobile TV

- **Key operators** are currently running **mobile TV trials with DVB-H**
- Mobile network operators **expected to launch** mobile TV services via DVB-H in **2008**
- **Government planning to allocate spectrum** to facilitate such an offering
- Vodafone, Orange and Telefonica have been offering streaming services over 3G

Sources: Informa 2007, CMT website

Key elements of regulatory framework for DSO

Key policy priorities	<ul style="list-style-type: none">• More content, better quality, increased interactive services and ICT development• Efficient Spectrum use• Private Channels must cover at least 96% of population, Public Channels at least 98% of the population
DSO timeframe	<ul style="list-style-type: none">• Failure of Quiero TV in 2002, the country's original pay DTT platform launched in 2000• Current DTT roll-out initiated 2005• ASO due by end 2010, when coverage ~ 95% (98% for PSBs)• Regional approach to ASO
Regulation on technical aspects	<ul style="list-style-type: none">• DVB• MPEG-2 (with expected upgrade once STB prices fall)• All MUXs on SFN except MFN used for MUX1 (used for simulcasts of analogue transmissions) to enable regional disconnects• MHP
Spectrum: • Availability • Allocation	<ul style="list-style-type: none">• 5 national MUXs, 1 regional• Pre ASO, spectrum assigned by channel, by the Ministry, through mix of direct award (established players) and beauty contest (new entrants)• Post ASO, spectrum assigned by MUX for better use of frequencies, avoid problems with managing technical aspects and transmissions, etc)• Current channel offering: state-owned RTVE 6 channels, private TV networks operate 1 channel each, digital operators operate 2 channels each• All digital dividend has already been allocated: after ASO, each broadcaster will have a MUX, RTVE will have 2 MUXs, and regions will have access to ad hoc MUXs

Sources: Informa 2007, CMT Website, Interviews

Key elements of regulatory framework for DSO

License duration and obligations

- **License duration is 10 years**, extendable at end of term
- Licenses can be **freely traded**, subject to **concentration limits**
- Transmission managed by Abertis – **separate license required for transmission**
- Separate licenses in place for **regional broadcasting**
- **Up to 20% of the MUX capacity may be used for non-TV broadcast content** – unnecessary obligation, as **interactive content has not proved very successful**
- **Quotas** in place for **local content** and further specific regulation:
 - 50% state and 50% private ownership
 - 4 hours of local programming per day
 - Obligation not to syndicate more than 25% of programmes
 - Own studios
 - In Catalunya 50% of content in Catalán
- **Coverage obligations:**
 - Year 1: 80% for established players and 25% for new entrants
 - Year 2: 80% for new entrants
 - Year 4: 90%
 - Year 6: 95% for CSBs and 98% for PSBs

Key elements of regulatory framework for DSO

Business models and cost impact

- Currently **FTA**, may allow **regulated number of hours per day to be PayTV**
- HDTV content currently allowed, future government guidelines to be created
- Limited government subsidies
 - At end of 2005, Spanish government had invested **€10m manly focusing on marketing**
 - In 2007, they allocated another **€19.3m to help DTT implementation**
 - Support to **stimulate development of digital material market** in Spanish

Impact on industry structure

- Industry is **not vertically integrated**: towers are managed by Abertis
- **Sub-contracting of transmission license** requires authorisation

Other

- **Must-carry** for established analogue channels on cable only until ASO
- Key **reasons of Quiero TV failure**:
 - Pay offering
 - Limited amount of channels
 - Unable to match prime content offered by DTH
 - Limited demand for interactive services

Country Profiles

- UK
- Spain
- **Italy**
- France
- Australia
- New Zealand
- US

Total digital penetration in Italy is high mainly due to DTH and DTT penetration

2006-2007

General Indicators	
Population (millions)	59.1
HH (millions)	23.5
GDP (US\$ bn)	1,200
GDP (US\$ per capita)	20,250
Total Adv Market (US\$ bn)	11.1
% of GDP	0.9%
TV advertising (US\$ bn)	6.1
% of Advertising market	55%

TV Market Indicators	
TV HH (millions) (% of HH)	21.5 (91%)
PayTV HH (millions) (% of TV HH)	4.8 (22%)
Digital penetration (millions) (% of TV HH)	9.4 (44%)
DTT HH (millions) (% of TV HH)	4.6 (22%)
DTH HH (millions) (% of TV HH)	4.5 (21%)
Cable HH (millions) (% of TV HH)	No cable infrastructure
IPTV HH (millions) (% of TV HH)	0.3 (1%)

Sources: Informa 2007, Istat, The Economist, USD / Euro conversion at 2006 rate: 1.26

Other relevant TV market peculiarities

Key players	<p>Analogue</p> <ul style="list-style-type: none"> • Market duopoly: <ul style="list-style-type: none"> - RAI (state owned) operating 3 national channels with ~41% share - Mediaset (controlled by ex prime minister Berlusconi) operating 3 channels with ~42% share - La7 (owned by Telecom Italia) with ~3% share - Large number of regional and local analogue networks <hr/> <p>DTH</p> <ul style="list-style-type: none"> • Sky Italia with 100% market share <hr/> <p>IPTV</p> <ul style="list-style-type: none"> • 2 current services: Fastweb (Swisscom) and Alice Home TV (Telecom Italia) • 3 further services announced (Mediaset, Wind, Tiscali)
Industry structure	<ul style="list-style-type: none"> • All players vertically integrated, operating own transmission towers • Regulator (DTT law passed in 2001) mandated: <ul style="list-style-type: none"> - digital license separation between “network operators” and “content providers” - legal entity separation of transmission tower business within broadcasting groups
HDTV development	<ul style="list-style-type: none"> • Currently 4 HD channels on satellite (launched in 2007 with ~60,000 subscribers): 3rd largest subscriber base in Europe • HD also available through Fastweb and Telecom Italia IPTV platforms • Mediaset is trialing HD on DTT in the switchover areas (2 Italian regions) and hopes to use freed spectrum after DSO in each region to launch HD
Mobile TV	<ul style="list-style-type: none"> • First country worldwide to commercially deploy DVB-H mobile TV (2006) • 2 MUXs dedicated to DVB-H mobile TV • 3 Italia (4th Telco player) operates 1 MUX and Mediaset operates another (frequency offered to TIM and Vodafone mobile operators for DVB-H broadcasting) • Strong phone subsidising to support launch • Subscription based models but initial service uptake disappointing (~300,000 claimed subscribers for 3, 150,000 for TIM, 50,000 for Vodafone)

Source: Informa 2007, Interviews

Key elements of regulatory framework for DSO

Key policy priorities

- **Availability of service** and **accessible cost** for consumer
- **Pluralism**
- Development of **interactive services**

DSO timeframe

- Initial legislation for DTT passed in **2001**
- ASO initially planned for 2006, now **postponed to 2012**
- **ASO** planned on **region-by-region** basis and **already begun in 2 regions** as of mid 2007 (Sardinia and Valle d'Aosta) with completion targeted for mid 2008

Regulation on technical aspects

- **MHP imposed as technical requirement** for STBs: interactivity is key policy focus
- **No further technical obligations** with current standards as follows:
 - Compression: MPEG2
 - Modulation: mainly 64QAM
- **MFN networks** allowed given current frequency plan complexity; **SFN** objective to be addressed **only post ASO**

Spectrum: • Availability • Allocation

- Currently **7 DTT MUXs dedicated to digital TV (2 RAI, 2 Mediaset, 2 Telecom Italia, 1 D-Free)**, of which **1 regional** for RAI's PSB service
- **MUXs not assigned** due to **lack of free spectrum** but **built up by operators through frequency purchases** from local channels (CSBs allowed to purchase frequencies for digital use only)
- There are longer term plans for an **end-state MUX situation** of 12 national and 6 regional MUXs after DSO

Key elements of regulatory framework for DSO

License duration and obligations

- **Separation of “network operator” licenses** (with the right to transmit on allocated frequencies) from “content provider” and “service provider licenses” (right to offer a TV service):
 - **21 DTT content provider licenses issued** to date
 - **“Network operator” license** (issued with **12 year duration** to all TV operators with a coverage of population of at least 50%)
- **Network operators**, owning more than 1 analogue concession (RAI, TIM and Mediaset), **must sell (at fair prices) 40% of transmission capacity** on their MUXs **to independent content providers** to increase pluralism
- All national operators owning a national analogue concession will obtain a **free prolongation of their analogue license until ASO**, only if they re-broadcast existing analogue channels in FTA SD DTT (**simulcasting**) with specific coverage targets (50% after 3 years)
- RAI and Mediaset will have to **switch 1 of their 3 terrestrial channels entirely to digital by 2009 and hand back frequency**; until this occurs they will **not be able to trade frequencies**
- **Required coverage obligation pre ASO** for CSBs is 80%; for PSBs is 100% (but supported by government funding)
- **No specific legislation to favour regional** programme / channel development other than obligation for RAI, TIM and Mediaset to sell 40% of their transmission capacity to independent content providers
- **Advertising ceiling proposed** (law proposal) to cap share of TV advertising sales of any one group to 45% of market
- **Must-carry obligations may be imposed by the regulator**
- **Each MUX must contain a minimum of three TV channels and one interactive channel**
- **No specific production quotas** on content or genres

Key elements of regulatory framework for DSO

Business models and cost impact

- **Pay models** (pay per view) **allowed** to incentivise broadcasters to support digital transition and to provide appeal for consumers (football offering considered crucial)
- **Heavy subsidies (US\$200m) in 2004/05 for DTT STB purchases** (not technology neutral leading SKY is currently undertaking EU action)
- **US\$60m allocated to subsidise / drive digital transition** in 2007 of which 20% fiscal detractions of purchase price of digitally enabled TV set (up to €1000 and subject to payment of license fee) for all of 2007
- Part of the **proceeds of the privatisation of the PSB network** (RAIway) will contribute towards DTT development

Impact on industry structure

- **Separation of “network operator” licenses** from “content provider” and “service provider licenses” also requires **legal entity separation of transmission tower operations** possibly influencing industry structure in the long term

Other

- Initial government push on interactive services (MHP STBs imposed) but disappointing consumer response leading to **deprioritisation of interactive services**
- Establishment of **industry consortiums** to drive development of DTT (DGTVi and Sistema Digitale)
- **Distributors** to sell only **DTT-ready TV sets** from June 2009

Country Profiles

- UK
- Spain
- Italy
- **France**
- Australia
- New Zealand
- US

France has an extremely high digital penetration thanks to its DTH and DTT, DTH, IPTV and cable markets

2006-2007

General Indicators	
Population (millions)	63.7
HH (millions)	23.1
GDP (US\$ bn)	1,539
GDP (US\$ per capita)	24,150
Total Adv Market (US\$ bn)	14.8
% of GDP	1%
TV advertising (US\$ bn)	5.3
% of Advertising market	36%

TV Market Indicators	
TV HH (million) (% of HH)	22.6 (98%)
PayTV HH (millions) (% of TV HH)	11.3 (50%)
Digital penetration (millions) (% of TV HH)	17.6 (78%)
DTT HH (millions) (% of TV HH)	8.6 (38%)
DTH HH (millions) (% of TV HH)	5.3 (23%)
Cable HH (millions) (% of TV HH)	3.6 (16%)
Of which digital (millions) (% of TV HH)	1.4 (6%)
IPTV HH (millions) (% of TV HH)	2.3 (10%)

Sources: Informa 2007, CIA World Factbook, The Economist, USD / Euro conversion at 2006 rate: 1.26

Other relevant TV market peculiarities

Key players

Analogue

- **4 key analogue players** are:
 - France Televisions (PSB), operates three analogue channels ~ 40%
 - TF1 (originally PSB, privatised in 1987) ~ 30%
 - M6 (RTL group has a 50% share) ~ 10%
 - Canal+ (terrestrial PayTV wholly owned by Vivendi Universal) ~ 5%

DTH

- **Monopoly of CanalSat**

Cable

- Four leading operators recently united under same player **Numericable** (private equity owned)

IPTV

- France currently accounts for almost 50% of Europe's overall IPTV market
- IPTV has established itself as a viable alternative to cable and satellite; there were **five services in operation in mid-2007**: Orange TV, Free, Neuf Cegetel, Alice, Club Internet

Industry structure

- Independent transmission service providers (TDF mainly, Antalis and Towercast)

HDTV development

- HDTV has been available via satellite and IPTV since 2006 and will launch on DTT in 2008

Mobile TV

- In October 2007, the French government announced that **DVB-H will be the standard for mobile television** in France and that DVB-SH can be used to provide complementary coverage – potential set-back as many manufacturers were using DVB-SH standard
- No DVB-H service has yet been deployed, however key operators provide a mobile TV service via 3G

Source: Informa 2007, TNT Website

Key elements of regulatory framework for DSO

Key policy priorities	<ul style="list-style-type: none">• More content, better quality (support to HD), and efficient spectrum use• Support to local TV channels: local channels can access dedicated spectrum
DSO timeframe	<ul style="list-style-type: none">• DTT launched in 2005• Regional ASO scheduled to take place from March 2008 to November 2011• Total ASO will occur only when coverage is of at least 95%
Regulation on technical aspects	<ul style="list-style-type: none">• DVB• MPEG-2 imposed for FTA channels and non-encrypted PayTV, as is the cheaper option• MPEG-4 imposed for all encrypted programmes shown on PayTV, as is better quality• MHP standard imposed on all STBs• 64 QAM modulation standard• MFN
Spectrum: • Availability • Allocation	<ul style="list-style-type: none">• Allocation of digital frequencies by channel• Frequencies allocated directly to PSBs and through a beauty contest for CSBs• Channels on the same MUX co-operate to form MUX operators• 6 MUXs available for DTT: one for the PSB, two for commercial broadcasters, two for networks of public sector and local channels, one for HD content as of 2008• 1 additional regional MUX for Paris only• 1 specific channel reserved for regional content• Digital dividend to be handed back to regulator and reassigned to DTT

Key elements of regulatory framework for DSO

Spectrum:

- . Availability
- . Allocation

- Current licensed channels include:
 - **18 Analogue simulcasts**: the existing analogue terrestrial broadcasters have the right to a single DTT channel license
 - FTA – **six additional FTA channels** were licensed
 - PayTV channels – **14 PayTV channels**

License duration and obligations

- Licenses initially granted for **10 years**, renewable once for a period of **5 years**
- **License extended for further 5 years** (20 years in total) **in exchange for 95% coverage** (rather than the initial 85%)
- **Separate licenses** for **regional** broadcasters (spectrum reserved on the France3 MUX)
- **Separate licenses** in place for **frequency usage vs transmission**
- **Separate licenses** in place for **PayTV**
- **No restrictions** on the licensees with respect to **use of multiplex capacity**
- **Coverage obligations** expressed in terms of **number of transmission sites to be used for DTT**
- **Genre diversification has been a criterium** for awarding incremental channels
- **Conditions on content**:
 - **National channels** must dedicate **16% of their revenues** to French production
 - **Regional channels** must broadcast **3-4 hours per day** of regional/local production
 - **Paris** incorporates **both these conditions**

Key elements of regulatory framework for DSO

Business models and cost impact

- **Hybrid:** specific channels allocated for FTA and PayTV content
- 30% of the STBs are **rented rather than bought**
- Government subsidies in place to **fund the network operators**

Impact on industry structure

- **Independent transmission service providers** with separate licenses

Other

- **A single company can not own more than 6 separate channels**
- All FTA DTT channels have **must-carry right on cable for 5 years**
- Distribution networks must broadcast the **state owned TV channels, parliament channels and TV5 free of charge**
- Distributors obliged to sell **TV with integrated DTT tuner as of March 2008**
- **DTH will be used to complement DTT**

Country Profiles

- UK
- Spain
- Italy
- France
- **Australia**
- New Zealand
- US

Total digital penetration in Australia is relatively high due to a combination of platforms (DTT, DTH and cable)

2006-2007

General Indicators	
Population (millions)	20
HH (millions)	7.7
GDP (US\$ bn)	561
GDP (US\$ per capita)	28,050
Total Adv Market (US\$ bn)	7.6
% of GDP	1.4%
TV advertising (US\$ bn)	2.7
% of Advertising market	36%

TV Market Indicators	
TV HH (millions) (% of HH)	7.6 (99%)
PayTV HH (millions) (% of TV HH)	2 (26%)
Digital penetration (% of TV HH)	4 (52%)
DTT HH (millions) (% of TV HH)	1.9 (26%)
DTH HH (millions) (% of TV HH)	1.3 (17%)
Cable HH (millions) (% of TV HH)	0.8 (10%)
of which digital (millions) (% of TV HH)	0.8 (10%)
IPTV HH (millions) (% of TV HH)	0 (0%)

Sources: CIA World Factbook, The Economist, Informa 2007, USD / AUD conversion at 2005 rate: 0.76

Other relevant TV market peculiarities

Key players

Analogue

- **Five national TV networks** (viewing shares):
 - Seven Network ~ 30%
 - Nine Network ~ 30%
 - Ten Network ~ 20%
 - ABC (PSB) ~ 15%
 - SBS (PSB) ~ 5%

DTH

- **DTH monopolised by Rupert Murdoch's Foxtel**

Cable

- 2 key cable pay tv players (Foxtel and Optus) but Optus acting as a **Foxtel** reseller

IPTV

- Activity limited to **trials**

Industry structure

- **Was vertically integrated** up to 10 years ago
- **Value chain restructuring** to create 2 independent transmission network operators
- Significant **limitations in ownership** to avoid consolidation

HDTV development

- Introduced at same time as DTT (2001)
- From 2003 onwards, **HD content** has been **mandated** by the government
- **As of 2007** broadcasters can launch **1 additional HDTV channel**

Mobile TV

- Early activity in 2003 with Singtel Optus launching low resolution live mobile TV streaming over GPRS
- A 3G-based mobile TV service was deployed in 2005
- **DVB-H trials** launched in Sydney mid-2005
- Authorities have **reserved spectrum (1 MUX)** for mobile TV development

Source: Informa 2007

Key elements of regulatory framework for DSO

Key policy priorities	<ul style="list-style-type: none">• FTA only• Accessibility for all• Innovative products in TV (e.g. HDTV services)
DSO timeframe	<ul style="list-style-type: none">• DTT roll-out start: 2001• ASO first set for 2008, but rescheduled to 2010-2012 (to be confirmed)
Regulation on technical aspects	<ul style="list-style-type: none">• DVB• MPEG 2 compression standard imposed• 64QAM modulation imposed• MHP standard imposed on STBs• SFN objective deprioritised given ample available spectrum• Satellite not being considered to complement DTT
Spectrum: <ul style="list-style-type: none">. Availability. Allocation	<ul style="list-style-type: none">• No spectrum constraints (due to geographical advantage)• 5 MUXs 'loaned' free of charge by the government to each of the 5 broadcasters• 2 further MUXs reserved for MobileTV and data-casting• Incumbent TV players cannot bid for mobile TV spectrum• Digital dividend will be returned to the government (use not yet defined)

Key elements of regulatory framework for DSO

License duration and obligations

- licenses granted for **5 years but automatically renewed**
- licenses differ for metropolitan and regional areas
- **Reach obligations:** achieve same coverage as analogue by 2008 (metropolitan broadcasters) / by 2010 (regional)
- **Production quotas:** 55% of broadcast content needs to be Australian
- **Simulcasting** of analogue channels **mandated in SDTV** (to guarantee accessibility to all)
- **Minimum 20 hours / week of HDTV imposed to broadcasters;** networks can now (as of 2007) provide an entire new channel in HDTV
- **Limitations to incremental channel offering** imposed to incumbent CSBs (1 additional SDTV channel launch only allowed as of 2009; unlimited incremental channels post ASO)
- **No regulations** in place to **mandate sale of “digital-ready” TV sets** as of specific future date
- Licenses can be **freely traded**
- **No new entrants allowed** (as a measure to support incumbents in transition period)

Key elements of regulatory framework for DSO

Business models and cost impact

- **FTA only model** (no pay model allowed on DTT)
- Incremental **supply side funding** recently allocated to 2 PSBs (US\$1.0bn over next decade)
- Significant burden imposed on main incumbent commercial broadcasters to manage DTT transition (no subsidies granted to support content offer or channel diversification)
- **Subsidies** provided to support **regional channels**: rebate introduced by the government to assist with transmission costs of digital content until ASO

Impact on industry structure

- ~10 years ago, the **industry was vertically integrated**
- **Regulator action to facilitate value chain separation** of tower business:
 - Three CSBs formed JV TX Australia to act as transmission service provider
 - Broadcast Australia was set up as transmission services provider for PSBs and majority of regional channels

Other

- **Industry-wide dedicated switch-over body** created to support/coordinate DTT roll-out (Digital Australia)
- **No ceiling to share of total TV advertising market** that any operator can have
- **No must-carry obligations** for cable / DTH

Country Profiles

- UK
- Spain
- Italy
- France
- Australia
- **New Zealand**
- US

New Zealand's digital penetration reflects DTH penetration as DTT roll-out is yet to start

2006-2007

General Indicators	
Population (millions)	4.2
HH (millions)	1.6
GDP (US\$ bn)	107
GDP (US\$ per capita)	25,500
Total Adv Market (US\$ bn)	1.5
% of GDP	1.4%
TV advertising (US\$ bn)	0.5
% of Advertising market	33.3%

TV Market Indicators	
TV HH (millions) (% of HH)	1.5 (94%)
PayTV HH (millions) (% of TV HH)	0.8 (53%)
Digital penetration (millions) (% of TV HH)	0.7 (50%)
DTT HH (millions) (% of TV HH)	0.013 (1%)
DTH HH (millions) (% of TV HH)	0.7 (47%)
Cable HH (millions) (% of TV HH)	0.05 (3%)
of which digital (millions) (% of TV HH)	0.02 (2%)
IPTV HH (millions) (% of TV HH)	0.01 (1%)

Sources: Informa 2007, CIA World Factbook, The Economist, USD / NZD conversion using 2005 rate 0.705

Other relevant TV market peculiarities

Key players

Analogue

- **2 main networks:**
 - **TVNZ** (operates two terrestrial channels, TV1 and TV2) ~ 55%
 - **Mediaworks** (owns two terrestrial channels, TV3 and C4) ~ 25%
- **Prime Television** (now owned by Sky Network TV) ~ 5% (market share expected to grow – terrestrial channel will benefit from Sky's financial prowess and exclusive sports deals)

DTH

- **DTH is the key digital platform** (dominated by **Sky**)

Cable

- Cable **underdeveloped** (Telstra is monopoly operator since 2003)

IPTV

- IPTV **set to launch** late 2007
- IPTV market set to grow with launch of new services from Orcon, Telstra, Woosh and TCNZ

Industry structure

- **Mostly independent providers of transmission services**

HDTV development

- PBS TVNZ **announced launch of two HDTV services** (TV1 and TV2) **on DTT** platform by July 2008, in time for the Beijing Olympic Games

Mobile TV

- **3G services currently operated by Vodafone and TCNZ**
- **DVB-H trials underway**

Source: Informa 2007

Key elements of regulatory framework for DSO

Key policy priorities	<ul style="list-style-type: none">• Better quality of existing FTA services for all• New and enhanced FTA services and coverage of local news and sports• Spectrum efficiency• Government priority to more channels, rather than better quality of existing channels
DSO timeframe	<ul style="list-style-type: none">• Conversion to digital initiated in 2006 through combination of DTH and DTT:<ul style="list-style-type: none">- FTA digital satellite service (DTH), branded Freeview, available since May 2007- FTA DTT service available from early 2008 onwards• ASO date not finalised, but likely to take place in 2015
Regulation on technical aspects	<ul style="list-style-type: none">• DVB• MPEG 4 suggested by the Government as it supports HDTV and multi-channelling• Prices of STBs for MPEG2 and MPEG4 initially considered as factor, but price difference between STBs will be negligible over longer time period
Spectrum: • Availability • Allocation	<ul style="list-style-type: none">• Spectrum is not scarce in New Zealand• MUX allocated by the government without charge• 3 MUXs allocated to main broadcasters in 2008 (TVNZ and MediaWorks) and Kordia (new entrant transmission service provider)• 1 extra MUX kept by government for possible new entrants• To be handed back to government (no current plans for future allocation)

Source: Informa 2007, Interviews

Key elements of regulatory framework for DSO

License duration and obligations

- **Very few regulatory measures** currently in place: networks are mostly **self-regulated**
- **No specific regulation on HD content**
- **No separation between channel and transmission license**
- Terrestrial transmission **complemented by satellite: coverage obligations relate to a combination of DTH and DTT** (expectation for a 75% DTT coverage but targets not mandated)
- Frequencies can be **freely traded**

Business models and cost impact

- **FTA only**
- **No STB subsidy** planned
- **Government funding** of US\$50m from 2006-12 for support of **new TVNZ digital channels** (TVNZ6 and TVNZ7)
- **US\$17m** government support for Freeview (DTH) transmission platform over five years

Impact on industry structure

- **Mostly independent providers of transmission services**
- **Kordia** is one of the few national transmission providers, along with **Transpower New Zealand Limited**
- All **other broadcasters pay telecoms companies** such as Telecom New Zealand to **distribute their signals** to the various transmission sites around New Zealand

Key elements of regulatory framework for DSO

Other

- **Kordia** has partnered with Triangle Television to launch a **regionally focused** channel (Kordia **backward integrating along the value chain**)
- **Range** of legislative provisions and **regulatory bodies** currently overseeing DSO:
 - Other countries have single regulatory authority for communications and broadcasting
 - Possible creation of '**Digital NZ**' (equivalent to 'Digital UK')
- **No must-carry laws currently in place** – considering must-carry must-pay as in Canada, but is unlikely option
- No foreign and cross-media ownership laws – this has led to **dominance of a few overseas and domestic players**
- **No regulations** in place to **mandate** sale of “**digital-ready**” **TV sets** as of specific future date

Country Profiles

- UK
- Spain
- Italy
- France
- Australia
- New Zealand

- US

The US is highly digitalised due to an extensive digital cable penetration and a well established digital DTH service; DTT penetration is negligible

2006-2007

General Indicators	
Population (millions)	301
HH (millions)	113
GDP (US\$ bn)	13,500
GDP (US\$ per capita)	44,730
Total Adv Market (US\$ bn)	149.6
% of GDP	1.1%
TV advertising (US\$ bn)	65.4
% of Advertising market	44%

TV Market Indicators	
TV HH (millions) (% of HH)	112.7 (99.7%)
PayTV HH (millions) (% of TV HH)	102.6 (91%)
Digital penetration (millions) (% of TV HH)	79.1 (70%)
DTT HH (millions) (% of TV HH)	2.8 (3%)
DTH HH (millions) (% of TV HH)	30.8 (27%)
Cable HH (millions) (% of TV HH)	70.9 (63%)
of which digital (millions) (% of TV HH)	44.7 (40%)
IPTV HH (millions) (% of TV HH)	0.8 (1%)

Sources: Informa 2007, CIA World Factbook, The Economist

Other relevant TV market peculiarities

Key players

- Analogue** • Terrestrial broadcasting dominated by **four** networks: NBC, CBS, ABC, Fox
-
- DTH** • **Duopoly** with Direct TV and EchoStar's DISH
-
- Cable** • US TV industry **dominated by cable**
• **Key pay TV platform in the US** (70% of PayTV subscribers were cable clients)
• Key players: **Comcast** (over 20 million subs ~ **25%**), Time Warner (10 million subs), Cox (6 million subs), Charter and CableVision
-
- IPTV** • **IPTV available from SBS since 2004 but low penetration**
• **AT&T** joined the market in 2006 using its fibre network
• Other players are Verizon, Qwest and Bellsouth

Industry structure

- **~90% of all US households receive PayTV services**
- **HH relying on terrestrial broadcasts only** are limited
- **Mix of vertical integration and independent transmission service providers**

HDTV development

- HD broadcasting initiated in US **early 80s**
- Satellite companies (Dish Network and DirecTV) have carried HD content since 1998
- **HD TV set sales** expected to overtake SD TV sales in 2007 – popularity driven by **price reductions of 60% in 2 years**
- **Since 2004, all networks voluntarily broadcast some (if not all) content in HD**

Mobile TV

- **MediaFLO Mobile TV and DVB-H competing standards**
- **Multiple 3G services** available

Sources: Informa 2007, FCC Website

Key elements of regulatory framework for DSO

Key policy priorities	<ul style="list-style-type: none">• High compensation from auctioned digital dividend• Efficiency of spectrum usage (also to reserve spectrum for government security operations)
DSO timeframe	<ul style="list-style-type: none">• DTT initiated in 1997• Nationwide ASO set for 2009• DTT penetration required to reach 85% for each DMA (service areas)• ASO will have limited impact, given extremely high take up of other digital services
Regulation on technical aspects	<ul style="list-style-type: none">• ATSC• MPEG2 compression standard
Spectrum: • Availability • Allocation	<ul style="list-style-type: none">• Spectrum in the US is scarce• FCC has granted every TV station one 6 MHz channel slot (MUX) for simulcasting• licenses for new channels are auctioned• Currently occupied digital dividend partly already auctioned off by government – expected to make approx. US\$10bn• Digital dividend to be used for fixed and mobile communications services, advanced wireless services, regional state and local public safety agencies uses

Sources: Informa 2007, FCC Website, Interviews

Key elements of regulatory framework for DSO

License duration and obligations

- License is for **use of the spectrum in a specific DMA** (Designated Market Area) – no such thing as a ‘national license’
- **License duration** 8 years
- Must go through **application process to renew license**
- Generally speaking **FCC approval required** for license trading
- There are no specifications of **genre** nor specifications on **local content**
- **Simulcasting of analogue channels mandated**

Business models and cost impact

- **No PayTV on terrestrial TV** (PayTV restricted to IPTV, cable and satellite)
- US Senate has approved **budget to assist the transition** to digital TV
 - This included **STB subsidies of up to \$1.5bn**
 - US\$10bn raised from digital dividend to be **used to offset spending**
 - **Consumer education programs** in place to raise public awareness of ASO

Key elements of regulatory framework for DSO

Impact on industry structure

- **Mix of vertically integrated players and independent transmission service providers**
- **Cases of broadcasters sharing infrastructure**

Other

- **Benefits of 'hard' ASO:**
 - Focuses electronic companies to mass STB production (price impact)
 - Reduces confusion and encourages consumers to purchase either iDTV or STBs
- **Concerns:**
 - **2nd and 3rd TV sets** are still running on analogue frequencies
- **Poor uptake up to 2005 due to:**
 - Lobbying by existing players
 - Lack of incentive for consumers to buy STBs or iDTV
 - Customer confusion, lack of information and poor training at the point of sale
 - High cost of STBs
 - Lack of certainty of ASO date
- DTT Coalition created start 2007 to **inform and educate consumers** about 2009 ASO
- **All TV sets** sold from **2007** onwards **must be digital**
- **Numerical cap** in place regarding **number of TV stations** one may own in a given locality
- **Foreign Ownership:** no more than 20% of stock of broadcasting licensee
- **Must-carry rights on cable:**
 - All stations have a right to be carried on cable free of charge
 - Sought after stations may opt for 'retransmission consent' whereby their channel can not be broadcast without express consent (terms and conditions of carriage to be negotiated)
- **Must-carry rights on satellite:**
 - Must-carry rights are DMA specific
 - Satellite must carry all stations in a DMA if it carries at least one station in that DMA

Sources: Informa 2007, FCC Website, Interviews