

The Digital Economy

....is changing the market

Geof Heydon October 2012

DIGITAL PRODUCTIVITY AND SERVICES NATIONAL RESEARCH FLAGSHIP www.csiro.au



Agenda

Digital

Devices hiding complexity

More applications & less browsers Generational shift to Millennials

Bringing social tools & new behaviours to business

Society

Economy

Ubiquitous network access

The digital divide is a real limitation





IBM, IBISWorld Report June 2012

http://www-07.ibm.com/ibm/au/digitalf uture/index.html





Table 4.19				
Impact by Number				
of Industries				
by Industry Classes				

- T Transformational
- S Significant
- G Generalised
- D Likely Demise

Division Titles	Industry Classes	т	S	G	D
Agriculture	49	-	-	49	-
Mining	16	-	13	3	-
Manufacturing	145	-	8	136	1
Utilities	13	-	9	4	-
Construction	24	-	4	20	-
Wholesale Trade	40	-	1	38	1
Retail Trade	37	-	11	24	1
Accommodation and Food	6	-	-	6	-
Transport/Postal	23	-	13	10	-
Media and Telecom	25	8	3	4	10
Financial and Insurance	14	-	1	13	-
Rental and Real Estate	9	-	1	7	1
Professional and Technical Services	16	14	2	-	-
Administration and Support Services	12	2	2	8	-
Public Administration and Safety	13	5	7	-	-
Education	11	9	2	-	-
Health and Social Assistance	16	13	2	1	-
Arts and Recreation	17	2	3	12	-
Other Services	23	-	2	20	1
Total	509	52	84	358	15
Share of Total	100%	10%	17%	70%	3%

http://www-07.ibm.com/ibm/au/digitalfuture/index.html



						Edua Impa Rev	e 4.15 cation and Train act Scan Results enue Guideline ion, 2012 (E)
Industry Class	\$billion	т	s	G	D	Т	Transformation
5411 Newspaper Publishing	4.9					_	Significant
5412 Magazine (and Other Periodical Publishing)	1.3						Generalised Likely Demise
5413 Book Publishing 5414 Directory and Mailing List Publishing 5419 Other Publishing (excluding Software, Music, Internet)	2.7						
5420 Software Publishing	0.9						
5512 Motion Picture and Video Distribution	2.7						
5513 Motion Picture Exhibition	1.9						
5514 Post-production Services (and other activities)	5.0						_
5610 Radio Broadcasting	1.4					Table 4.16 Health Care and So	
5621 Free-to-Air Television Broadcasting 5622 Cable (and Other Subscription Broadcasting)	4.3					Assi Scar Rev	stance Impact Results enue Guideline ion, 2012 (E)
5700 Internet Publishing and Broadcasting	<1.0					т	Transformatio
5801 Wired Telecorns Network Operation	10.2					s	Significant
5802 Other Telecom Network Operation	20.0					G	Generalised
5809 Other Telecommunications Services	9.0					D	Likely Demise
5910 ISPs and Web Search Portals	6.4						
5921 Data Processing and Web Hosting Services	2.8						
5922 Electronic Information and Storage Services	2.0						
6010 Libraries and Archives	1.3						
6020 Other Information Services	0.4						

Table 4.15

 \mathbf{V}

Industry Class	\$billon	т	S	G	D
8010 Preschool Education	0.8				
8021 Primary Education 8022 Secondary Education 8023 Combined Primary and Secondary Education 8024 Special School Education	44.3				
8101 Technical and Vocational Education 8102 Higher Education	39.0				
8211 Sports and Physical Instruction	6.4				
8212 Arts Education 8219 Adult, Community and Other Education n.e.c.	1.1				
8220 Educational Support Services	0.2				

Industry Class	\$billon	т	s	G	D
8401 Hospitals (except Psychiatric Hospitals)	50.7				
8402 Psychiatric Hospitals	0.8				
8511 General Practice Medical Services	9.9				
8512 Specialist Medical Services	10.9				
8520 Pathology and Diagnostic Imaging	5.3				
8531 Dental Services	5.5				
8532 Optometry and Optical Dispensing	1.6				
8533 Physiotherapy Services	1.4				
8534 Chiropractic and Osteopathic Services	0.9				
8539 Other Allied Health Services	<1.0				
8591 Ambulance Services	2.4				
8599 Other Health Care Services n.e.c	23.9				
8601 Aged Care Residential Services 8609 Other Residential Care Services	14.2				
8790 Other Social Assistance Services	11.9				



Table 4.9

Information Media and Telecommunications

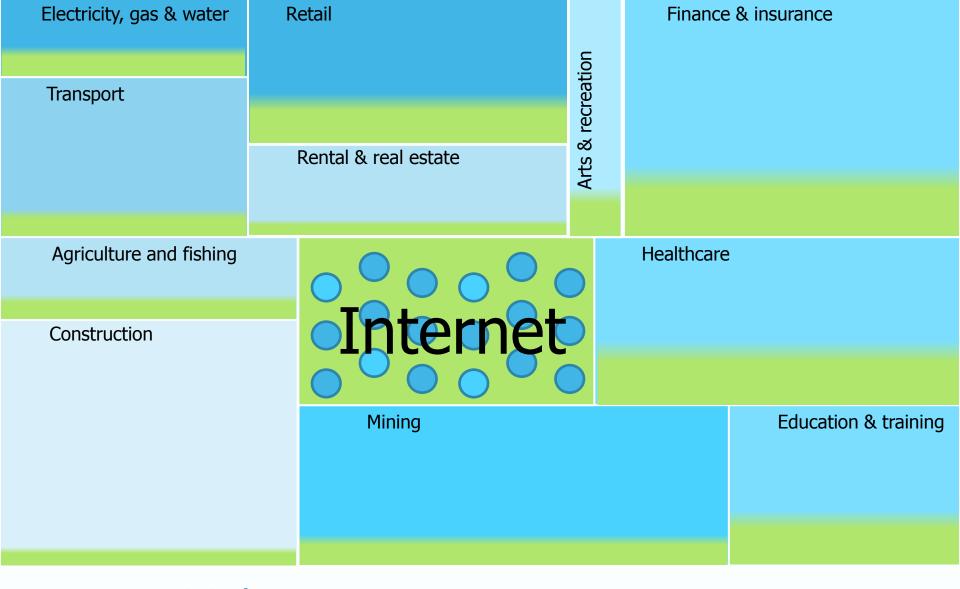
Impact Scan Results

Revenue Guideline \$billion, 2012 (E)
T Transformational
S Significant
G Generalised
D Likely Demise

\$25b Electricity, gas & water	\$53b Retail		_	\$127b Finan	ice & insurance
\$62b Transport	\$33b Rental & real e	estate	\$10b Arts & recreation		
\$27b Agriculture and fishing \$94b Construction		50b ternet % GDP	\$7	' 5b Healthcare	
	\$100b Minin	ıg			\$53b Education & training

Today's Economy Source: ABS, Deloitte Access Economics





Digital Economy with apologies to ABS, Deloitte Access Economics



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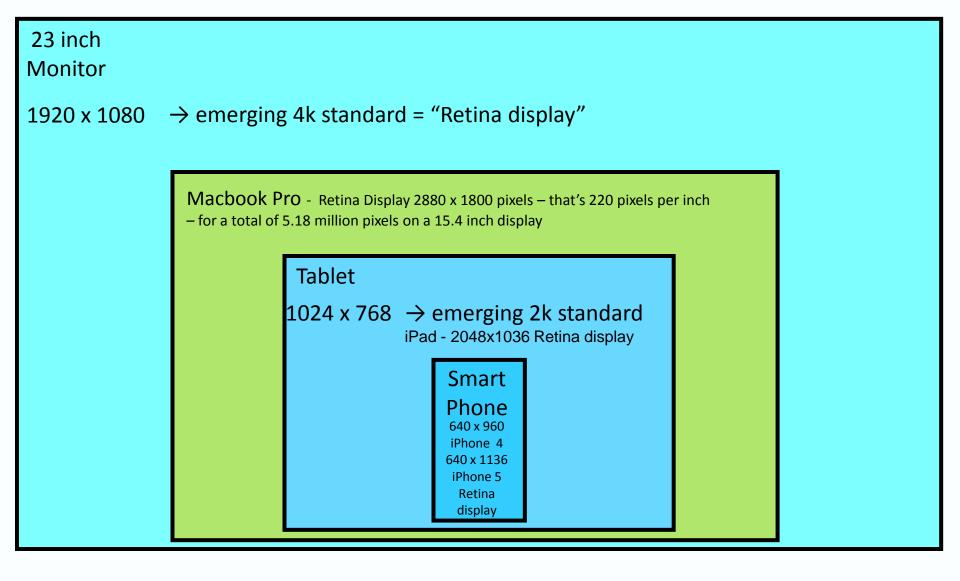
Society

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Displays as good as the eye can see changes the game



60 inch **Monitor** 1920 x 1080 \rightarrow emerging 8k standard = "Retina display" 23 inch **Monitor**

Displays as good as the eye can see changes the game



STATION WN BT HATIONAL BROADCASTING COMPANY

WEEK OF JUNE 30th - JULY 5th, 1941

Television Program

(Persent For Pertretty)

Audio frequency \$1.75 mt. HEW YORK CITY

	P.M.	
MONDAY June 30th	9:00-11:00	(1) Amateur Bosing at Jamaica Arena.
TUESDAY.	2100-5100	(2) Baseball—Brooklyn Dodgers vs. Philadelphis at Ebbeta Field.
	6:45-7:00 9:00-10:00	 (3) Lowell Thomas. (4) Culmination of U. S. O. Drive with: Ms. Thomas E. Dewey Mrs. Winthrop W. Aldrich Mr. Walter Hoving L4. General Heigh Dram Admiral Adolphus Andrews
	Rest Harris	Mrs. Opten L. Mills
		 Encerpts from the "Bottlenocks of 1941" Port Most- mouth Signal Corps Replacement Training Center Show. Truth or Consequences with Rabh Edwards.
WEDNESDAY	2:30-5:00	(7) Eastern Clay Court Tennis Championships at Jackson Relates.
	5:00-10:00	
THURSDAY July Ird	2:30-5:00	(9) Eastern Clay Court Tennis Championships at Jackson Heinhts.
July Mu	9:00-10:00	(10) Variety. (11) Julien Bryan, Photographer-Locturer.
FRIDAY	2:30-5:00	(12) Eastern Clay Court Tennis Championships at Jackson Heinberg
Party was	9:00-10:00	 Film "Where the Golden Grapefruit Grows" (14) "Words On The Wing", a Streamlined Spelling Bee.
SATURDAY July Sth	2:30-5:00	(15) Eastern Clay Court Tennis Championships at Jackson Heights.

ALL PROGRAMS SUBJECT TO CHANGE WITHOUT NOTICE

HOW TELEVISION BENEFITS YOUR CHILDREN

Motorola, leader in television, shows how TV can mean better behavior at home and better marks in school!





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Octo Annexeesk dans-promphy The single rule "Unaccessidens-schemister strength and the problem in these such of hours can be availe children more interested in action work. "Therefore, may the first Thick Theory, "The single problem the scheme set are used as the third the single problem of the scheme set first rates way so sports are sovergoing, but sub the mether and future are made correction this will be the scene."



Hence, event IV based Franci Quari No main radiy and "subpring day star"... with indexistic keeping mult by not of an inclusion... and and mather's black days the first just and an analysis of the star of the star of the first int and an analysis. Taking any televition from children with the pit is a pandishnet that

really works," writes an authority on shild psychology. "The ways thought of allocing some get program turve Ends from into hands. And, incidentally, thus forestin programs in the lass allocations are the work's forest suggest for gening tardy prosperite lasts on time." Will inderenden strangeben family tim? Educators, enlighter and revise indexed agent is one be one of the stranger format in America for Integrate (In Early Eggenese to Storp grade), data attention for the data is found to storp the storp of the start of the storp of the store of the storp of the store of the storp of the store of the storp of the store of the storp of the store of the store

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No.1

Less browsers More applications

- Network Ubiquity and Bandwidth is just the beginning
- Critical Network fixed & mobile
- Applications hide the network
- > Applications everywhere?
- > HTML 5









From a couple of great business models, to many good ones





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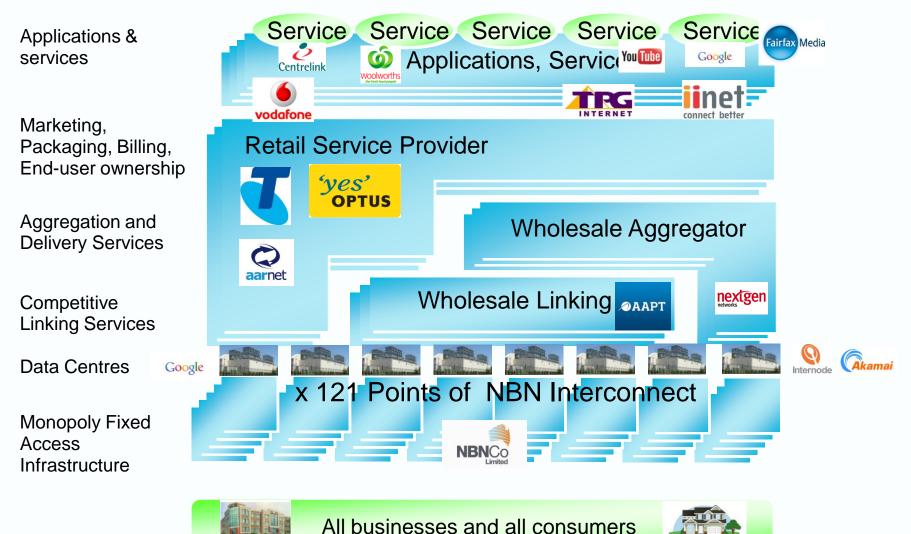
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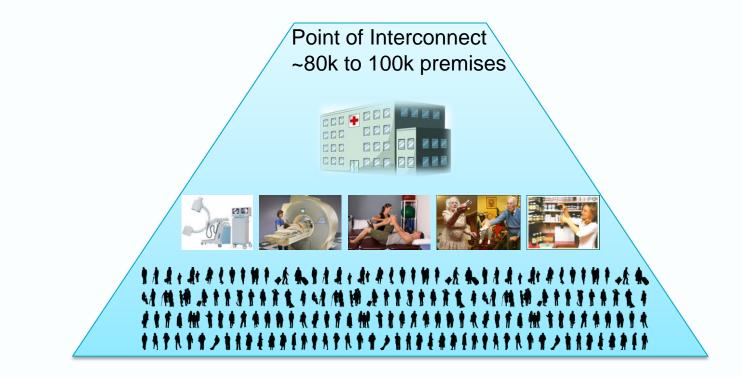
The Australian fixed telecommunications market



CSIRC

Source: Alcatel-Lucent

Bural All communities combine local, domestic and international





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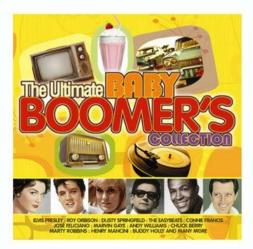
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Profound Generational Shift demands new business behaviours

Baby Boomers 1946 - 1964 TV was a family activity Radio and TV were social

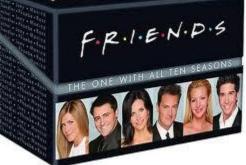


Technology from workplace to the home

Gen X 1965 - 1978

The "Me" generation Content consumption Be authentic





Gen Y "Millennials" 1979 - 2000

The "We" generation Digital natives Multitasking Content creation Integrity & social responsibility Currency is TRUST



Technology from home to the workplace



Lots of unintended consequences

Everybody's Digital Identity will be unique

Digital Economy

The end of broadcast TV

The end of telephone numbers

Today's business models will become a small subset of many new ones



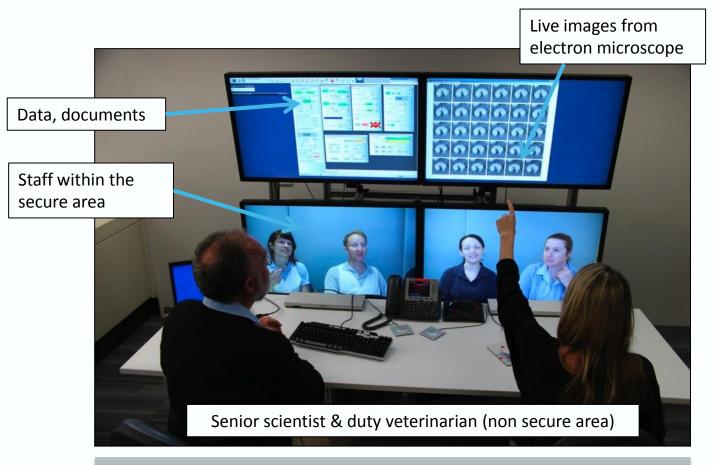
Immersive Collaboration and Cloud — changes the game for all business (like telephony did)



CSIR



Collaboration at the Australian Animal Health Laboratory



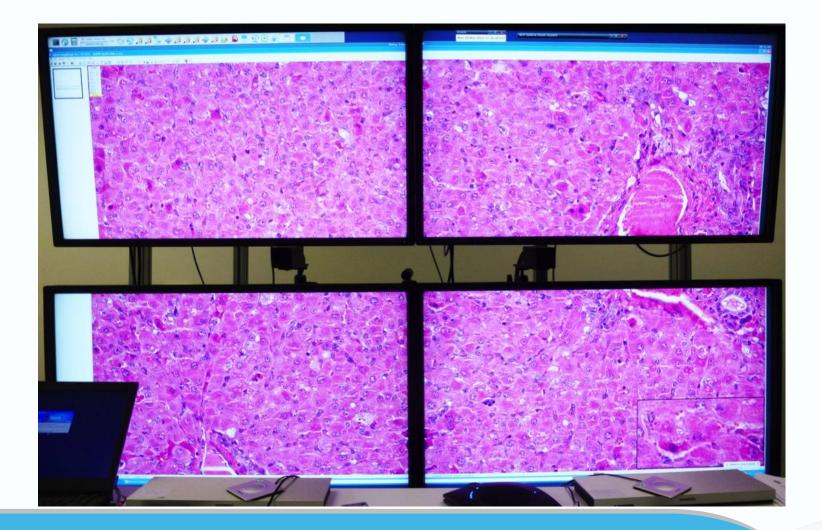
Real-time interactive, HD conferencing and shared workspace

HD video conferencing

- Access to Laboratory Information Systems
- Remote control of and access to specialised equipment
- Monitoring of staff in secured area
- Access to CSIRO Data



....and hidden teleconferencing, full 4 screen shared workspace





Mobile Tele-presence Museum Robot Project at the National Museum





HD Camera Omni directional viewing - 360°



Wrap up

Business is driven by efficiency, productivity & innovation – not technology

Digital Business is local, domestic and/or International

- Applications transition from mobile to fixed devices and hide complexity for everyone
- Millennial generation leverage social networking like never before

The NBN enables the government and business to deliver the digital economy to all Australians – but it doesn't ensure it







kilo - x 1,000 (10^3 or $^22^{10}$) Mega - x 1,000,000 (10^6 or $^22^{20}$) Giga - x 1,000,000,000 (10^9 or $^23^{30}$) Tera - x 1,000,000,000,000 (10^{12} or $^24^{40}$) Peta - x 1,000,000,000,000,000 (10^{15} or $^25^{50}$) Exa - x 1,000,000,000,000,000 (10^{18} or $^26^{60}$) Zetta - x 1,000,000,000,000,000,000 (10^{21} or $^27^{70}$) Yotta - x 1,000,000,000,000,000,000 (10^{24} or $^28^{80}$)

Thank you

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