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INFORMATION TECHNOLOGY AND THE END OF THE TRADITIONAL UNIVERSITY BUSINESS MODEL

INTRODUCTION

1. Digital Disruption

- Prime Minister Malcolm Turnbull often speaks about "digital disruption" (and he amassed a fortune out of being an early investor in IT)
- digital disruption and the story of *Encyclopaedia Britannica*[1]
- established in Scotland in 1768 and "generally regarded as the world's most comprehensive and authoritative encyclopedia"
- in recent decades the publishing company failed to monitor the rise of online reference works and ran into financial problems (English language Wikipedia appeared a year after the Harvard Business School book was published)
- Evans and Wurster identify these lessons for all businesses:

(i) *"the most venerable can prove the most vulnerable"* [note the speed of the collapse]

(ii) *"a strong corporate culture can blind business leaders to events that do not fit into their collective mental framework"* [just because the educational institution is a vital part of today's community, there is no guarantee it will still be needed tomorrow]

(iii) even if executives do fully grasp the impact of new technologies, they may be at a competitive disadvantage because they are *"saddled with legacy assets"* [could university buildings become "stranded assets"?]

- as at 2015 the company no longer prints a hard copy version; there is some online material and the company (using its well-established brand) also publishes other educational material

THE NEW ERA

2. Three Eras of Change

(i) since last Ice Age: development of farming in the Middle East: farmers: "how can we make water come to us?"

(ii) 1750: Industrial Revolution in UK: factory hands

(iii) now: global Knowledge Revolution: symbolic analysts

3. Moore's Law and the Information Revolution

- "Moore's Law": Gordon Moore of Intel; power of computers will double every 18 months-2 years; price of computers will halve every 18 months-2 years

(i) yes: the Internet is revolutionary – but not utopian; it does disrupt our lives but not necessarily always for the better

(ii) be aware that the Internet was not designed for all the functions we are now using it for (education, banking, commerce, entertainment etc); it may be vulnerable to disruption (hacking)

(iii) we have often been blind-sided by change for example newspapers carried stories of IT changes but newspaper boards themselves failed to ask: "What does all this mean for our newspaper business model?"

- software eats the world: keep asking "How will the implications of Moore's Law affect my educational institution?"

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[1] Philip Evan and Thomas Wurster *Blown to Bits: How the New Economics of Information Transforms Strategy*, Boston: Harvard Business School Press, 2000, pp 1-7

THE UNIVERSITY BUSINESS MODEL

4. The Roles of the Universities[2]

i. conserve knowledge through libraries and scholarly collections
ii. transmit knowledge to students
iii. advance knowledge
iv. apply knowledge (via consultancies)
v. refine knowledge via critical review and scholarship
vi. accreditation of graduates
vii. conscience and critic of society

5. The Roles Under Threat

- all the roles are under threat, mostly but not exclusively due to information technology

i. Google has "democratized" knowledge
ii. the university monopoly over higher education teaching is being eroded by the arrival of new for-profit providers
iii. think tanks, corporate researchers do this; given the tendency to reduce government monopolies perhaps we will see the opening up of access to government research funds being provided to non-governmental organizations, think tanks etc (given the shortage of university teaching positions, there is a generation of talented young PhDs operating outside the academy)[3]
iv. think tanks, corporate researchers also do this
v. some elite scholarship remains within the academy but everyone now assumes they have a right to comment via social media etc
vi. at present: the precious bit of paper is crucial
vii. again academics are now only a small minority competing in the marketplace of the "attention economy"; most members of the "commentariat" are not university-based

- lesson from the movies: they remain important as entertainment - but people no longer need to go to cinemas to view them (movies can be delivered via the Internet)
- education will remain important - but people may no longer need to go to university buildings to receive it

THE FUTURE OF WORK

6. "Zero Marginal Cost" Era[4]

- economists: "fixed costs" and "marginal costs": essence of business is to drive down marginal costs
- Rifkin's book is very optimistic – but I do not share his optimism
- zero marginal cost (for Rifkin) is the triumph of capitalism, whereby capitalism destroys itself

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[2] Taken from: Ian Lowe *Our Universities are Turning Us into the Ignorant Country*, Sydney: University of New South Wales Press, 1994, pp 6-7

[3] http://www.forbes.com/sites/alejandrochafuen/2013/05/22/will-think-tanks-become-the-universities-of-the-21st-century/

[4] Jeremy Rifkin *Zero Marginal Cost Society*, New York: Palgrave Macmillan, 2014

- "consumers" become "pro-sumers": produce, consume and share their own goods: they publish their own information (WWW); make their own videos (You Tube); solar-powered buildings make their own energy
- three networks are coming together: (i) WWW (communications) (ii) IOT: Internet of Things (physical good with chips/ sensors) and (iii) Energy (sensors): eventually one global neural network of interconnection eg your house will "know" when you wake up, turn on the heating, make you a coffee and tell you the weather
- this will be a new "collaborative" economy which removes the need for gate-keepers/ intermediaries eg Airbnb (reduced demand for hotels), Uber (reduced need for taxis), Google driverless-cars (no one will be trusted to drive a car by 2030)

7. The Next Stage: 3D Printing (Additive Manufacturing)

- machines that print (eg plastic toys) one layer at time
- owing to the method of construction, there is no waste: only the material that is needed gets used
- plastic can be recycled; old plastic water bottles may have a later use
- the end of shopping? The 3D printer will manufacture for you at home (recall that servants were replaced by the washing machine and Hoover); photographers no longer need Kodak for colour photographs

8. Therefore: Loss of Jobs

- rise of the "gig economy"
- for the first time in history we are now losing jobs faster than we can create them (not all the jobs have gone to Asia; some have been taken over by robots)
- software eats the world: keep asking "How will the Internet affect my business model?"
- robots work 24/7; never take annual leave or sick leave; have no ego and no personality squabbles – but they don't "consume" many goods or services, either: where will the consumer demand come from?
- how will people be employed in the future? Where will they get their money? http://global-directions.com/_blog/latest-articles/post/how-to-prepare-for-the-jobs-of-the-future/
- are we educating people for an era of work that will eventually no longer exist?[5]

> "Amazon dominates book retailing; Uber decimates taxi services; Pandora displaces radio. Little attention is paid to the resulting destruction of livelihoods and assets because there's no incentive to do so."[6]

THE FUTURE OF TEACHING

9. The Arrival of New Ideas

- Massive Open Online Courses (MOOC): knowledge is now democratized and so easily available that it might as well be given away (in the hope that free undergraduate courses may attract post-graduates to enrol)[7]

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[5] I have been criticized for publicizing the "alarmist" Oxford report; but it has recently been criticized for not going far enough: Derek Thompson "A World Without Work", *The Atlantic* http://www.theatlantic.com/magazine/archive/2015/07/world-without-work/395294/

[6] Jerry Kaplan *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence*, New Haven: Yale University Press, 2015

[7] Daniel Nethery "What Makes a MOOC?" http://insidestory.org.au/what-makes-a-mooc

- University of Adelaide is phasing out lectures[8]
- "flipped classrooms": students study materials (such as online lectures) before attending each class, with the class itself become a problem-solving session
- personalized, self-paced learning via a computer system "knowing" each student individually[9] (much as the US's Harrah's casinos computers know each gambler)[10]
- eventually the construction of androids (robots in human form) to take tutorials[11]
- university will be what you do – and not where to go

10. Some Broader Speculations

- are computers rewiring our brains? Is there a risk in being in perpetual locomotion?[12]
- will people find free ways of obtaining education?[13]
- will universities largely disappear and so the world will eventually have only a handful of prestige boutique universities, such as Oxford?
- will we have five layers of universities: elite, mass, niche, local and lifelong learning?[14]

RESPONDING TO THE DIGITAL DISRUPTION

11. Where to from here?

- the presentation has sought to be a warning signal of the risk posed to universities from information technology
- the long-term future of Australian universities cannot be assured
- but there are a few steps to secure the immediate future, not least in international education

12. The Student Experience

- IT cannot provide the face to face experience for students (exchange of ideas via discussion, networking, developing social skills, being exposed to other cultures, learning to be accommodated with other people in a safe environment)
- students want quality teaching and a good experience

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8 http://www.afr.com/technology/apps/education/university-of-adelaide-is-phasing-out-lectures-20150625-ghxgoz

9 http://www.salon.com/2013/08/01/big_data_puts_teachers_out_of_work_partner/

10 Ian Ayres *Super Crunchers: How Anything Can be Predicted*, London: John Murray, 2007, pp 30-1

11 A bizarre story of early android experimentation is told in: David Dufty *Lost in Transit: The Strange Story of the Philip K Dick Android*, Melbourne: Melbourne University Press, 2011

12 See: Nicholas Carr *The Shallows: How the Internet is Changing the Way we Read, Think and Remember*, London: Atlantic, 2010

13 http://www.lifehack.org/articles/money/10-inexpensive-ways-continue-your-education-outside-school.html

14 Michael Barber et al *An Avalanche is Coming: Higher Education and the Revolution Ahead*, London: Institute for Public Policy Research, 2013

- educational providers can achieve a marketing edge by enhancing the student experience

13. The Experience Economy[15]

- *The Experience Economy* (Joseph Pine and James Gilmore)
- an escape route from merely competing on price
- people have more money and so expect a higher standard of service (today's university college rooms are more elaborate than in my day!)
- four levels of economic activity:
    i. farming/ mining: extraction: basic commodities
    ii. manufacturing: goods
    iii. services are delivered: banking, haircuts
    iv. experience: unique to each person; "the best things in life are not things"
- ultimate goal of "experience economy" is to transform the person via a set of experiences: into a graduate, thereby making a lasting impact (and not merely a transactional one)
- the first three levels are finite; the 4th is infinite because of the human appetite for amusement, excitement, learning, pleasure, spiritual fulfilment

14. Protecting the Industry

- we must never assume that the current offerings for international students represent the best that could be done for them.
- it is appalling that three decades after the "export of education" became an Australian Government priority we are still wrestling with matters that were identified as problems at the outset (such as the basic issue of ensuring that each jurisdiction treats international students in an equal way to domestic students with respect to things like hospital charges and transport concessions[16])

15. Helping the Industry

- a new not-for-profit association has been formed to improve the international student experience though the support of best practice across the sector: International Student Experience Association (ISEA): www.internationalstudentexperience.com.au
- ISEA is available to assist institutions in getting it right and helping to future proof the international student experience.

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15 http://marketingexperience.wikispaces.com/file/view/Pine+Gilmore+%281998%29+Welcome+to+the+Experience+Economy.pdf/396769328/Pine%20Gilmore

16 Michael Chaney *Australia – Educating Globally: Advice from the International Advisory Council*, Canberra, February 2013, p 5, 45-46