



St Leonard's College

Educating the Future

Parent Seminar 6 Sep 2016

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163 South Road, Brighton East VIC 3187



St Leonard's College

Kate Bennett Eriksson

Head of Innovation at PwC

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St Leonard's College

Damien Waller

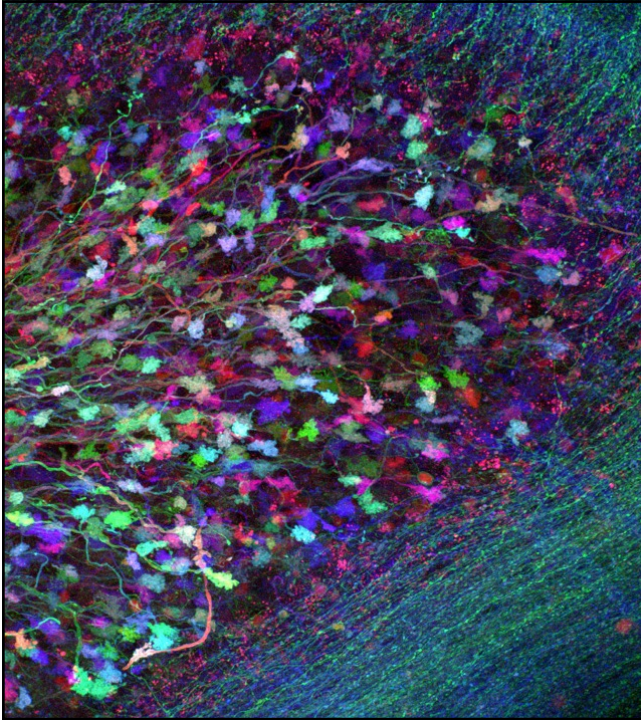
Non-Executive Director of iSelect

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DAMIEN WALLER

DIGITAL DISRUPTION



TODAY

- About Me
- Disruption
- Our kids futures

ABOUT ME

- Parent at St Leonards
- Grew up on a farm in Bendigo
- Education B.Eng and Law
- Co-Founded iSelect over 15 years ago
- CEO, Chairman, NED Director
- Investor/Mentor with a number of companies
- Passionate about the digital economy

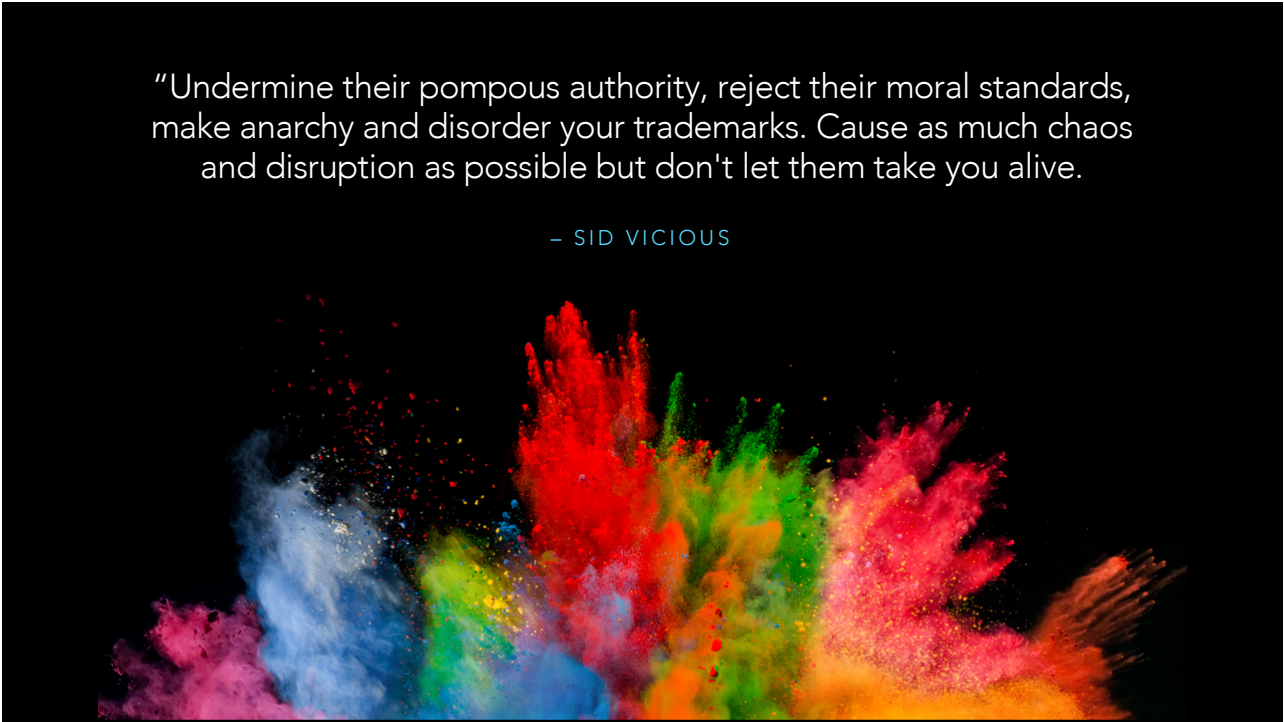


DISRUPTION



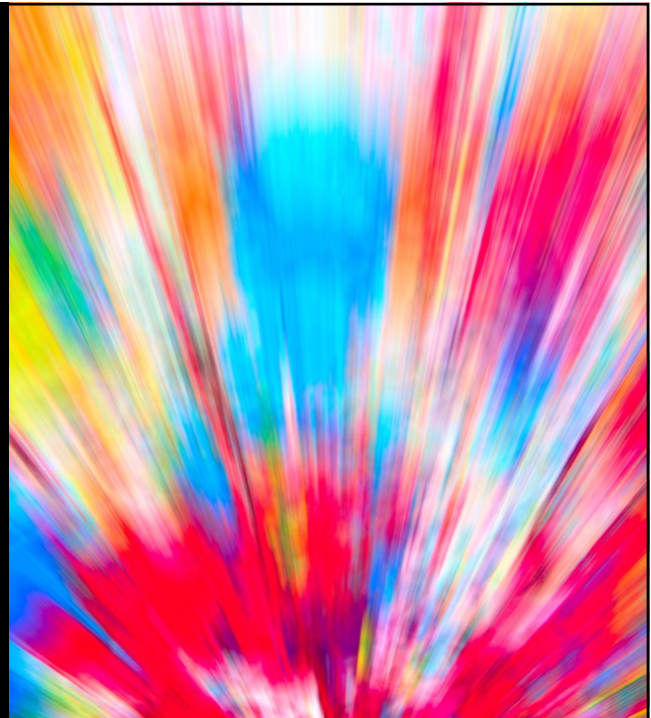
"Undermine their pompous authority, reject their moral standards, make anarchy and disorder your trademarks. Cause as much chaos and disruption as possible but don't let them take you alive.

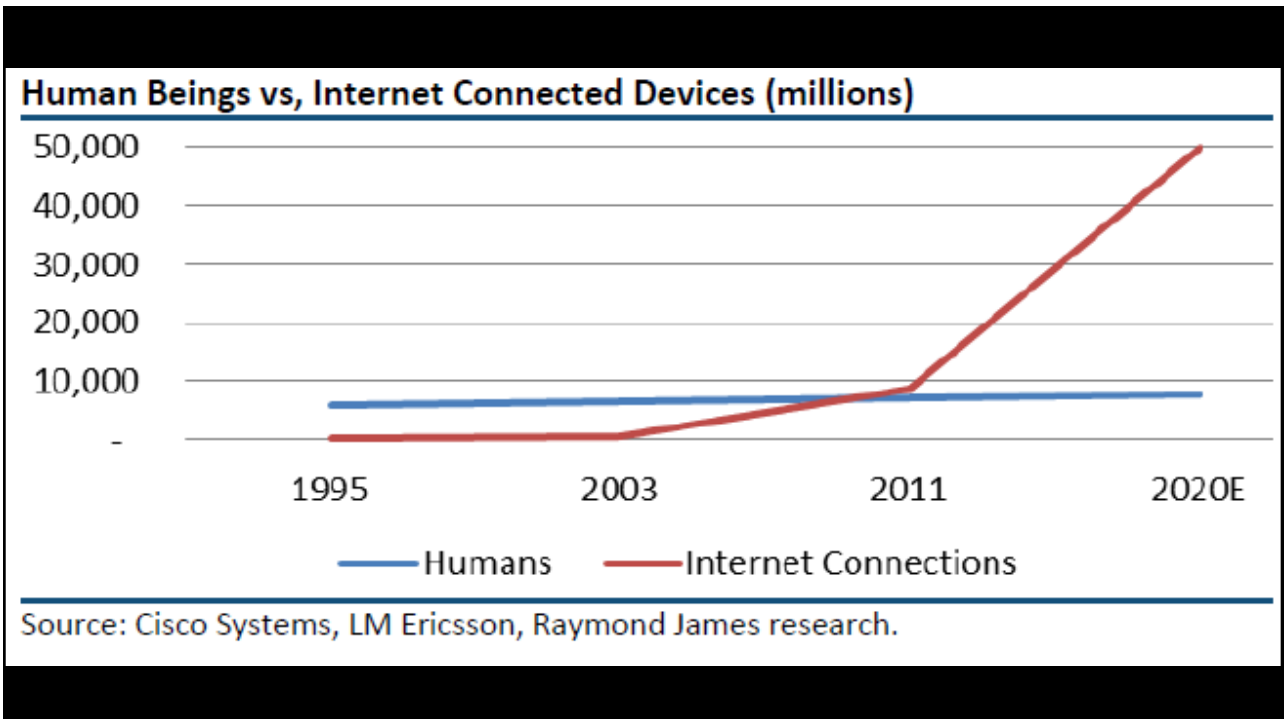
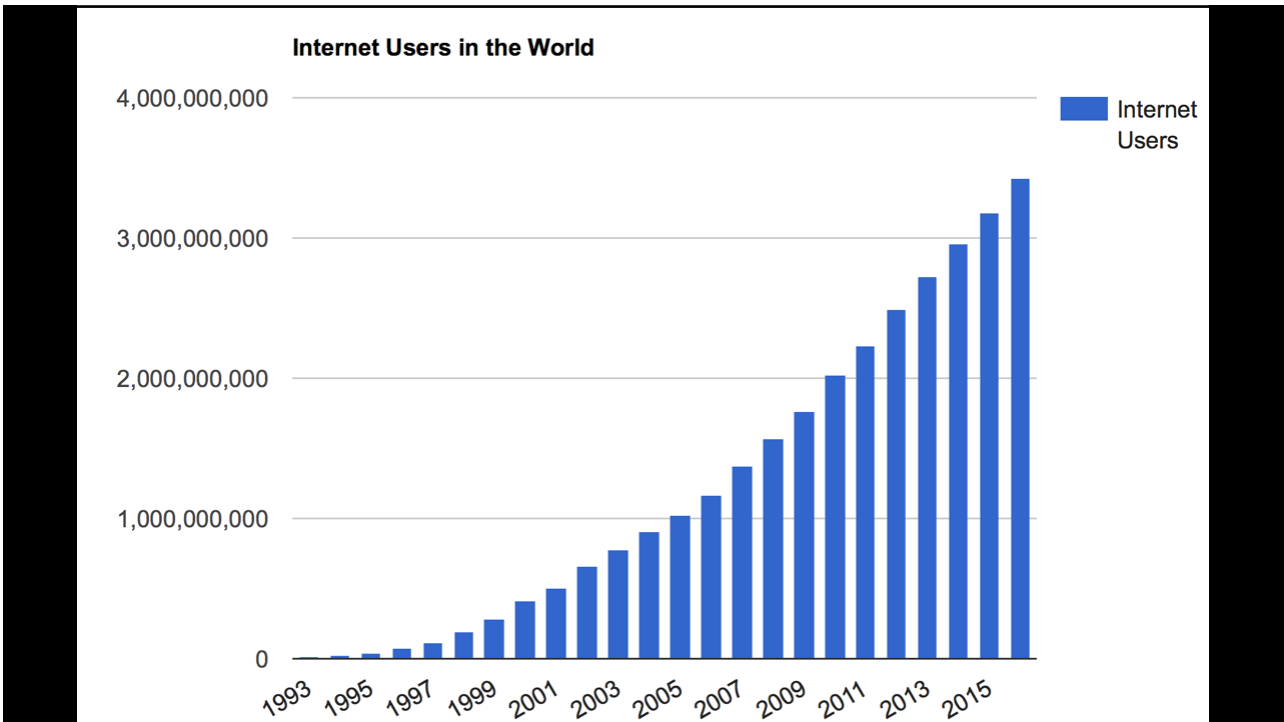
- SID VICIOUS

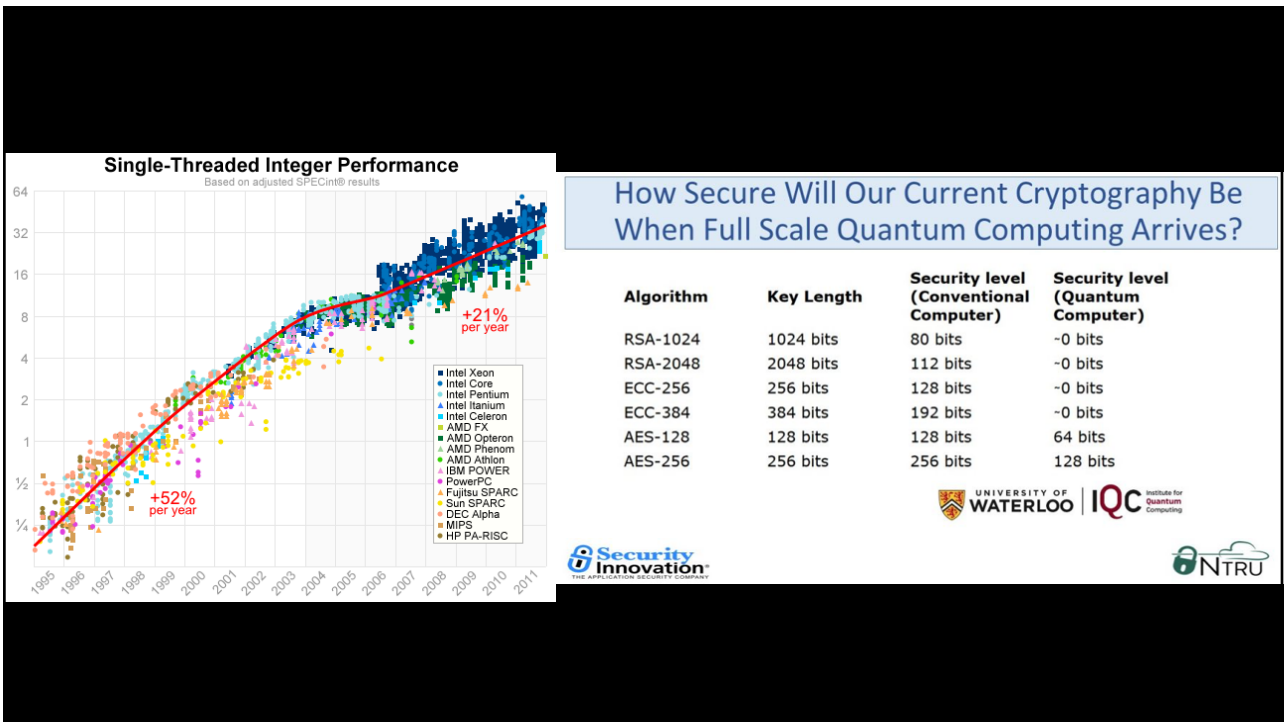
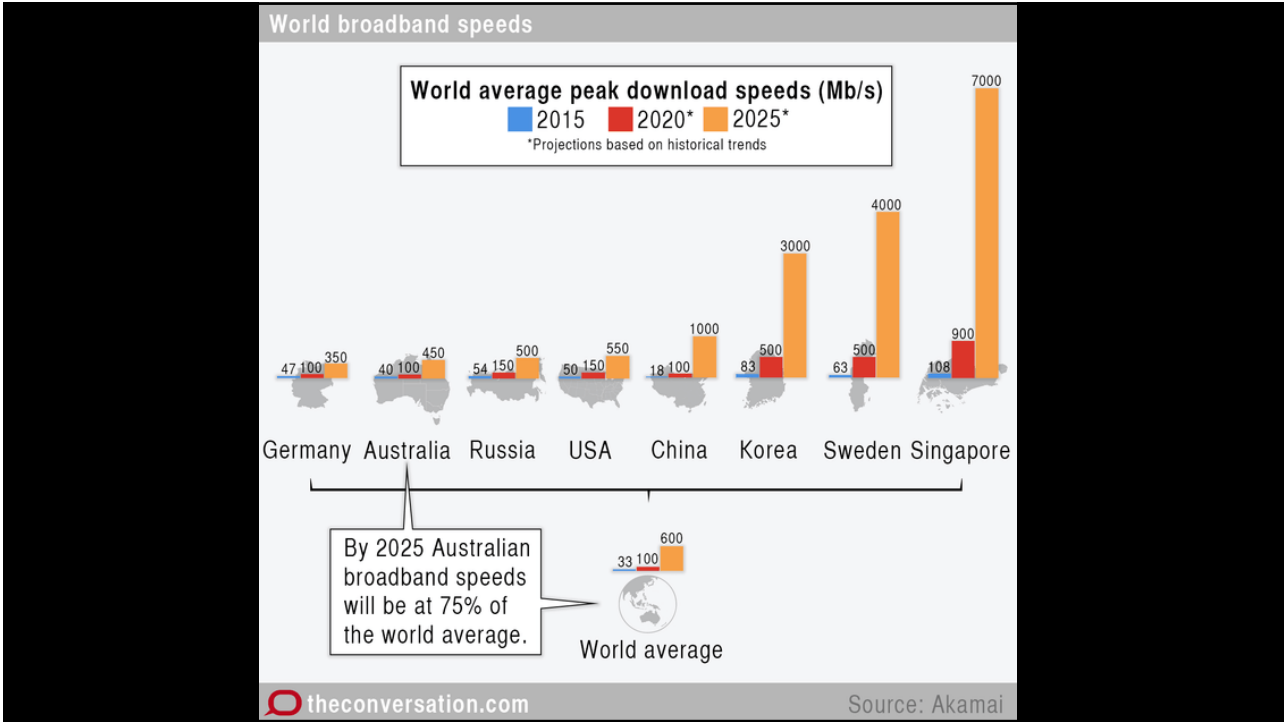


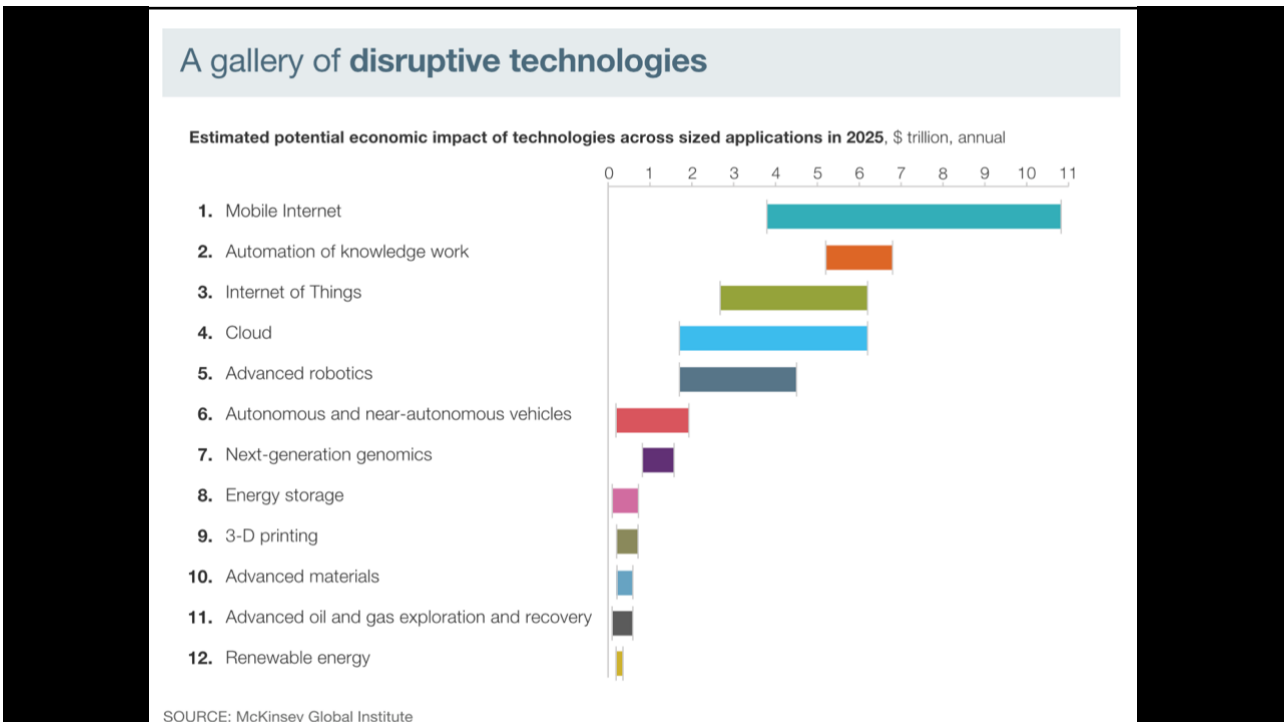
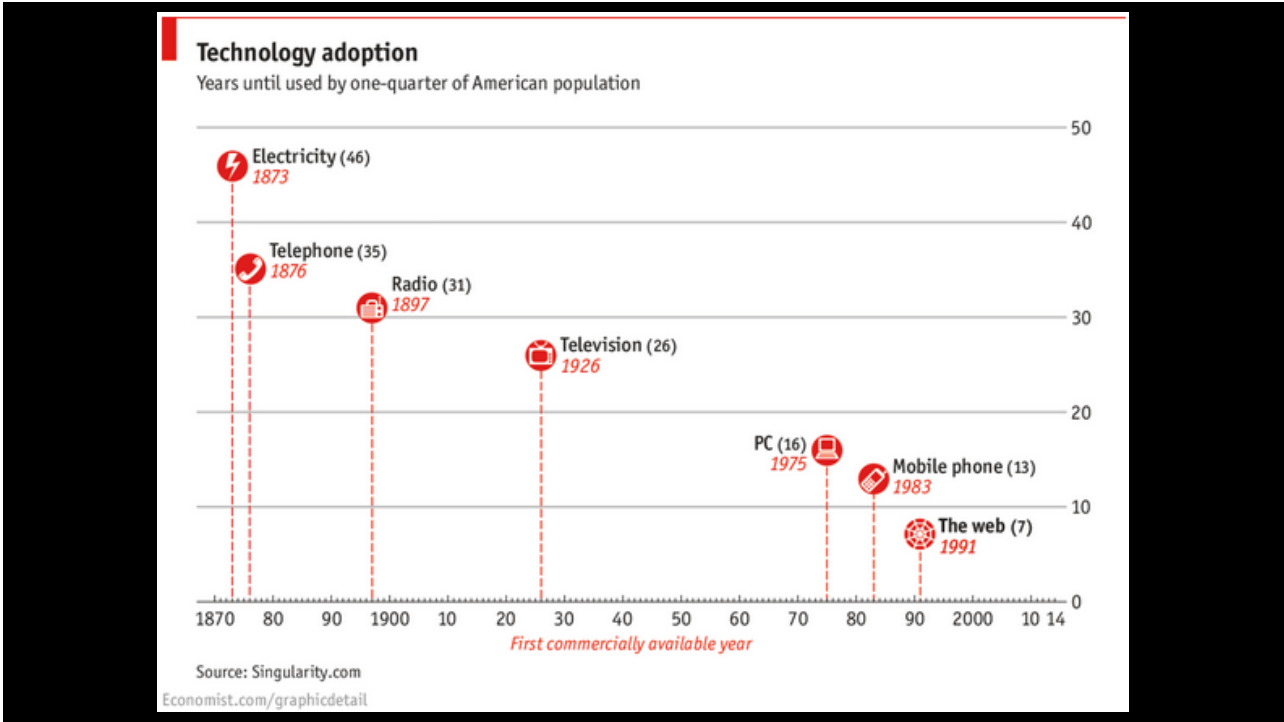
DISRUPTION - KEY DRIVERS

- Number of internet users, devices
- Speed of internet, chips, size of memory, quantum mechanics
- Artificial intelligence - driverless cars, speech recognition, more
- Robotics going mainstream - 3d printing, low cost manufacturing etc









12 OF THE TOP 24 BRANDS ARE TECH

Interbrand

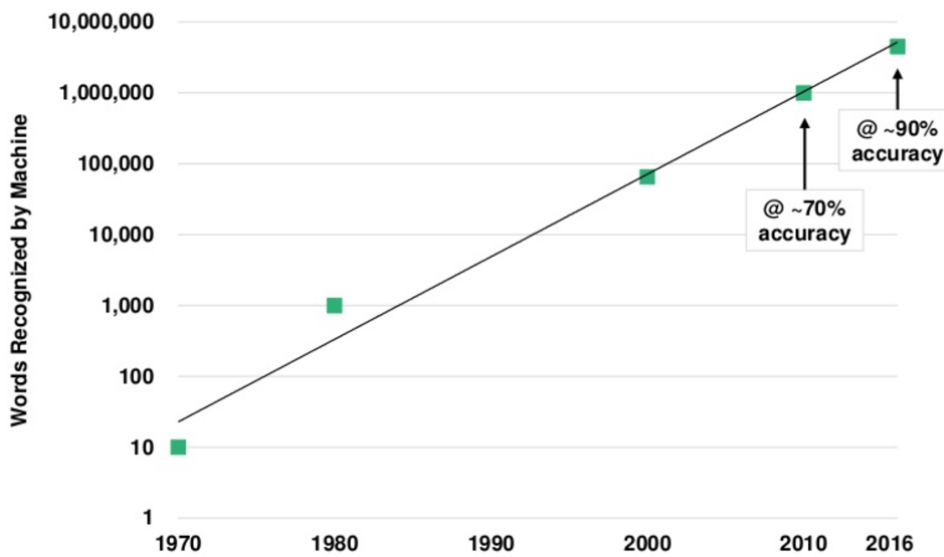
Rankings

Filter +

01 Apple +43% 170,276 \$m	02 Google +12% 120,314 \$m	03 Coca-Cola -4% 78,423 \$m	04 Microsoft +11% 67,670 \$m	05 IBM -10% 65,095 \$m	06 Toyota +16% 49,048 \$m	07 SAMSUNG 0% 45,297 \$m	08 GE -7% 42,267 \$m
09 McDonald's -6% 39,809 \$m	10 amazon +29% 37,948 \$m	11 BMW +9% 37,212 \$m	12 Mercedes-Benz +7% 36,711 \$m	13 Disney +13% 36,514 \$m	14 intel +4% 35,415 \$m	15 CISCO -3% 29,854 \$m	16 ORACLE +5% 27,283 \$m
17 Nike +16% 23,070 \$m	18 hp -3% 23,056 \$m	19 HONDA +6% 22,975 \$m	20 LOUIS VUITTON -1% 22,250 \$m	21 H.M +5% 22,222 \$m	22 Gillette -3% 22,218 \$m	23 f +54% 22,029 \$m	24 pepsi +3% 19,622 \$m

Next Frontier = Recognition in heavy background noise in far-field & across diverse speaker characteristics (accents, pitch...)

Words Recognized by Machine (per Google), 1970 – 2016



Most Valuable Companies in the Fortune 500

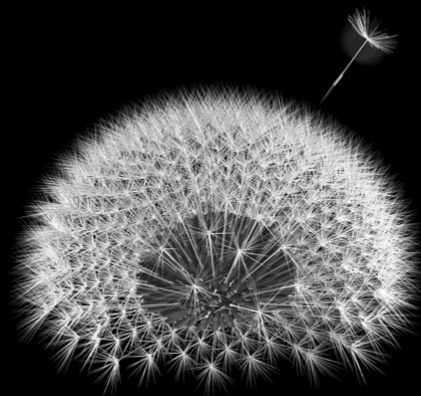
MARKET VALUE RANK	COMPANY	INDUSTRY	MARKET VALUE (\$BIL)
1	Apple	Computers, Office Equipment	534
2	Alphabet	Internet Services and Retailing	507
3	Microsoft	Computer Software	413
4	Exxon Mobil	Petroleum Refining	326
5	Facebook	Internet Services and Retailing	321
6	Berkshire Hathaway	Insurance: Property and Casualty (Stock)	312
7	Johnson & Johnson	Pharmaceuticals	288
8	General Electric	Diversified Financials	271
9	Amazon.com	Internet Services and Retailing	250
10	Wells Fargo	Commercial Banks	242

Source: S&P Capital IQ

FORTUNE

OUR KIDS FUTURES -
LINKED TO EDUCATION,
DECISIONS NOW AND
FUTURE JOBS

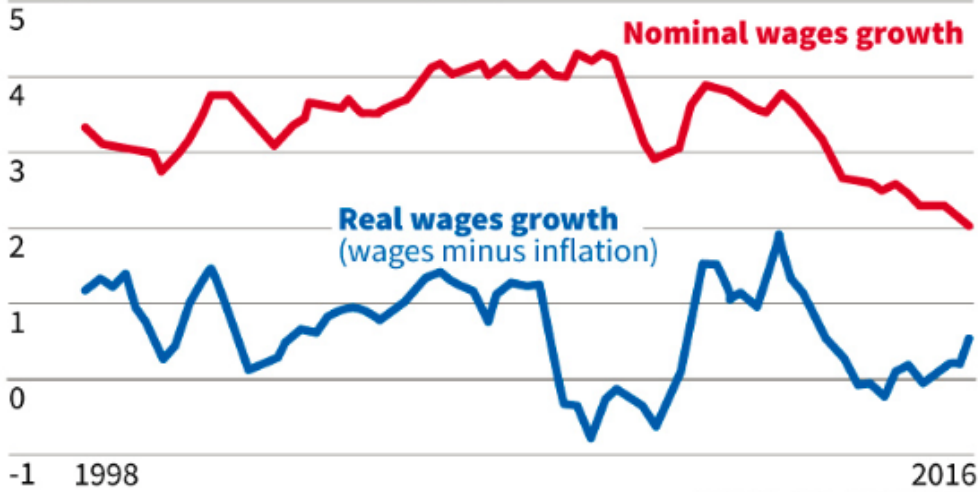
- Phase 1 - Outsource of manufacture, call centres, administration - Labour 10-30% of AU.
- Phase 2 - Increasingly white collar, more complex jobs at risk via automation and outsource - Lawyers, doctors, engineers ...
- Phase 3 - Eventually labour intensive industries will be totally disrupted - taxi drivers via self driving cars, builders via robotic processes, call centres will be virtual agents...



Wages and prices cycle

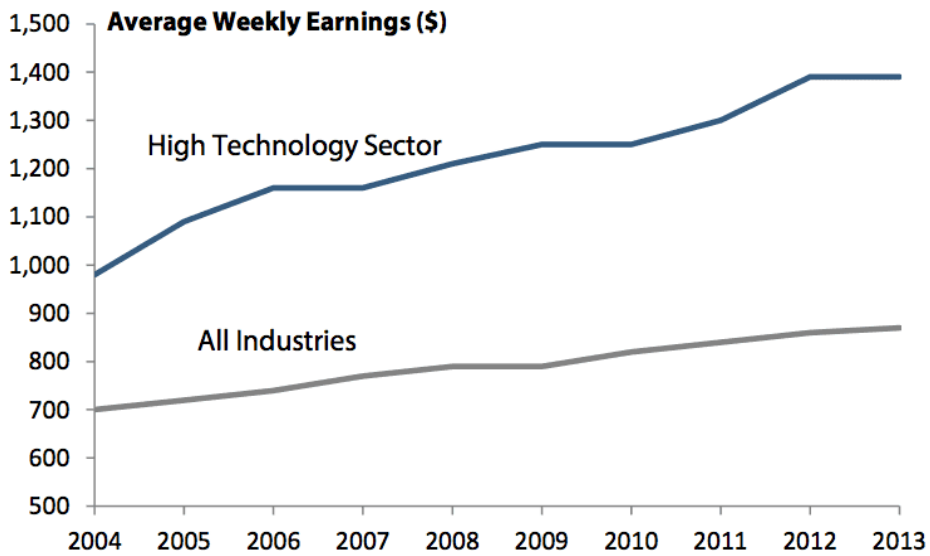
Nominal wages at a record low

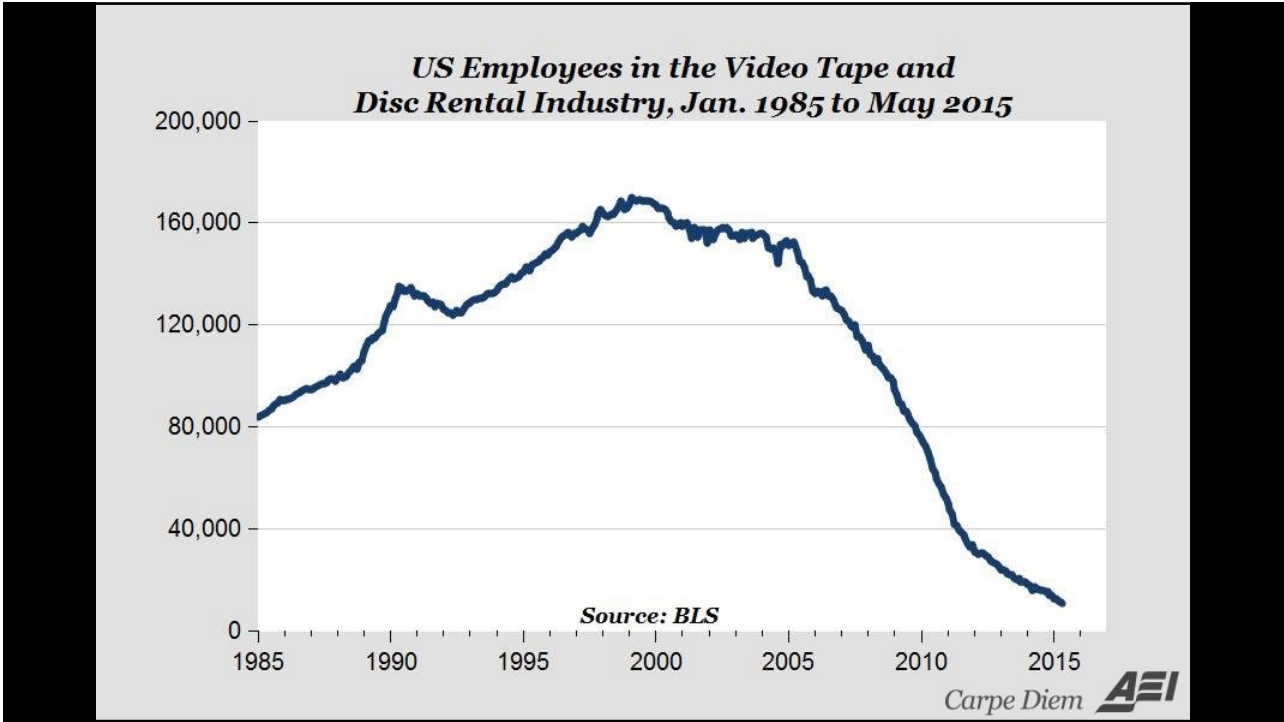
Wage price index annual change (%)



SOURCE: ABS, AMP CAPITAL

FIGURE 7: AVERAGE EARNINGS IN THE HIGH TECHNOLOGY SECTOR COMPARED WITH ALL INDUSTRIES, BRITISH COLUMBIA

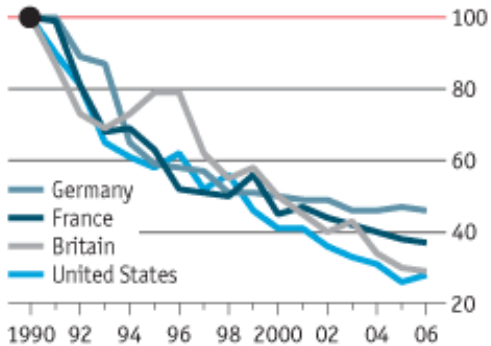




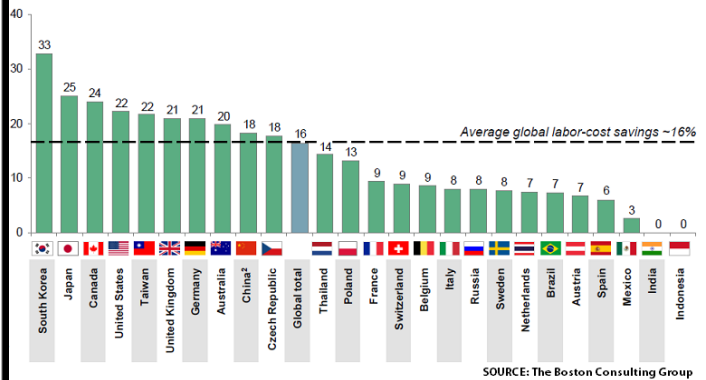
ROBOTICS - BECOMING MAINSTREAM, CHEAP AND WILL REPLACE HUGE AMOUNTS OF LABOUR

Working for less

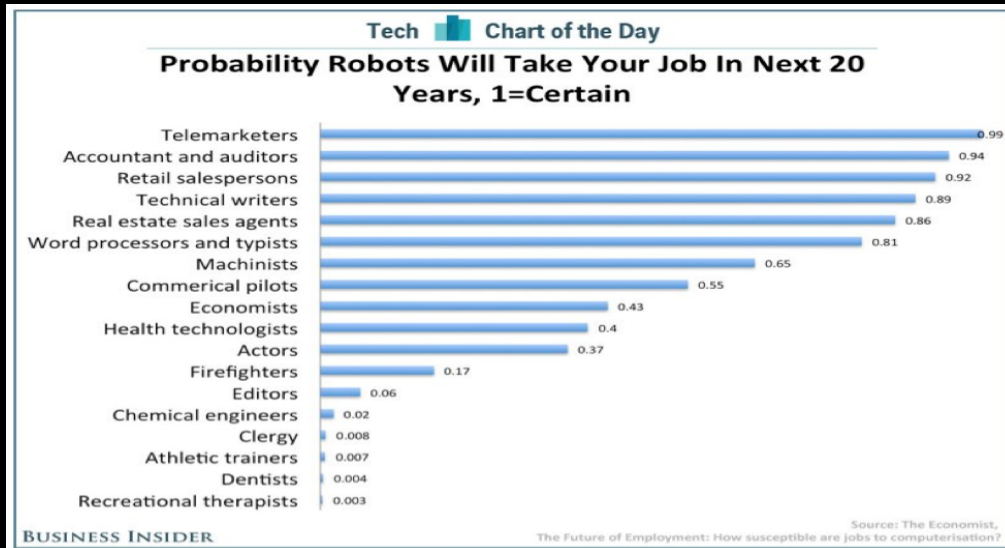
Average robot prices relative to labour compensation 1990=100



Labor-cost savings from adoption of advanced industrial robots (% , 2025)



ROBOTICS - MANY WORKERS THINK ROBOTS WILL TAKE THEIR JOBS...

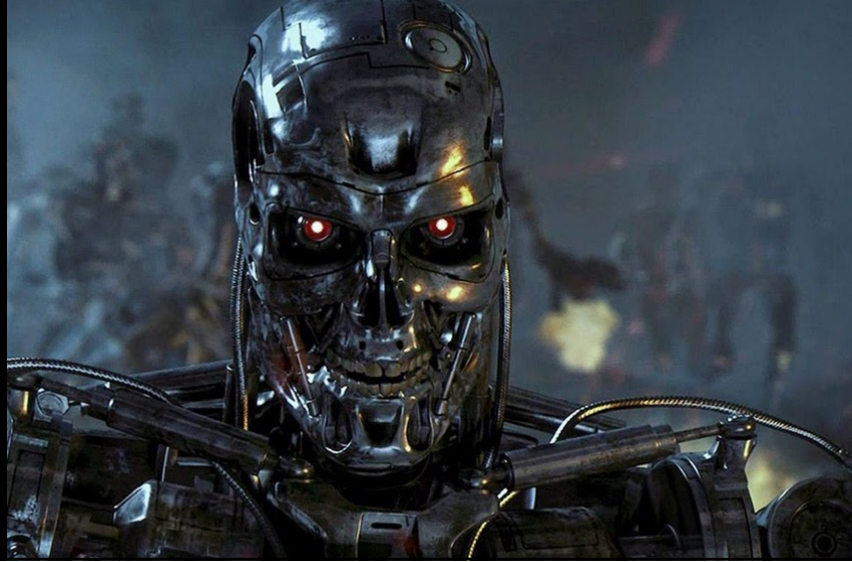


HOW TO DEAL WITH THE THREAT OF DISRUPTION

- Tick - They are already digital natives...
- The future is digital and tech across every industry.
- Encourage our kids to be a disruptor (or work for one).



ONE LAST THING - SINGULARITY WILL OCCUR
WHEN OUR KIDS ARE LESS THAN 40 YEARS OLD



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Phil Galloway

Managing Director Syncline Energy

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Phil Galloway
0413 640 120



1. Jobs threatened by globalization greatly over lap jobs threatened by computers

Artisan & Local → “Jobs in the middle” → World’s Best

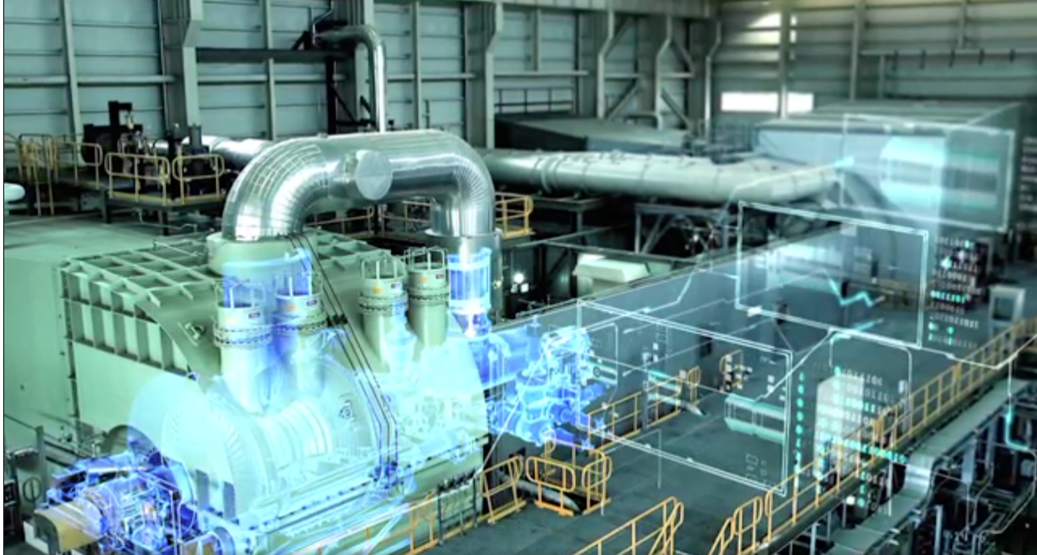
2. ‘Rules based solutions’ no longer exist:

Fragmented ownership of everything → Acquire information, explain and persuade
Global Crises = Global Solutions

Artisan & Local → “Jobs in the middle” → World’s Best

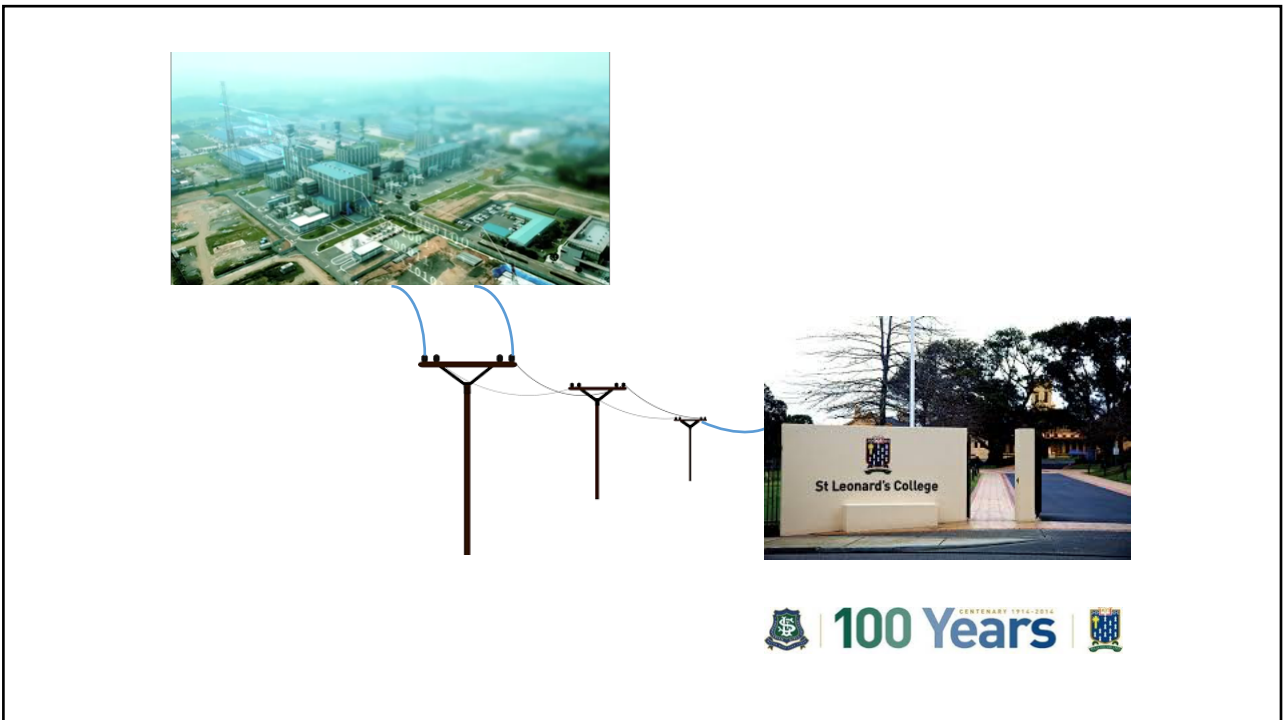
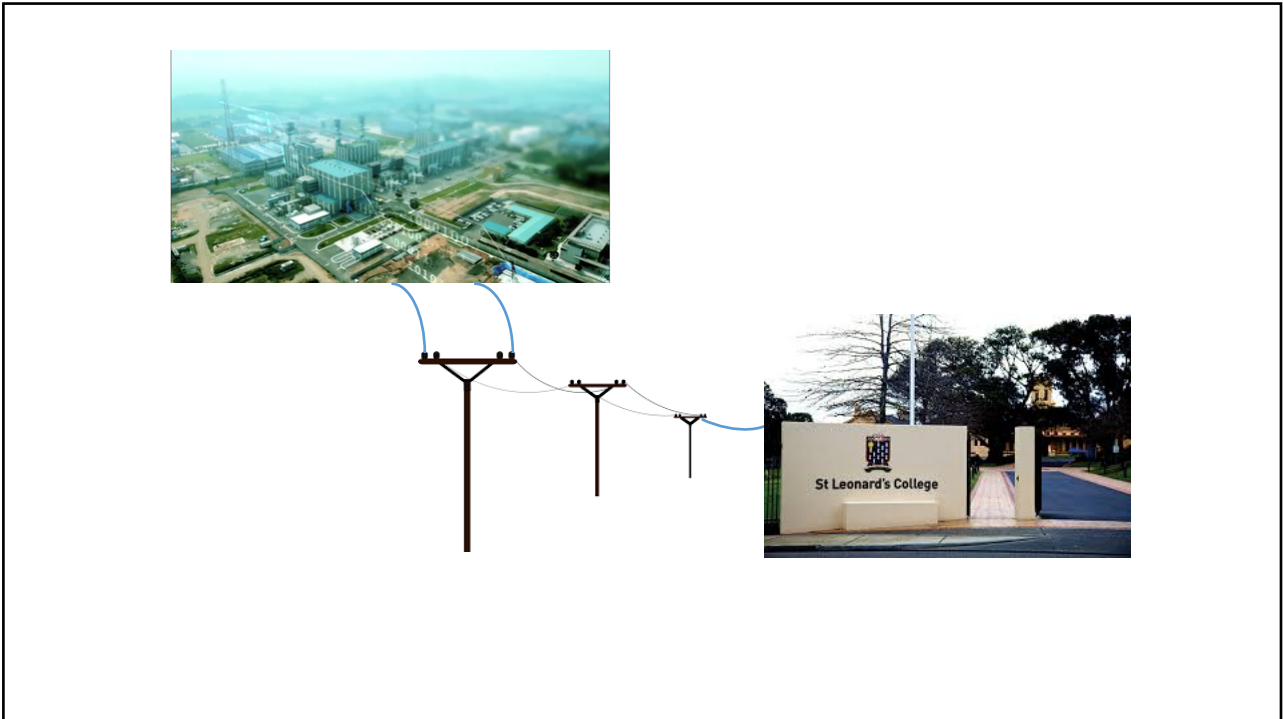


Artisan & Local → “Jobs in the middle” → World’s Best



Artisan & Local → “Jobs in the middle” → World’s Best

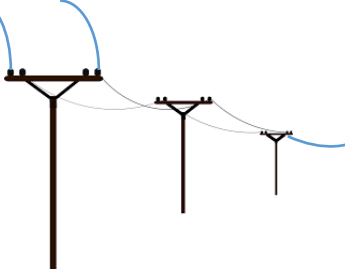




Fragmented ownership of everything → Acquire information, explain and persuade

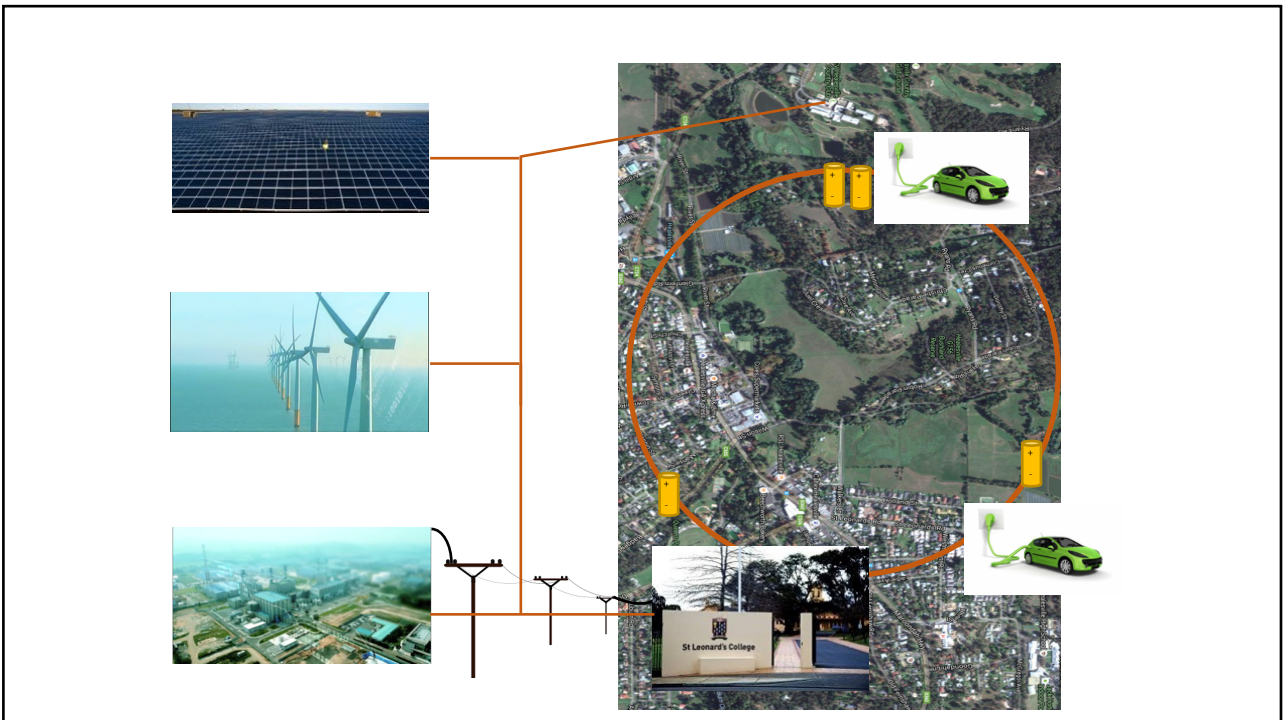
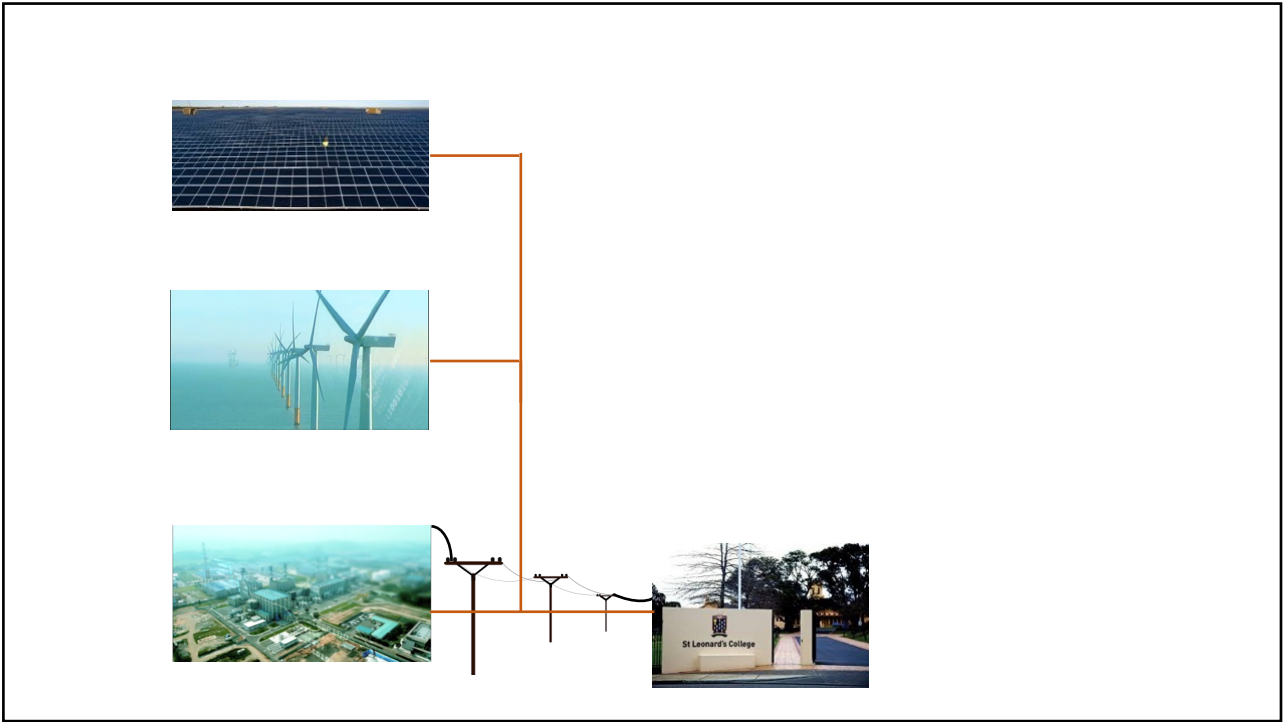


Monopoly Rent



Global Crises = Global Solutions

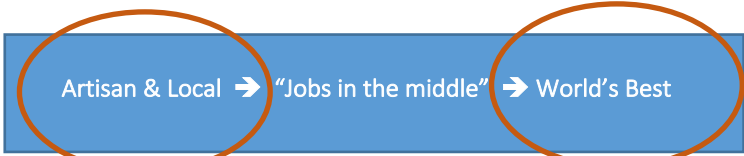
DIGI Stem



- Reduce cost
- Improved resilience of energy supply
- Greener society
- Empowering communities
- Great jobs



Vision for Digi STEM



Global Crises - Global Solutions



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Tim Barlow

Director of Technology Innovation

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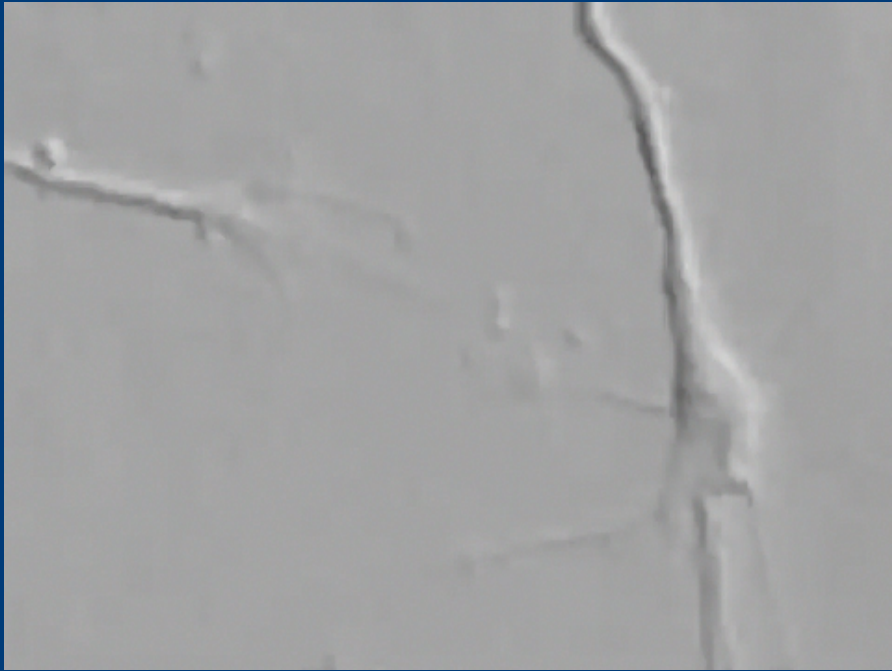


*75 per cent of the fastest
growing occupations now
require STEM skills.*

PricewaterhouseCoopers, A smart move: future proofing Australia's
workforce by growing skills in science, technology, engineering and maths
(STEM), 2015

*“all students to complete Year 12 will
require successful completion of an English
or humanities subject and a maths or
science subject as a prerequisite for
acquisition of an Australian Tertiary
Admission Rank (ATAR).”*

Australian Government, Quality Schools, Quality Outcomes, May 2016.
[https://docs.education.gov.au/system/files/doc/other/quality_schools_acc.
pdf](https://docs.education.gov.au/system/files/doc/other/quality_schools_acc.pdf)



What is
St Leonard's College
doing now?



21st century skills

- collaboration
- problem solving
- critical thinking
- creative thinking
- general ICT capability

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Yr 7-12 2016 courses

- Year 8 STEM elective
- Year 10 Programming elective
- VCE Unit 3&4 Software development

- Comprehensive Mathematics and Science courses
- Cocurricular activities
 - Year 8 STEM club
 - Year 3/4 Robotics club

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What is St Leonard's College missing?



DigiSTEM

- New subjects
- A new faculty area
- Digital Technologies curriculum from VCAA and ACARA
- STEM, elements of the Design Technologies curriculum



Integration P-4

- DigiSTEM staff to work with P-4 teachers to embed key skills and/or develop DigiSTEM projects.

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Yr 5-12 2016 courses

- Year 8 STEM elective
- Year 10 Programming elective
- VCE Unit 3&4 Software development

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2017 courses

- **Year 5 DigiSTEM core**
- **Year 6 DigiSTEM core**
- **Year 7 DigiSTEM core**
- Year 8 STEM elective
- **Year 8 DigiTech elective**
- **Year 9 STEM elective**
- **Year 9 Game Creation elective**
- Year 10 Software Engineering elective
- **VCE Unit 1&2 Computing**
- VCE Unit 3&4 Software development



What will they do?

- Curriculum to be based around the new Digital Technologies curriculum from ACARA underpinned by computational thinking.
- A key focus on the design process to enable students to decompose problems and prototype solutions. (Therefore elements of the Design Technologies curriculum).
- Competitions

What will they do?

- Can you program a robot to do ?
- How do you create a prosthetic hand for ?
- Program this Sphero to navigate the ?
- Using your understanding of binary and wired networks can you ?
- Design, Develop and Market a solution to ?
- How could you use this drone to deliver ?
- Design and Build a robot together in an effort to ... ?
- As a team can you coordinate an automated system to ?

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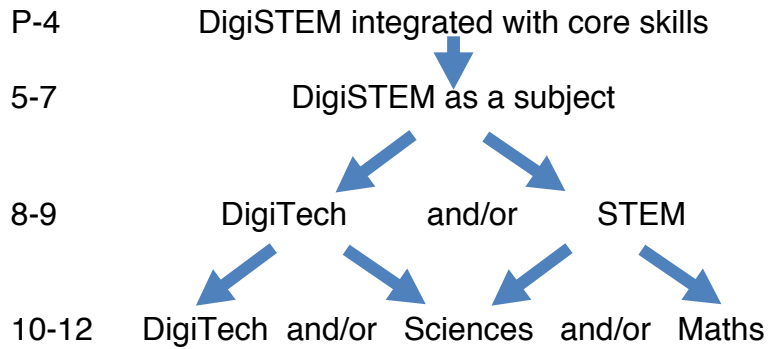
What will they use?



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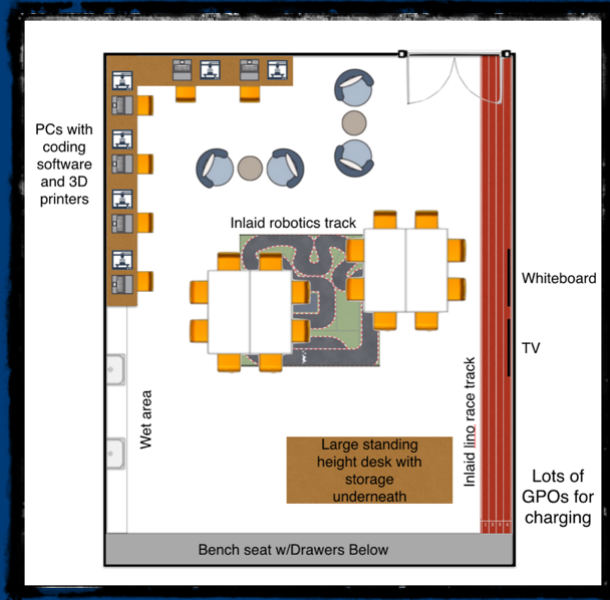
Pathways



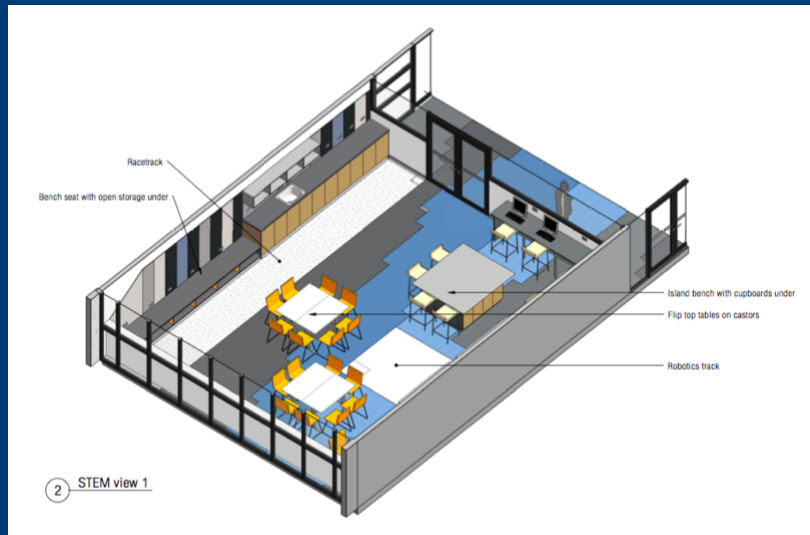
2018 courses ???

- Year 5,6,7 DigiSTEM core
- Year 8 STEM elective
- Year 8 DigiTech elective
- Year 9 STEM elective
- Year 9 Game Creation elective
- Year 10 Software Engineering elective
- **IB Computer Science**
- VCE Unit 1&2 Computing
- **VCE Unit 1&2 and/or 3&4 Systems Engineering**
- **VCE Unit 3&4 Informatics**
- VCE Unit 3&4 Software development

STEM Centre



STEM Centre





Staffing

2016

- Vaughan Anderson (Digital Technologies Coordinator)
- Di Gilbert (STEM Coordinator)
- Chris Hyde (STEM Teacher)

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Questions?