

# The National Broadband Network

Australian Centre for Innovation Luncheon  
Sydney University

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# Just Three Short Stories

- How did we get to where we are right now?
- How, what and why a Bunch of Furphies about the NBN?
- Why High Speed Networks are vital to Australia's future?

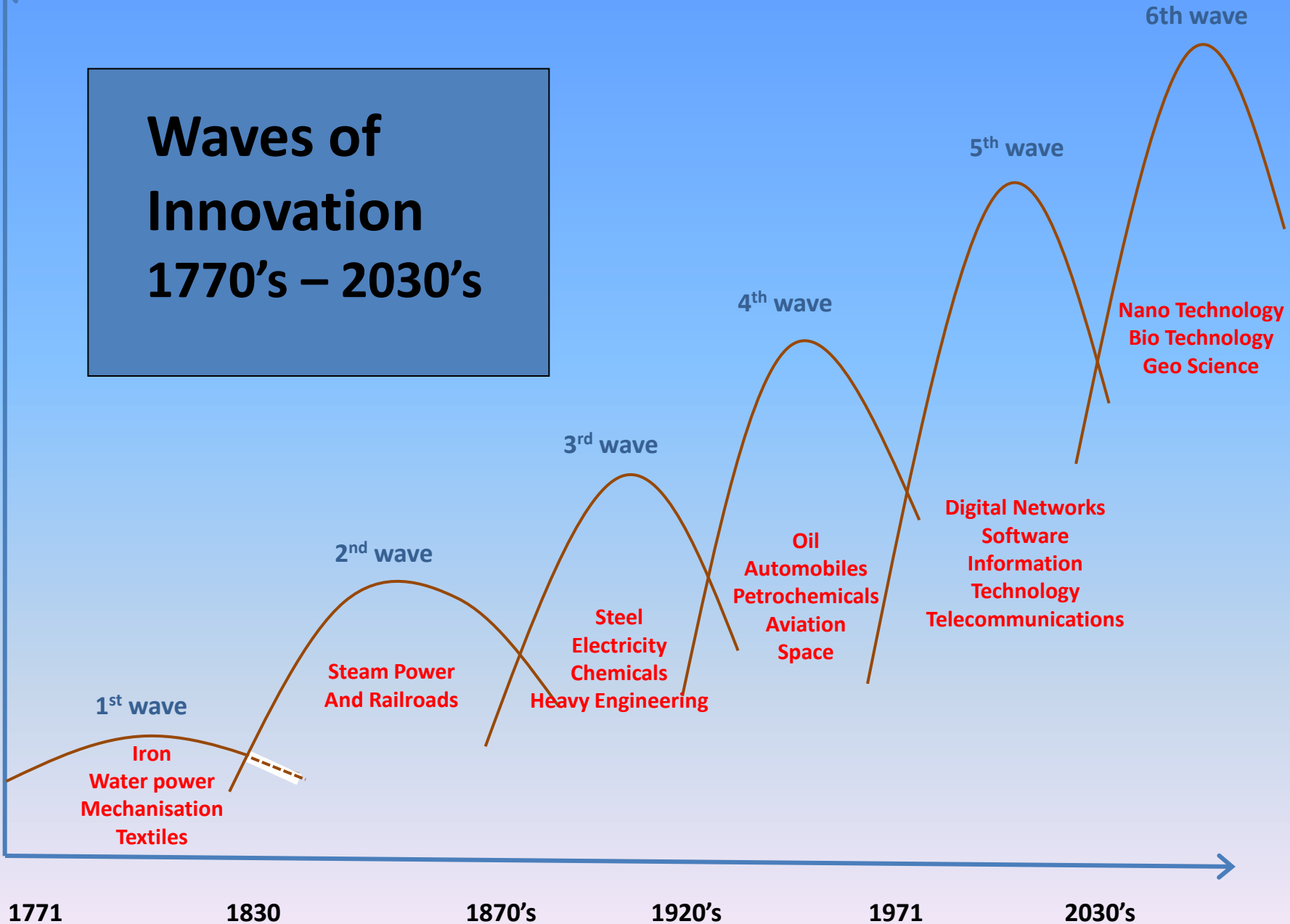
**Looking Back....how did we  
get to where we are right  
now?**

Five major waves of innovation have shaped world economic activity during the last 250 years.

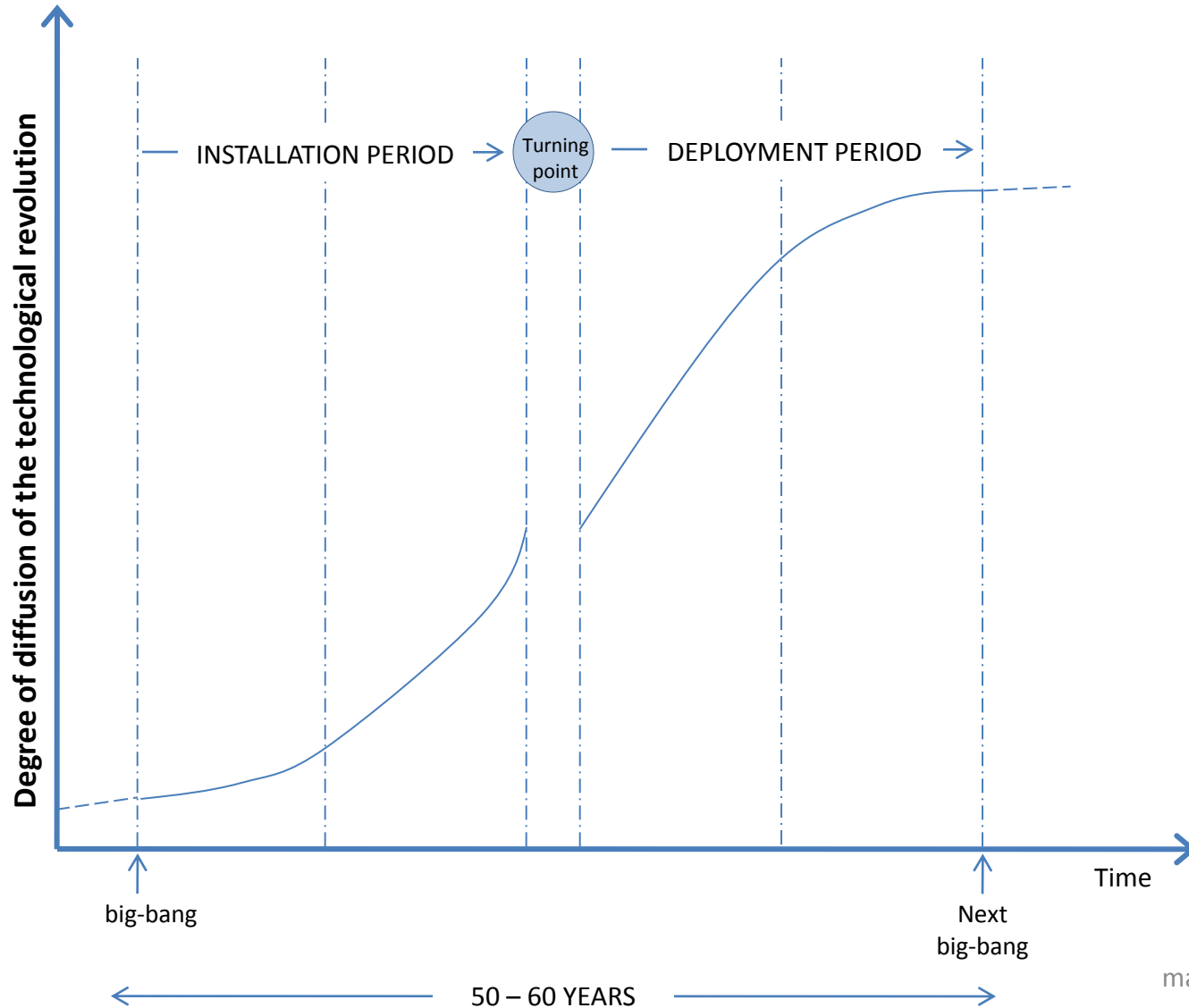
*See: Carlota Perez “Technological Revolutions and Financial Capital”*

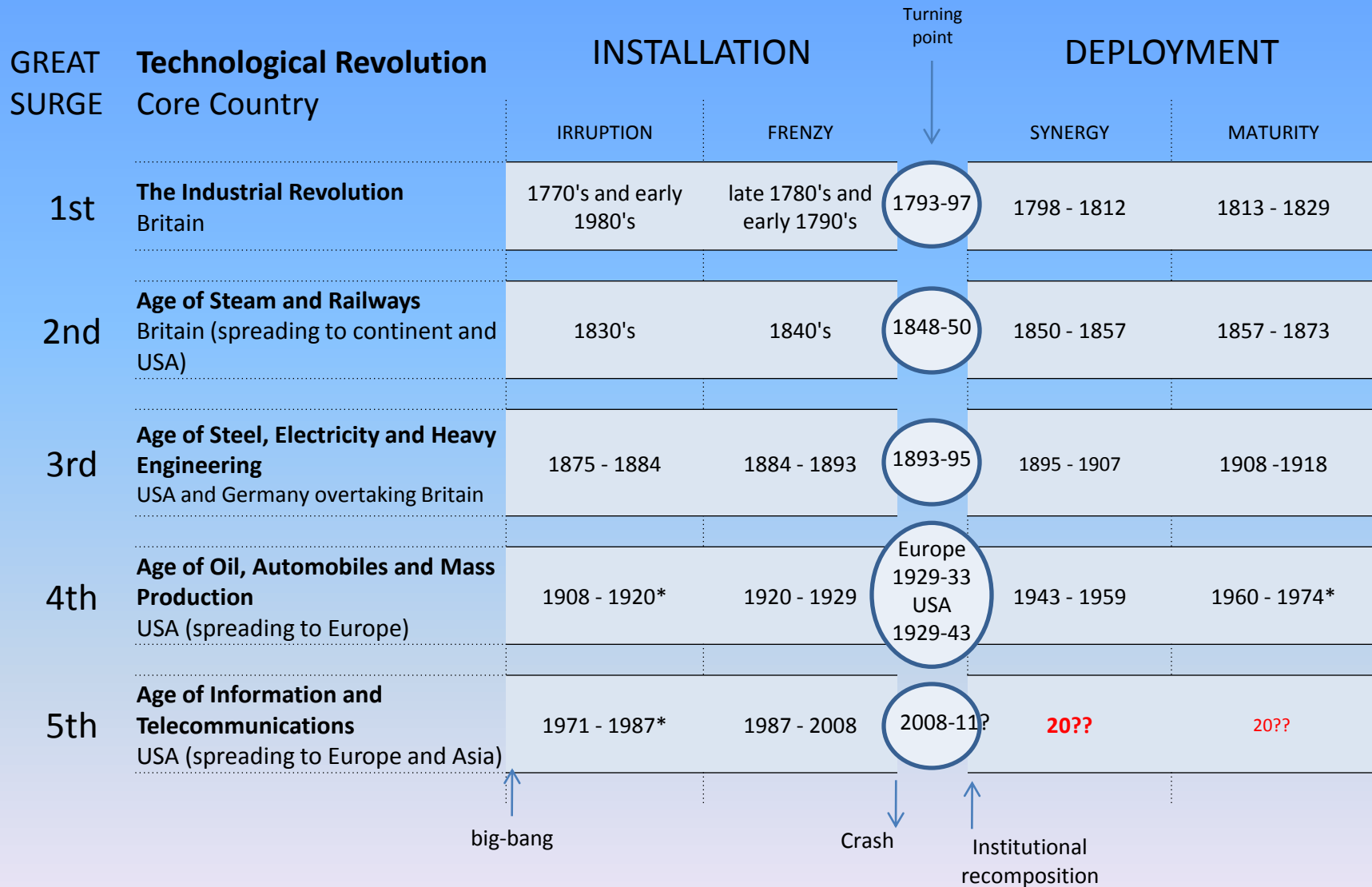
# Waves of Innovation 1770's – 2030's

Innovation



# Two different periods in each great surge





The halfway mark of each Revolution is marked by a turning point featuring;

- Manic behaviour
- A Financial Bubble
- The inevitable crisis and crash



# The Financial Bubbles that actually Burst



**1793-97**




**1848-51**



**1893-95**



**1929-34**



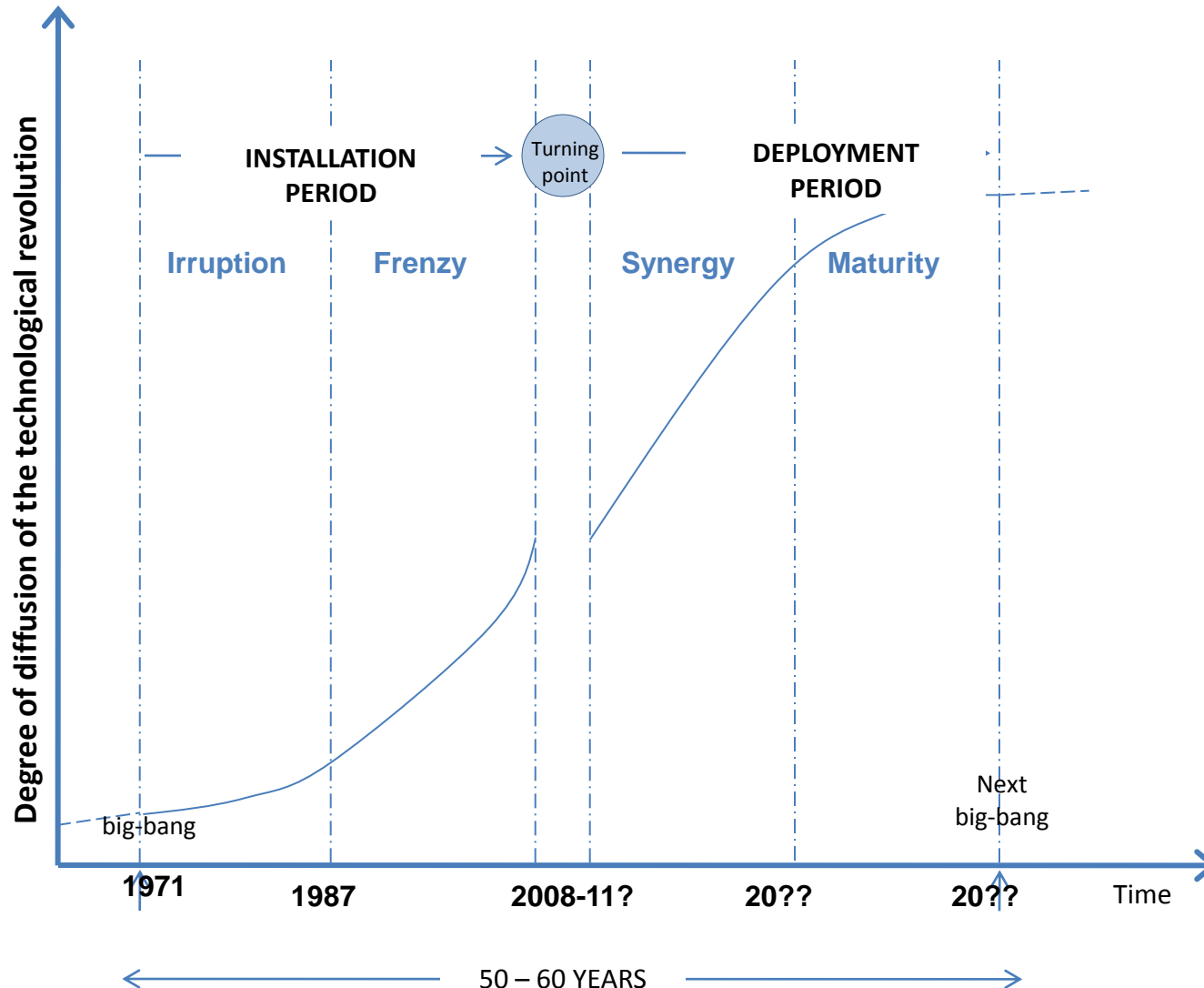
**2008-11**

During each Financial Crisis the world's financial systems were described as broken and discredited.

Governments of all leading nations developed strategies to ensure.....

“ The excesses of the last 5-6 years would never happen again”.

# Classic Phases of the ICT Revolution 1970's – 2030's



The current great wave of Innovation  
(ICT Revolution) has just passed the  
half way mark....

35 years into a 60 year phenomenon

# Key features of the ICT Revolution in Australia for the next 20 years will be:

- The Roll out of High Capacity Bandwidth..... the NBN
- A content revolution
- The devolution of supercomputing and cloud computing
- Grid services and data storage services
- Visualization technology and video collaboration.
- Serious convergence of technologies eg;  
(Bioinformatics, geoinformatics, nanotechnology and computational chemistry)

**How, what and why a bunch  
of Furphies  
about the NBN?**

# How Bandwidth became important.

- 1876-1970's: Bandwidth not an issue for the telephone system.
- 1980's: Move from analogue to digital technologies and data becomes important.
- 1990's: Telecoms system expected to carry voice traffic, data, graphic intensive images, AND video traffic.
- 1997-8: In Australia the volume of data transmitted surpassed the volume of voice traffic for the first time.

# Telecommunications becomes a political issue.

- The lost decade 1997-2007
- Telecoms public policy and the 2007 poll.
- Political and commercial opportunism is normal
- The 2010 Federal Election.
- The Murdoch Media



Furphy 1

We can't afford  
\$36 Billion.  
(actually \$27Billion)

# Some Basic Numbers

- \$36Bill for NBN over 8 years (\$4.4 B Per Annum)  
**\$27 Billion from the taxpayers**
- 2011-12 Federal Budget = \$360 Billion in revenue.
- Federal Budget over 8 years = \$3.8 Trillion
- Australia's Public Debt Level < 9% of GDP
- NBN expenditure = 4% of Australia's GDP.
- Federal Government Tax cuts 2008-10 = \$47Billion
- **cf: Rio's next expansion? Cost of Gorgon?**

Furphy 2

# Wireless not Fibre Cable?

- Not either but BOTH
- Capacity of Wireless is seriously limited.
- The spectrum is already crowded.
- Wireless is ideal in certain applications.
- Fibre Cable is future proof in basic terms (147 colours etc)
- There is no magical alternative infrastructure around the corner in the medium term.
- ref: Reed Hundt.

# The basics of a hard wired community?

- 10 – 100 Mbps at home
- 1-10 Gbps at work
- Wireless all around.

Ref: Reed Hundt 2003 (Former Chair US Communications Commission)

Furphy 3

Who on earth needs 100mbps?

Furphy 4

**Leave it to the Private Sector.**

Furphy 5

The US v Australia comparison.



Furphy 6

Surely, not without a cost benefit  
analysis??

**Looking Forward....why  
High Speed Networks  
are vital for Australia?**

*“....The Internet has transformed the Australian economy over the last 10 years”*

**Source:** The Connected Continent Report Deloitte Aug 2011

## INTERNET BY THE NUMBERS

**3.6%** The internet's direct contribution to GDP last year

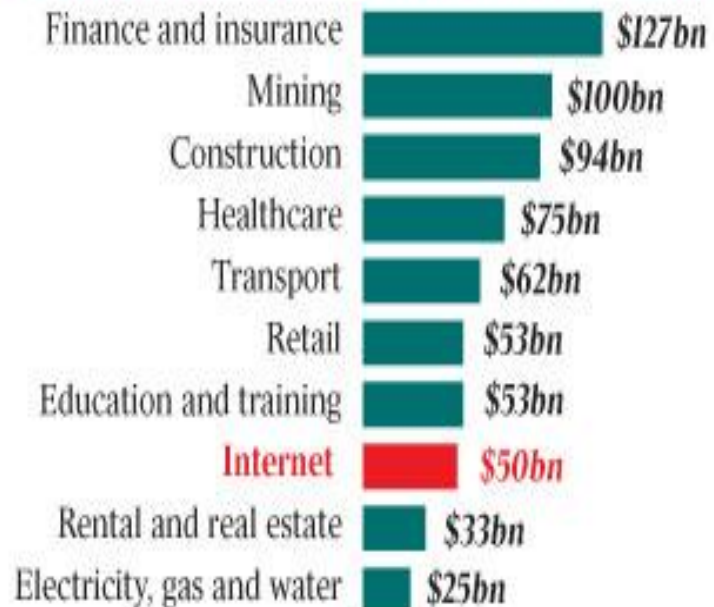
**190,000** People in Australia employed in occupations directly related to the internet

**80,000** Additional internet-related jobs to be created by 2016

**\$27bn** Productivity increases to businesses and government last year

**\$53bn** Benefit to households in convenience, time saving, access to goods and services and recreation

## CONTRIBUTIONS TO GDP IN 2010



Source: Deloitte Access Economics /The Connected Continent

# High Speed Networks and Australia's Digital Future

## Our Future..... means

More People, more data, more  
locations Online

Faster Speeds and faster Outcomes

Beyond 30% penetration for  
Broadband .....the revolution  
really begins

For every 10% increase in the BB  
penetration rate GDP increases by  
1.4%

*Source: World Bank Report 2009*

# Email

- 2010 2 Billion people sent 183 Billion emails per day.
- Video mail will subsume data based email.
- Eventually we will be able to search video.



# Telecommuting moves to centre stage

- Fast affordable broadband
- New management culture
- Significantly increased mobility

# Homes and offices will become instrumented buildings

- Sensors
- Radio systems
- Converted devices

....measuring the status of almost everything

# Smart Utilities

With smart services (often automated)

- Water wastage
- Traffic congestion
- Energy consumption

...will all be managed more efficiently

# Traffic Congestion and Global Gridlock

THE WORLD			AUSTRALIA	
2011	6.8 Billion People	800 Million Vehicles	22.7 Million people	15-16 Million vehicles
2045 Est.	9 Billion people ?	2-3 Billion vehicles ?	30 -35 Million people ?	30 - 40 Million vehicles ?

**BROADBAND:** is essential for the smart infrastructure to manage smart cars and personal mobility systems.

*Source: Bill Ford TED Talks March 2011*

# Key industries/organizations in denial and difficulty.

- Music
- General retailers (large and small)
- Newspapers
- Video Stores
- Political Institutions.

**Where are the Benefits?**

- The business sector.
- The TAKE OFF for Telework
- Substitution of Bits for Atoms
- Intelligent buildings and homes
- Intelligent utilities....power grids etc.
- Rich media and entertainment.

- Intelligent transport logistics
- Personalized public transport
- Telemedicine and eHealth
- Education services and Life long learning.
- eGovernment service delivery.
- Personal security and public safety
- The new democracy.



# Conclusions

All world changing innovations  
create serious challenges and  
particular difficulties.

# Classic challenges of the Digital World.

- A new play ground for digitally savvy criminals.
- Cyber warfare and new threats to national security.
- Cyber threats to commerce.
- Identity theft and the need for “Certification”
- Limitations of national Statute Law.

# Classic Challenges (cont)

- Integrity of hosting services.
- Extraction of information from the web.
- Vulnerability and potential for failure of online services.
- Complexities and drawbacks of “Social Media”
- The Digital Divide.

# Australia's Window of Opportunity 2010-2020

- Hard Infrastructure AND soft infrastructure.
- The content revolution.
- A future alongside and beyond the extraction industries.
- Australias entry into the 6<sup>th</sup> Wave.

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Innovation

