

Final Report – Executive Summary

# **Ministry for Culture and Heritage**

Cost benefit analysis of the launch  
of digital free-to-air television in New  
Zealand

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## 1 About the authors

This report was written by Justin Jameson, Mike Papadimitriou, Luke Bradley-Jones and Salman Aslam of Spectrum Strategy Consultants and represents our own independent analysis, views and opinions.

Justin Jameson is a Partner with Spectrum and is the joint managing director of Spectrum's Asia Pacific business based in Sydney. Mike Papadimitriou is an Associate and media specialist based in Spectrum's Sydney office. Luke Bradley-Jones is a public service broadcasting specialist and Salman Aslam is an economist, specialising in media. Both are based in London.

Spectrum is a global management consultancy providing advice to the media and telecoms sectors. Spectrum advises on issues including regulation and policy, licensing, product development, business strategy, technology strategy, implementation and change management.

Spectrum was commissioned by the Ministry for Culture and Heritage (MCH) to undertake an independent evaluation of the net benefit to New Zealand of launching a digital FTA platform. Specifically, the report uses a cost benefit analysis (CBA) approach to determine the net benefit by comparing three scenarios:

- Scenario 1: 'No digital FTA platform is launched'
- Scenario 2: 'Digital FTA platform is launched, but there is no ASO'
- Scenario 3: 'Digital FTA platform is launched, and there is ASO'

Spectrum was not given a remit to recommend public policy outcomes. Instead, the findings and conclusions contained within the report are limited to the scope of the study.

Spectrum has exercised all reasonable endeavours in preparing this report. Any assumptions, projections, findings and conclusions and any written material provided represent our best professional judgement based on the information available to us during the project.

All analysis, opinions and conclusions contained in this report are purely those of Spectrum and may not reflect the analysis, opinions and conclusions of MCH. The conclusions of this report may, therefore, not reflect the official position of MCH and should not be seen as such.

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## 2 Executive Summary

### 2.1 Summary of the project objectives and methodology

The public policy debate on the merits of digital free-to-air (FTA) television has been running for some time. The debate has revolved around many of the same issues that have been identified in overseas markets, such as the potential benefits of digital broadcasting, its cost and the appropriate Government policy. In addition, New Zealand's uncommon geography and demographics generate additional issues such as the difficulty in covering expansive rural areas and possible improvements in the current mixed quality of terrestrial reception.

The Government, led by the Ministry for Culture and Heritage (MCH), and a number of industry stakeholders felt that the policy debate would be advanced if there was an independent study to assess the potential costs and benefits of digital FTA. A cost benefit analysis (CBA) of the launch of digital FTA in New Zealand was commissioned and the study was awarded to Spectrum Strategy Consultants (Spectrum) in December 2005.

The primary objective of this study is to assess whether or not New Zealand, as a whole, would benefit from, the launch of digital FTA television and the impact of any subsequent analogue switchover (ASO) that the move to digital would allow.

The Government also requested that Spectrum considers the financial impact of these events on specific groups of industry players: the FTA broadcasters, pay-TV broadcasters, transmission companies, the production community, CPE retailers / installers, consumers and the Government.

In order to determine the costs and benefits of launching digital FTA television, Spectrum adopted a two stage modelling approach:

- Firstly, a market model was developed that forecasts the expected platform penetration, audience share and revenues by category of broadcaster; and
- Secondly, a cost benefit analysis model was built that forecasts the costs and benefits associated with the launch of a digital FTA platform using the outputs from the market model as inputs.

In order to determine the net costs and benefits of the launch of digital FTA television, three scenarios were modelled, based upon an earlier Scoping Study<sup>1</sup> commissioned by MCH:

- Scenario 1: 'No digital FTA platform is launched'
- Scenario 2: 'Digital FTA platform is launched, but there is no ASO'
- Scenario 3: 'Digital FTA platform is launched, and there is ASO'

The net benefits were calculated by measuring the differences between the three scenarios.

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<sup>1</sup> Scoping study: *BCA of launch and transition to free-to-view digital television*, nzier, Nov. 2005

## Exhibit 1: Measuring the deltas between scenarios



Under each scenario, three cases were also modelled – a ‘base case’ representing Spectrum’s considered view of the future and two sensitivity (‘high’ and ‘low’) cases that represented alternative views based on more or less conservative sets of assumptions.

The project has been strongly consultative. Over the course of the study, all stakeholders have had an opportunity to input into the process twice: firstly, to comment on the project methodology and, secondly, to respond to the market model outputs. Therefore, any discussion of, or disagreements with the study’s outputs should focus around the CBA model inputs and analysis.

Although analytically based, the study is a forecasting exercise, with all the uncertainty that that implies. In interpreting the study outputs, this uncertainty should be explicitly recognised:

- The future impact of technology is uncertain;
- The plans of industry participants are both commercially sensitive and continually evolving;
- The main analysis and first draft of the study was completed within eight weeks; and
- No primary research has been conducted.

In summary, the study is not a work of fact. Its validity is based entirely upon the quality of its forecasts, and whilst every effort has been made to validate these forecasts, significant uncertainty remains. The sensitivities contained within the report are therefore important to any assessment of the results and should be seen as an integral part of the study’s results.

However, it should be noted that in response to this uncertainty, Spectrum made a conscious effort to build a conservative CBA model. Spectrum has sought to select input assumptions that are conservative. For example:

- We have taken a conservative estimate taken for the willingness to pay for digital FTA services of New Zealand television viewers
- We have a conservative estimate taken for the willingness to pay for services of viewers who are late to convert to digital FTA
- Based on input from the Ministry of Economic Development, we have taken a lower estimate for the value of radio spectrum released by switching off analogue television transmission

In some areas, such as the calculations surrounding the conversion of secondary sets and VCRs to digital reception, Spectrum has had to rely on analysis conducted in overseas markets. Despite there being no inherent reason to believe New Zealand will be different, the applicability of this data to NZ is uncertain. However, despite the inherent uncertainty in the process, Spectrum is confident that the CBA analysis represents a relatively conservative view on the net benefit of digital FTA to New Zealand. On this basis,

Spectrum believes that the analysis can, in association with the accompanying sensitivities, be sensibly and credibly used as an input to the policy making process.

## 2.2 Market model: The future of the NZ broadcasting industry

The market model forecasts the development of the broadcasting market in New Zealand. Under each scenario and sensitivity, the model forecasts the likely penetration of the market by platform; it determines viewing shares by service across different platforms, including the impact of time shifted viewing and on demand TV; it translates viewing shares into advertising revenues by services; and, finally, it also derives subscription revenues.

Scenario 1 is critical to the analysis because it is the case against which the launch of digital FTA is measured. In this scenario, digital FTA is not launched. As far as is possible, it reflects a “do minimum” market. Therefore, for the Scenario 1 base case, it is assumed that the market develops broadly along its current trajectory. SKY’s DTH service grows at between 1% and 1.5% points each year and reaches 47% penetration in 2015. IPTV is launched in mid-2007, primarily as a SKY wholesale distribution channel, and the FTA broadcasters carry on in much the same vein as currently. Specifically, it is assumed that no alternative UHF FTA services are launched during the modelling period.

**Exhibit 2: Platform penetration (main TV set), Scenario 1, base case (%HHs)<sup>2</sup>**

Platform penetration	2005	2010	2015	2020	2025
FTA analogue	58%	49%	37%	28%	22%
FTA digital	0%	0%	0%	0%	0%
Total pay-TV	42%	51%	63%	72%	78%
Total digital	37%	51%	63%	72%	78%

Scenario 2 assesses the impact of the launch of digital FTA in the absence of analogue switchover (ASO). To forecast the performance of the digital FTA platform, Spectrum determined the form it would be most likely to take, based upon discussions with stakeholders, and compared this against international case studies.

The programming proposition will be fundamental to the success of any service. In most digital FTA launches worldwide, this has proved to be the make-or-break aspect of success. A simple simulcast generally does not differentiate the package enough from existing analogue services and does not result in strong take-up. Similarly, high start-up costs (for set-top boxes and installation) can put digital FTA out of the range of many consumers and prevent it from taking off. A successful digital FTA proposition typically finds a niche between the current analogue FTA proposition and the pay-TV offering.

In Spectrum’s base case the digital FTA service will comprise 13 channels at launch: simulcasts of the seven existing national services (TVONE, TV2, TV3, C4, Prime, Maori TV and Trackside), simulcasts of an average of two regional services and four new channels (with TVNZ and CanWest each supplying two).

<sup>2</sup> The 5% discrepancy between pay-TV and digital is accounted for by analogue SKY UHF customers; the 3% of households that receive cable retransmission of SKY’s DTH service are included as digital, although the last leg of transmission – for the majority of customers – is currently analogue.

For the base case, a hybrid platform service is planned to launch at the beginning of 2007 on DTH, and mid-2007 on DTT. Spectrum expects the digital FTA platform to reach 23% penetration by 2015, and 35% by 2025.

**Exhibit 3: Platform penetration (main TV set), Scenario 2, base case (%HHs)**

Platform penetration	2005	2010	2015	2020	2025
FTA analogue	58%	44%	26%	15%	8%
FTA digital	0%	10%	23%	30%	35%
Total pay-TV	42%	46%	51%	55%	57%
Total digital	37%	56%	74%	85%	92%

Scenario 3 models the impact of analogue switchover on the market. The base case and each of the sensitivities modelled in Scenario 2 are reviewed again with ASO in place. The impact of varying the date of ASO is also modelled.

In the five years prior to ASO, the announcement of switchover causes more viewers to switch from FTA analogue. This larger pool of potential customers gives all platforms a boost in take-up; however, as these customers (market followers) are inherently more likely to take-up the cheapest option, the digital FTA platforms take a disproportionately larger share of new customers.

**Exhibit 4: Platform penetration (main TV set), Scenario 3, base case (ASO in 2015) (%HHs)**

Platform penetration	2005	2010	2015	2020	2025
FTA analogue	58%	44%	0%	0%	0%
FTA digital	0%	10%	37%	38%	38%
Total pay-TV	42%	46%	61%	62%	62%
Total digital	37%	56%	100%	100%	100%

### 2.3 The results of the cost benefit analysis

Spectrum’s CBA model assesses the net economic benefit to New Zealand of the launch of digital FTA, taking the market model outputs as its inputs. To be economically coherent it was important to define some economic parameters:

- Economic benefit. Only the costs and benefits accruing to society in the consumption of the end-good(s) should be considered. In this case, the end-goods are: the digital FTA service resulting from the launch of digital FTA platforms; and other end-products and services directly or indirectly affected by the launch of digital FTA.
- Net economic benefit. A CBA study is always carried out in reference to the use of resource to create the project against its use elsewhere. In this case, the counterfactual Scenario 1 is designed to maintain a “do nothing” or, more appropriately, a realistic “do minimum” scenario into the future. This “do minimum” cannot include any digital FTA services (delayed or otherwise) – the timing of the launch of digital FTA is part of the assessment of the CBA. Any benefits from services that would have existed without the advent of digital FTA television are excluded from the analysis.

The quantification of the CBA takes into account three types of benefit:

- Direct. The direct economic benefit of providing digital FTA television is the combined consumer (viewer) and producer (digital FTA broadcaster and/or retailer/installer) surplus generated from the consumption of products and services related to the FTA platform. As the CBA is required to identify

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the costs and benefits to society of the consumption of the end-good, only the producers of the end-goods are taken into account. The financial flows between entities in the value chain are not accounted for as they are zero sum flows for society as a whole.

- Indirect. The market for these services may also have indirect effects on other product markets and, as a result, can further increase total consumer and producer surplus. For example, an increase in advertising could lead to an increase in sales of a product and therefore an increase in economic surplus. Similarly, in the event of ASO, the re-use of spectrum may result in consumption of new products and services, also generating economic surplus.
- Externalities. There may also be wider economic benefits to society as a whole. As these benefits are not taken into account by the consumer or the producer when selling the product or service, they are termed “externalities”. Improvements in social, cultural and national awareness are all examples of externalities potentially relevant to an expansion of FTA broadcasting to digital.

### 2.3.1 Direct benefits

#### i) Consumer benefits

The benefits that consumers derive from the consumption of digital FTA are amongst the most significant. One way to calculate consumer benefit is by measuring consumers’ willingness to pay (WTP) for the service in question, in this case digital FTA television.

Ideally, the New Zealand Government and/or the FreeView Group would conduct primary research to assess the WTP for the specific services that FTA broadcasters plan to launch, as well as to test how this WTP changes with different service mixes. However, in the absence of such research, Spectrum relied upon survey data conducted as part of a wider study conducted by TVNZ and CanWest that investigated price sensitivity towards set top boxes for a package of digital FTA channels.

On the basis of this study a demand curve was constructed and average consumer WTP across the entire population was calculated. To allow comparisons between sensitivities, this was then converted to an average willingness to pay per incremental digital FTA channel per year. This figure of NZ\$7.36 per channel per annum forms the basis of much of the WTP analysis.

Due to the inherent lack of data points to derive this figure, Spectrum has taken a series of measures to ensure that its WTP analysis is conservative:

- Firstly the WTP figure was benchmarked against a series of other domestic and international indicators of willingness to pay for additional broadcast services (such as basic pay-TV channels). This demonstrated that the figure was conservative.
- Secondly, the methodology was designed as conservative. By taking an average WTP across all channels, value was ascribed to existing services. However, the survey measured WTP for new services. Whilst some value will be ascribed to benefits such as the electronic programming guide (EPG), widescreen and interactive services, it is unlikely to be as large as the value ascribed to the existing simulcast channels. Therefore, the WTP for the incremental channels is conservative as a result of the imperfect methodology employed.
- Finally, ‘non-adopters’ (defined as the last 10% of conversions) were treated differently. The CBA ascribes much lower levels of consumer benefit to these customers. In fact, the benefit that they derive from digital FTA television is less than the cost of converting them.

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### ii) *Producer benefits*

The second main category of benefits to be assessed is 'producer' benefits. In the case of digital FTA, the relevant 'producers' are the FTA broadcasters and the STB retailers and installers. As the services are 'free-to-air', there are no subscription revenues. Broadcasters do benefit from advertising revenue; however, as these do not *directly* result from the consumption of new services and content from the platform, they cannot be considered as *direct* benefit to broadcasters. There are two categories of direct benefits to be assessed:

- **Savings from the cession of analogue transmission:** particularly relevant to Scenario 3, the cession of analogue transmission after ASO will save broadcasters transmission costs, the need to replace ageing analogue transmitters and analogue spectrum licence fees
- **CPE and installation margins:** with the emergence of a new digital FTA platform the requirement for in-house and external reception equipment will grow.

It can appear counter-intuitive to exclude improved advertising revenues from the CBA analysis. However, it is simply a financial flow from advertisers to broadcasters and so should be excluded. The study does consider the financial impact of advertising as part of the stakeholder impact analysis. In addition, the impact on advertisers (in producer benefit terms) is considered as a possible indirect benefit below.

### 2.3.2 *Direct costs*

#### i) *Consumer costs*

Offsetting the consumer benefits of the introduction of digital FTA services are the costs to consumers of converting to digital FTA. The study assesses four categories of consumer costs:

- **In-house equipment:** Consumers will need to acquire a set-top box in order to receive digital FTA services. Some households will acquire additional non-primary STBs voluntarily, while, at ASO, others will be forced to convert non-primary sets and VCRs
- **External equipment:** Some consumers will need to acquire new UHF aerials or satellite dishes (and associated mounts and, for satellite, LNBs) depending upon the platform that they adopt
- **Installation:** Where a new aerial or dish is required, an additional charge for a professional installer may be incurred
- **Electricity:** The adoption of new electrical equipment will add to consumer power consumption and, therefore, costs

#### ii) *Producer costs*

The launch of a digital FTA platform will result a number of significant incremental costs for FTA broadcasters:

- **Distribution and transmission:** The cost of simulcasting a digital signal alongside the analogue one
- **Spectrum licences:** Initially Spectrum expects that radio spectrum will be provided by the Government at no cost to reduce the burden on broadcasters. After ASO, however, broadcasters are expect to begin to pay licence fees
- **Programming:** The cost of acquiring, commissioning or producing programmes to create additional broadcast services
- **Marketing and promotion:** The cost of promoting and supporting the launch and switchover and of ensuring that set-top boxes are widely available, accredited and working

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- **Converting 'non-adopters' at ASO:** The cost of converting 'non-adopters' must be taken into account in achieving ASO. It is not clear who will pay the costs, or how; however, for the CBA, the fall of burden is irrelevant

### 2.3.3 *Indirect benefits*

In addition to these direct benefits, there could also be consumer and producer surplus arising out of the consumption of goods in other parallel markets. Due to the short timeframe for the project it has not been possible to undertake a detailed analysis of the consumer surplus arising from these other markets. Instead Spectrum has focused on any producer surplus that they might deliver. Not including any consumer surplus will reduce the overall net benefits figure calculated by the CBA model but is consistent with conservative CBA best practice.

Two potential sources of indirect surplus have been analysed:

- **The impact of incremental advertising on digital FTA:** Spectrum believes that the launch of a digital FTA platform will not increase overall TV advertising revenues. The launch of such a platform will increase audience fragmentation and re-distribute viewing shares between broadcasters, but will not increase overall TV viewing or overall TV share of advertising. Secondly, for the producer benefit of advertising to be included in a national CBA study it would require not only for TV advertising to increase, but for this increase to be absolute, rather than substituted from advertising in another medium (such as Press). This is unlikely. Therefore, the impact on producer benefit (to advertisers) of advertising on digital FTA is excluded from the study.
- **The impact due to spectrum release after ASO:** The radio spectrum released as a result of ASO can be reasonably expected to generate producer surplus for the companies that take up that spectrum. The producer surplus from the release of spectrum is equivalent to the profits that will be earned by the companies offering new services using this spectrum. However, as producers would be expected to recoup at least the cost of this spectrum, the value of the spectrum released has been used as a conservative proxy for expected producer surplus. To estimate the value of spectrum released, Spectrum benchmarked the value of VHF and UHF spectrum internationally and in New Zealand.

### 2.3.4 *Externalities*

Assessing just the quantifiable financial benefits of launching a digital FTA will not necessarily represent the full costs and benefits that society derives from the consumption of these services. The CBA should also consider the impact of consumption of digital FTA television on wider society; effects that are external to the immediate market, or externalities.

Analogue FTA television is the enabler for public service broadcasting (PSB) in New Zealand. Through a combination of New Zealand On Air (NZOA) and direct funding of TVNZ and Maori TV, the Government publicly funds a range of television services. The benefits of PSB are broad and often difficult to quantify. However, the core benefits can be broken down into five categories:

- **Education:** Programming can educate viewers resulting in a more literate, better informed, more highly educated population. This can flow through into outcomes such as higher workforce productivity and lower levels of criminality.
- **Democracy:** PSB programming can enable a wider spectrum of opinion and views (including the views of minority groups) to be broadcast. In addition, programming that is less beholden to achieving a mass market audience does not have to follow or adopt the political or social positions or attitudes of the mass market
- **Culture:** Broadcasting can help support and develop arts and cultural activities

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- **Minority interests:** New Zealand has a number of significant minority populations including the indigenous Maori population. Broadcasting can help to ensure that these minority groups have access to relevant programming and can contribute towards the identity, education and representation of such groups
  - **National sense of identity:** New Zealand has forged a strong sense of national identity. As a national medium, FTA broadcasting can help to foster and reinforce this national identity

However, the benefits of PSB programming are in large part dependent upon the availability and quality of that programming. Analogue FTA has provided a universal platform for PSB programming. In the absence of digital FTA, the risk is that pay-TV gradually erodes FTA viewing, leaving a smaller and smaller base for PSB programming.

Although in a multichannel world, publicly funded programming can find alternative routes to viewers, the presence in the market of FTA services that have mass market audiences (even if these audiences are reduced) creates an ongoing platform for PSB broadcasting.

Therefore, to the extent that the launch of digital FTA television preserves a universally available mass market viewing medium for public service broadcasting it will protect the existing benefits of PSB that are threatened by increasing audience fragmentation. This effect will be increased if digital FTA services become available in all households, including pay-TV households.

In addition, to the extent that the launch of digital FTA creates new FTA services, it also creates new routes to market for PSB programming that might not otherwise have found their way onto the schedule of national FTA broadcasters. If expenditure on PSB programming increases as a result of the launch of digital FTA, it is reasonable to expect some increase in the benefits derived from PSB.

Finally, from a global perspective, being a country with analogue-only transmission risks creating an image of the New Zealand broadcast industry (and indeed over time, New Zealand itself) as backwards, potentially reducing inward investment and having a knock-on effect in the film industry.

### **2.3.5 Summary**

The net benefit to New Zealand of launching digital FTA television is positive provided that there is analogue switchover. Without ASO, the Scenario 2 base case delivers a net cost to the nation of NZ\$156m in 2006 dollars. However, with ASO, the Scenario 3 base case (with a hybrid DTT/DTH platform and ASO in 2015) delivers a net benefit to the nation of NZ\$230m in today's money.

**Exhibit 5: Discounted net benefit to New Zealand of launching digital FTA (2006 NZ\$m)**

<b>Benefits</b>	Sc.2 - low	Sc.2 - base	Sc.2 - high	Sc.3 - low	Sc.3 - base	Sc.3 - high
WTP	100	481	1,043	191	695	1,303
Benefit to non-adopters	0	0	0	6	5	5
CPE and Installation margin	12	15	16	39	38	36
Analogue transmission savings	0	0	0	123	123	123
Transmitter replacement savings	0	0	0	12	12	12
Analogue spectrum savings	0	0	0	5	5	5
Value of released spectrum	0	0	0	131	131	106
<b>Total benefits</b>	<b>112</b>	<b>496</b>	<b>1,059</b>	<b>507</b>	<b>1,009</b>	<b>1,590</b>
<b>Costs</b>						
CPE	63	102	134	175	186	204
Electricity bills	10	19	27	28	36	42
Digital spectrum	0	0	0	7	16	25
Digital transmission	61	185	260	61	185	260
Programming	0	311	418	0	311	418
Marketing/Promotion	17	34	52	22	44	66
<b>Total costs</b>	<b>151</b>	<b>651</b>	<b>890</b>	<b>294</b>	<b>779</b>	<b>1,015</b>
<b>Total CBA</b>	<b>(40)</b>	<b>(156)</b>	<b>169</b>	<b>214</b>	<b>230</b>	<b>575</b>

### 2.3.6 Sensitivities

Spectrum ran a series of sensitivities to show the impact of increasing or decreasing some of the key inputs to the CBA. Sensitivities were also used to assess the impact of platform decision on the project's net benefits. The sensitivities are designed to provide additional input to policy decisions.

- Analogue switch off: The impact of varying the year of ASO was assessed. Moving ASO earlier reduces the simulcast period and hence extra transmission costs, while also realising the benefits of released radio spectrum sooner. Bringing ASO forward from 2015 to 2012 increases the Scenario 3 base case net benefit from NZ\$230m to NZ\$325m, while delaying it to 2020, reduces the net benefit to NZ\$54m.
- Platform choice: The impact of varying the platform mix for the launch of digital FTA was also assessed. The CBA model was run under DTT-only and DTH-only platform mixes. On the basis that each platform mix results in ASO on the same date, the cost benefit analysis for platform choice is inconclusive. The analysis suggests that both the DTT-only and DTH-only cases have little impact on the Scenario 3 base case net benefit. However, both sensitivities exclude significant costs that have not yet been quantified. Under the DTT-only platform sensitivity, the Scenario 3 net benefit increases from NZ\$230m to NZ\$236m; (*however, this does not include the additional unquantified, but significant, transmission costs required to extend coverage beyond the 92% anticipated*). Under the DTH-only platform sensitivity, the net benefit increases to NZ\$242m; (*however this does not include unquantified satellite back-up costs*). In summary, Spectrum does not believe that either the DTT-only or the DTH-only sensitivity, with the additional costs, would deliver a higher net benefit than the hybrid Scenario 3 base case.
- The combined impact of platform choice and ASO: A platform mix with higher take-up can be expected to drive New Zealand towards ASO sooner. The market model forecasts that the DTT / DTH hybrid model will deliver higher take up, suggesting that it will enable ASO sooner than either the DTT-only or the DTH-only platform. If a DTT-only platform mix delayed ASO by just one year, the net benefit would be reduced to NZ\$207m from NZ\$230m; in a similar vein, if a DTH-only platform mix, with a slower predicted take-up, delayed ASO by just two years, the net benefits would be reduced to NZ\$175m.
- In summary, the cost benefit analysis suggests that the key factor in platform choice is not the variation in net benefits against the base case (with ASO in 2015), but the extent to which the platform mix will

allow an earlier analogue switch off date, generating additional cost reductions and the earlier release of associated benefits.

Several further CBA sensitivity analyses of the inputs were carried out. In all cases, the level of uncertainty surrounding these inputs was high, so Spectrum has been careful and clear to be very conservative with base assumptions.

- WTP: The demand curve derived from the survey within New Zealand gave a WTP per channel per year of NZ\$7.36. Spectrum’s benchmarking estimates suggested that this is conservative. Sensitivity analysis proved this to be important as the variance was high. Reducing the WTP to \$5 per channel per year reduces Scenario 3 base case to NZ\$14m, while increasing it to NZ\$10 improves the net benefit to NZ\$472m.
- Value of released spectrum: Initial benchmarking suggested that a value of up to NZ\$0.05 per MHz per pop per year would be appropriate for released spectrum. However, in the final CBA model, Spectrum used a lower figure of NZ\$0.024 per MHz per pop per year. This was based upon estimates from the MED and by using values from previous allocations within New Zealand. If the higher figure is used, the CBA model shows an increase of NZ\$100m on the base case, a rise from NZ\$230m to NZ\$330m.

## 2.4 Stakeholder impact assessment

In addition to the CBA, MCH also asked Spectrum to undertake a limited stakeholder impact assessment. Spectrum has considered each of the main stakeholder groups: FTA broadcasters, pay-TV broadcasters, transmission companies, the production community, CPE retailers / manufacturers / installers, consumers and Government.

**Exhibit 6: Summary of annual net stakeholder impact vs. Scenario 1 (2006 NZ\$m), Scenario 2: base case<sup>3</sup>**

	2010	2015	2020	2025
FTA broadcasters	(46)	(17)	16	64
Pay TV broadcasters	(70)	(183)	(309)	(437)
Transmission companies	12	12	15	15
CPE industry	11	10	10	13
NZ production community	19	19	19	19
Consumers	(14)	(14)	(15)	(19)
Government	2	1	2	2

<sup>3</sup> All figures are in revenue terms, except for the FTAs and Government, for which costs have been included.

**Exhibit 7: Summary of annual net stakeholder impact vs. Scenario 1 (2006 NZ\$m), Scenario 3: base case<sup>4</sup>**

	2010	2015	2020	2025
FTA broadcasters	(46)	(51)	32	80
Pay TV broadcasters	(70)	(39)	(191)	(344)
Transmission companies	12	12	(18)	(18)
CPE industry	11	50	22	14
NZ production community	19	19	19	19
Consumers	(14)	(64)	(32)	(22)
Government	2	0	40	41

It should be noted that these figures are not strictly comparable, since in each case they include a slightly different set of costs and revenues dependent upon the analysis available from the market and CBA models. However, in relative terms they are certainly comparable.

**The free-to-air broadcasters** are, by definition, significantly impacted by the launch of a digital FTA platform. Indeed the delay in the launch of digital FTA versus some other markets has been down to the difficulty that the FTAs have had in constructing a business case for such a launch that makes commercial sense.

The FTAs face a number of incremental costs associated with a launch, as previously mentioned (transmission, programming and marketing) plus a few potential incremental revenues from advertising and value added services such as interactive TV.

Over time digital FTA should help FTA broadcasters to reduce the impact of the growth of pay-TV on their businesses. The FTA broadcasters will be able to maintain a higher average viewing share than without digital FTA, and this will result in higher advertising revenues than otherwise.

**The pay-TV industry**, by definition, is not expected to be directly involved in the launch of digital FTA platform. However, we note SKY holds significant UHF spectrum suitable for digital FTA services and, with the acquisition of Prime, now owns a UHF broadcast FTA player.

The main impact on (current and future) pay-TV operators is from the potential loss of subscribers attributable to the launch of a digital FTA platform and the subsequent reduction in subscription revenues. The pay-TV operators will also see an impact on advertising revenues. As consumers take up digital FTA, the viewing share of channels on pay-TV platforms will be affected. In summary, pay-TV revenues will still grow significantly over the period, but growth will be slower than without the launch of digital FTA.

**The main transmission company** in New Zealand is BCL / THL. BCL is owned by the New Zealand Government. BCL owns many of the transmission towers used in today's analogue FTA transmission. Going forward, BCL is very likely to be responsible for managing the distribution and terrestrial transmission of digital (DTT) of FTA services. The impact of digital FTA on BCL / THL is expected to be neutral to positive in revenue terms.

<sup>4</sup> As above

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**The production community** will benefit from higher levels of locally commissioned programming. Unless the digital FTA platform is a straight simulcast-only, there will be increased airtime for FTA broadcasters to fill. In broad terms, they can fill this through repeats, acquisitions or commissions. The local production community will benefit provided there is an increase in the value of commissions (provided, for example, that more commissions are not offset by lower average commission values).

**The CPE industry** will supply the consumer equipment and installation needed for digital FTA. With the emergence of a new digital FTA platform the requirement for in-house and external reception equipment will grow. Manufacturers, retailers and installers will all benefit from the increase in activity in their industries.

**Consumers** will be financially worse off under a digital FTA launch as they will need to buy and install reception equipment. However, these purchases will be voluntary in order to derive non-financial benefit from new channels, improved picture quality, interactive services such as the electronic programming guide and, going forward, additional services such as picture in picture, widescreen and High Definition TV (HDTV).

**The Government** will benefit from increased spectrum efficiency, so long as the analogue service can be switched off at the end of a simulcast period. In addition the Government will recoup either analogue or digital licence fees, depending on scenario. It will also benefit from tax on consumer equipment. The Government is also expected to benefit non-financially to the extent that digital FTA preserves existing benefits due to public service broadcasting and helps the Government to meet its existing broadcasting policy objectives.

## 2.5 Findings and conclusions

The net cost benefit analysis has been based upon existing NZ research and analysis and has been benchmarked against international studies. The resultant findings must be interpreted accordingly, given the significant potential margins of error present within the analysis. However, on the basis of the data available, Spectrum is confident that the analysis presented represents the best possible assessment of the net benefit to New Zealand of the launch of digital free-to-air television.

More importantly, since a conscious effort has been made to ensure that key assumptions are conservative, Spectrum believes that the net benefit numbers generated by the study are themselves likely to be relatively conservative. In addition, Spectrum has conducted a wide range of sensitivities. These suggest that although a margin of error exists within the analysis, significant conclusions can still be drawn.

In summary, Spectrum is confident that, whilst the analysis would benefit from additional primary research, the findings of the study are sufficiently robust to be used as an input to the public policy decision making process.

On the basis of the study results, it is possible to draw some specific conclusions:

- From an economic perspective, the Government should be in favour of the launch of digital FTA television and eventual analogue switchover, with as short a simulcast period as is feasible.
- Sensitivity analysis further supports the conclusion that with ASO ahead of 2015, the launch of digital FTA television delivers a net benefit for New Zealand.
- Spectrum estimates that an ASO timeframe of 2012-2015 is optimal, given a minimum switchover period of six years.

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- Closer to the date set for ASO, the Government will need to consider the likely cost of supporting the conversion of any specific categories of 'non-adopters'. Relative to the benefits of early ASO, it may be a price worth paying.
  - A hybrid (DTT / DTH) platform mix increases costs, but is also forecast to result in a higher take up of digital FTA than either a DTT or DTH-only platform. It also ensures the universal availability of digital FTA services from launch to ASO and beyond. However, the CBA model is inconclusive as to which platform mix delivers a greater net benefit if there is no difference in ASO date. In addition, the DTH-only platform analysis excludes any costs for back-up transponder capacity in case of satellite failure and the DTT-only platform analysis excludes the (unquantified) cost of increasing coverage from 92% to 99%. With these additional costs, the CBA analysis is even less conclusive on platform choice
  - If the impact on ASO date is also assessed, firmer conclusions on platform choice can be drawn. As discussed, Spectrum forecasts that a hybrid platform will drive take up faster than a DTT-only platform, which in turn will have higher take up than a DTH-only platform. Faster take up is expected to result in an earlier ASO date. The CBA analysis suggests that any delay in ASO significantly reduces net benefits, such that even a one year advantage makes a hybrid platform the most attractive choice.
  - The FTA broadcasters will benefit in revenue terms from digital FTA, compared to the status quo. However, this revenue benefit will be slow in coming and will be offset by the costs of launching and operating digital FTA television. With or without digital FTA, the terrestrial broadcasters' financial position will still worsen as their viewing shares fall over time.
  - The launch of digital FTA television will negatively impact the pay-TV broadcasters, although in revenue terms, their position will continue to improve going forward.
  - The launch of digital FTA television will contribute towards the Government's digital television public policy objectives. Specifically, it will result in the upgrade of ageing analogue transmission infrastructure, guaranteeing ongoing universal access to FTA programming; it will give FTA broadcasters the opportunity to defend impact and reach, thus preserving existing PSB benefits; and it will create new PSB opportunities by enabling additional niche FTA services to launch.

Finally, the magnitude of the net benefits generated by the launch of digital FTA television is dependent, in the large part, on the extent to which FTA broadcasters are able to exploit the opportunities it creates.