

The Status Quo of Australia's FinTech Education and Training

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Abstract

Financial technology (FinTech) has created innovative disruptions to traditional, long-established financial institutions (e.g., banks and investment firms) in financial services markets. The worldwide blooming of FinTech has caused universities around the globe to teach their students (particularly those in the IT and finance disciplines) about practical and contemporary knowledge on FinTech. This paper discusses our recent survey study to investigate the status quo of offering FinTech education and training by Australian universities. Our study involved two rounds of online data collection (one in November 2021 and the other one in June 2022) from 41 sample universities in Australia. Among our various findings, we observed that, although Australian universities are increasingly aware of the importance of and the demand for FinTech studies, FinTech has still not yet become a mainstream study discipline. This observation indicates that, in Australia, FinTech studies have generally gone through the inception stage and entered the growth stage.

Keywords: financial technology, FinTech, disruptive technology, business innovation.

1. INTRODUCTION

Financial technology (FinTech) refers to a collection of technologically enabled financial innovations that result in new business models, applications, processes, or products in financial markets and institutions (Lechman & Marszk, 2019; Leong & Sung, 2018; Mention, 2021). Nowadays, FinTech has become a set of emerging and disruptive technologies in the financial services industry (Alt, Beck, & Smits, 2018; Gomber, Koch, & Siering, 2017; Iman, 2020; PwC Australia, 2017; Vermeulen, 2017; Zavalokina, Dolata, & Schwabe, 2016). FinTech, such as

automatic teller machines (ATM), the SWIFT (Society for Worldwide Interbank Financial Telecommunications) system, and Bloomberg, have been around for decades, but only over the last few years they have revolutionized the way people interact with financial services (Mention, 2021; Pousttchi & Dehnert, 2018; Puschmann, 2017). Artificial intelligence (AI), big data, blockchain, cloud computing, Internet of Things (IoT), open source software (OSS), software-as-a-service (SaaS), serverless architecture, no-code (or low-code) development platform, and hyper automation are often described as the most disrupting technologies in FinTech (Fong, Han,

Liu, Qu, & Shek, 2021).

According to a PwC report (PwC Global, 2020), global investment in FinTech would reach more than US\$12 billion in 2020. In addition, 88% of global financial services firms express concern that they will lose revenue to FinTech innovators (Vermeulen, 2017). Today, many universities around the globe have recognized the need for FinTech preparedness of their students, and have responded by offering related education and training (see endnote 1) (Earls, 2019; Sung, Leong, Sironi, O'Reilly, & McMillan, 2019; University of Sussex, 2021). (To avoid verbosity, when appropriate, we will collectively refer to education and training as "study" or "studies".) In the U.S. and the U.K., driven by student demand, leading business schools in top-tier educational institutions (e.g., Harvard University, Stanford University, New York University, Columbia University, University of Pennsylvania, Massachusetts Institute of Technology, University of Cambridge, University of Oxford, Imperial College London, London School of Economics, and University College London) are now offering FinTech studies to their students. In the past, students were longing to go into investment banking or in the trading side, but now many of them are more interested in business innovation (e.g., FinTech) (Irrera, 2017).

Australian universities are no exception. Nowadays, a number of Australian universities have started to offer FinTech studies to catch this "tech wave". This paper describes our recent survey to investigate how Australian universities offer FinTech studies with a view to equipping our society with the related skills and knowledge.

2. STUDY SETTINGS

Research Questions

Our study focused on the following four research questions:

RQ1: How many Australian universities are offering FinTech studies?

RQ2: For those Australian universities with FinTech studies, what are their offering modes and levels?

RQ3: What are the underlying support mechanisms and infrastructures in those universities with FinTech studies?

RQ4: Who are the industrial sponsors or partners associated with the university's FinTech studies?

For the rest of the paper, universities which offer FinTech studies will simply be referred to as "offering universities".

Sample Universities and Data Collection

Our study covered all the universities in Australia but excluded the University of Divinity, which focuses on offering education on theology, philosophy, and ministry without any relationship with FinTech. After filtering this university, 41 sample universities remained in our study (this includes the Carnegie Mellon University's South Australia campus). Their geographical distributions across different regions of Australia are: Australian Capital Territory (ACT) = 2; New South Wales (NSW) = 10; Northern Territory (NT) = 1; Queensland (QLD) = 8; South Australia (SA) = 5; Tasmania (TAS) = 1; Victoria (VIC) = 8; Western Australia (WA) = 5; National (NAT) = 1 (see endnote 2). Information about FinTech studies and research was collected online from each university's website twice (first in November 2021 and then in June 2022) for detailed analysis (see endnote 3). We found that both sets of information were the same with respect to the four research questions (RQ1 to RQ4) stated above.

3. DESCRIPTIVE STATISTICS

RQ1: Number of Offering Universities

Among the 41 sample universities, 16 (39%) of them are offering FinTech studies to various extent. When counting, we adopted the following guidelines:

- A unit (see endnote 4) would only be considered as FinTech-related if it involves teaching technologies in the *specific context of finance or financial services*. If, however, a unit teaches technologies (such as AI, blockchain, or big data) only in a general business context, it would not be considered as FinTech-related.
- A unit would only be considered as FinTech-related if at least a large part of it (rather than just one or two single topics) is related to FinTech.

Across Australia, more than one-third (39%) of the sample universities have recognized the importance of FinTech and responded with this by offering FinTech-related studies. The breakdown of these offering universities into different regions is shown in Table 1.

If we ignore the NAT region with only one (offering) university (Australian Catholic

University (ACU)), Table 1 shows that the two regions with the highest percentages of offering universities are VIC (88%) and NSW (40%). A plausible reason for this observation is that Melbourne and Sydney are the two largest Australian cities and financial hubs (Heussler, 2017), and they are located in VIC and NSW, respectively. Thus, it is not difficult to see why relatively high percentages of universities in VIC and NSW are offering FinTech studies. With respect to Table 1, we can generalize our observation as follows: ***If a city (or region) has better financial development, those universities in that city (or region) are more likely to offer FinTech studies.***

Region	No. (%) of Offering Universities	Region	No. (%) of Offering Universities
ACT	0 out of 2 (0%)	TAS	0 out of 1 (0%)
NSW	4 out of 10 (40%)	VIC	7 out of 8 (88%)
NT	0 out of 1 (0%)	WA	1 out of 5 (20%)
QLD	3 out of 8 (38%)	NAT	1 out of 1 (100%)
SA	0 out of 5 (0%)		

Table 1: Geographical Locations of Offering Universities

RQ2: Offering Models and Levels

Among the 16 offering universities in Table 1, we analyzed in detail about their offering modes and levels. Only two of them (one in VIC and one in QLD) offer short *training* courses to industry practitioners. On the other hand, all the 16 offering universities provide FinTech *education* at least at one of the following three levels: unit, specialization (or minor), and degree (or major). Table 2 shows the number of universities offering FinTech education at the specialization and degree levels. This table shows that, overall, only small percentages of the offering universities provide FinTech education at the specialization (= 2/16 = 12.5%) or degree level (= 4/16 = 25.0%).

RQ3: Underlying Support Mechanisms and Infrastructures

We analyzed this research question in three aspects: (a) the establishment of a professorship in FinTech; (b) the establishment of a FinTech research center; and (c) the setup of a FinTech supporting laboratory.

Region	No. of Offering Universities	No. (%) of Universities Offering FinTech Education at:	
		Specialization (or Minor) Level	Degree (or Major) Level
NSW	4	1 (25%)	1 (25%)
QLD	3	1 (33%)	2 (66%)
VIC	7	0 (0%)	1 (14%)
WA	1	0 (0%)	0 (0%)
NAT	1	0 (0%)	0 (0%)

Table 2: FinTech Education at Specialization and Degree Levels

Among the 16 offering universities, we observed the following:

- None of them has established a professorship in FinTech. We argue that, if a university takes FinTech seriously, it will establish a professorship to lead the development (in terms of teaching and research) of this discipline.

Note that we only counted “full” professorship, which is a level-E academic position in Australian universities. Visiting professors, emeritus professors, adjunct professors, and professorial fellows were excluded.

- Only three (one in QLD and two in VIC) offering universities have established a research center focusing on FinTech.
- Only two (one in QLD and one in VIC) offering universities have established a FinTech supporting laboratory. The offering university in VIC with a FinTech supporting laboratory is Monash University. This university collaborates with The Hong Kong Polytechnic University (in Hong Kong) and CollinStar Capital (a leading Melbourne-based institution and a FinTech expert in Australia) to establish a university-industry joint research laboratory on blockchain and cryptocurrency technologies.

RQ4: Industrial Sponsors or Partners

Undoubtedly, when universities and the industry work together to push the frontiers of knowledge, they become a powerful engine for economic growth (Maddocks, 2020; Science/Business Innovation Board, 2012). Silicon Valley in the U.S. is a prominent example.

Among the 7 offering universities in VIC, we observed such university-industry collaboration in

Swinburne University of Technology (SUT) and Monash University. SUT offers a Graduate Certificate and a Master of Financial Technologies. These two postgraduate programmes are co-developed and/or co-delivered with Bendigo Bank, Judo Bank, IBM, and Tableau. In both programmes, these industrial partners will host events, provide platforms and content, pose real-world challenges and applied projects, and bring in practicing professionals as speakers or guest lecturers. Also, as mentioned in our discussion of RQ3 above, Monash University has a partnership with CollinStar Capital when establishing its FinTech supporting laboratory.

A similar university-industry collaboration also exists in the University of New South Wales in NSW. This university is the only one in NSW which offers a Graduate Certificate, a Graduate Diploma, and Master of Financial Technology, and these programmes are co-developed with industry experts in financial services.

Key Highlights from RQ1 to RQ4

All in all, we have two major observations:

- (a) 16 (39%) of the samples are offering universities. This indicates that FinTech studies have generally gone through the inception stage and entered the growth stage.
- (b) Among the 16 offering universities, only few of them offer FinTech education at the specialization or degree level, and even fewer of them have an underlying support mechanism and infrastructure.

It can be concluded that, in the Australian university sector, FinTech has still not yet become a mainstream study per se. Instead, FinTech currently only serves as a "spin-off" discipline of some other traditional disciplines such as finance and financial services.

4. FURTHER OBSERVATIONS

Besides the findings discussed in Section 3, we further noted the following two interesting observations that are worth mentioning.

FinTech-related units: In Table 2, we analyzed the numbers and the percentages of sample universities which offer FinTech education at the specialization and degree levels. Here we focus on FinTech education at the unit level. Among all the FinTech-related units offered, more of them are at the postgraduate level than at the

undergraduate level. Consider two examples. First, the 7 offering universities in VIC altogether offer a total of 4 and 13 FinTech-related units at the undergraduate and postgraduate levels, respectively. Second, the 4 offering universities in NSW only offer FinTech-related units at the postgraduate level. This observation is consistent with the general view that the curriculum and content of a postgraduate degree are more focused and specialized than an undergraduate degree (Maddocks, 2020).

Hosting schools: In almost all the offering universities, their FinTech education (at the unit, specialization, and degree levels) and training are offered or hosted by the business schools (e.g., finance) rather than by technical-oriented schools (e.g., information technology). This can be understood as FinTech is not a purely technical area, so people generally think that its teaching should be delivered by business-focused or financial-focused faculty members, who are often resided in business schools rather than in IT schools. However, Barrett (2018) observed that many faculty staff members of business schools find themselves not technically competent enough to teach the "technology" aspect of FinTech (which is new and ever-changing). Thus, as FinTech education develops and matures, it would be wise for teaching collaboration between the business and IT faculties.

5. RECOMMENDATIONS

Although FinTech is blooming, it is also facing a shortage of skills. Bridging or closing this gap requires a dedicated effort from both FinTech startups/incumbent firms and universities to make FinTech as visible and accessible as possible. Thus, not only Australian universities should offer more FinTech-related studies, but these studies should be co-developed and supported by industrial partners. There are several merits of this arrangement. First, it makes the content and the curriculum of a FinTech course more industrially relevant and, hence, increase the employability of the graduates. Second, the industrial partners can send in some of their employees to serve as guest speakers, and can bring in some of their real-life projects for the students to work on. Third, the industrial partners can offer internship opportunities to FinTech students.

Recently, we observed that AI and machine learning has been widely used in various financial services applications such as fraud and compliance (Buchanan & Wright, 2021). This FinTech business model is known as *Regulatory*

Technology (RegTech), which refers to the application of emerging technologies (e.g., AI, machine learning, and big data) to improve the way firms manage regulatory compliance (Becker, Merz, & Buchkremer, 2020; Institute of International Finance, 2015). RegTech is argued to be a new and vital dimension of FinTech (Butler & O'Brien, 2019). Compared with other current innovations, RegTech is at an early stage of development in the industry (Institute of International Finance, 2016). Because RegTech involves a legal and regulatory element (Mallia-Dare & Meyer, 2020; Wang, 2019), some law faculty staff have been engaging in RegTech research/teaching. For example, the Faculty of Law of Monash University in Australia has established its Centre for Commercial Law and Regulatory Studies, whose one of its focuses is RegTech (Monash University, 2018). Thus, a comprehensive FinTech curriculum should have RegTech as one of its components, and teaching RegTech should be a joint effort among faculty staff members from the IT, business (including finance and accounting), and law disciplines (Al-Hudithi & Siddiqui, 2021; Karkkainen, Panos, Broby, & Bracciali, 2018; Molnár, Tarcsi, Baude, Pisoni, Ngo, & Massacci, 2020).

Nowadays, university job fairs have become regular events on campus. These events provide an excellent opportunity for students to interact and connect with the industry. It is recommended that more FinTech firms should participate in these job fairs. It is even better that more "specialized" job fairs should be organized exclusively for FinTech. This will make FinTech more visible to students.

Teaching FinTech is best supported by a laboratory or hub facility. Take Bond University in QLD as an example. Its business school has established a FinTech hub with 40 Bloomberg terminals and other trading facilities. Students have 24-hour access to Bloomberg's live financial market data. Students can also gain practical experience in executing deals, managing portfolios, and trading financial securities. Our survey found that only few Australian universities have established such laboratories or hub facilities to support their FinTech studies. Thus, it is recommended that more such facilities should be set up to complement FinTech studies.

In 2019–2020, there was a Savvy FinTech Scholarship open to all undergraduate and master's students majoring in commerce, banking, marketing, finance, accounting, actuarial studies, economics, or business studies. Similarly, since 2017, Spotcap (a FinTech firm

offering digital-business lending technology to financial institutions) has been offering its FinTech scholarship to alleviate the talent shortage in the FinTech industry by fostering more home-grown expertise (Alois, 2018). But despite this, generally only a very limited number of FinTech scholarships are available and they come from the industry. It is advised that universities should also offer their own FinTech scholarships to promote FinTech education and to attract high-calibre students to this discipline.

6. STUDY LIMITATIONS

Ideally, all the data should be collected within a very short period in each of the two rounds for more accurate comparison and analysis. However, due to the large number of sample universities and related course/unit web pages, data collection spanned about one month to complete in each round (in November 2021 and June 2022). In principle, though unlikely, some changes could have happened in the course/unit web pages amidst our data collection work. We have, however, already made our best effort to shorten the data collection periods in order to minimize any effect that may invalidate the results of our study.

In addition, our study was solely based on the online data collected from the sample university's websites. It is possible that the contents of some of these websites are not up to date. We, however, argue that since our study involved two rounds of online data collection with an eight-month time gap, outdated web pages in the first-round data collection might have been updated by the relevant universities before the start of the second-round data collection. Nevertheless, even if there exist some web pages which were not updated in both rounds of data collection, our results still paint an overall picture of the current situation and development of FinTech studies offered by Australian universities.

7. CONCLUSION

In this paper, we have discussed our recent survey to investigate the current situation and development of FinTech studies offered by Australian universities. Our survey covered all Australian universities, except one which solely focuses on offering education on theology, philosophy, and ministry. On the one hand, our findings show that Australian universities are increasingly aware of the importance of and the demand for FinTech studies. On the other hand, FinTech has still not yet become a mainstream study discipline. Our findings also indicate that, in

Australia, FinTech studies have generally gone through the inception stage and entered the growth stage. We recommend that more work and effort need to be put in by Australian universities and industrial partners to promote FinTech studies and to equip our students with the necessary skills and knowledge for career opportunities in the growing FinTech industry.

8. ACKNOWLEDGEMENTS

This work was approved by the Human Research Ethics Committee at Central Queensland University (reference: 0000023455).

9. ENDNOTES

1. We use the term "education" to refer to studies leading to a formal academic qualification (e.g., a bachelor's degree, a graduate diploma, or a master's degree), and the term "training" to refer to short professional seminars or courses without leading to a formal academic qualification.
2. The geographic distribution of a university is determined based on the location of its head campus. Among these universities, the Australian Catholic University (ACU) does not have an explicit head campus in Australia. For the sake of analysis, we assign ACU to the "national (NAT)" region.
3. We performed two rounds of data collection for our another FinTech project with the intention to investigate how FinTech studies offered by the Australian universities evolve over time.
4. In this paper, a *unit* is a syllabus item offered by a university (similar to a subject that students study at school).

10. REFERENCES

- Al-Hudithi, F., & Siddiqui, K. (2021). Designing the guidelines for FinTech curriculum. *Entrepreneurship and Sustainability Issues*, 9(1), 633–643.
- Alois, J.D. (2018). *Spotcap awards first of its kind fintech scholarship in Australia*. Crowdfund Insider. Retrieved February 8, 2023 from <https://www.crowdfundinsider.com/2018/02/128703-spotcap-awards-first-kind-fintech-scholarship-australia/>
- Alt, R., Beck, R., & Smits, M.T. (2018). FinTech and the transformation of the financial industry. *Electronic Markets*, 28, 235–243.
- Barrett, H. (2018). *Business schools have a problem with fintech*. Financial Times. Retrieved July 21, 2023 from <https://www.ft.com/content/e336d938-f7ca-11e7-a4c9-bbdefa4f210b>
- Becker, M., Merz, K., & Buchkremer, R. (2020). RegTech — The application of modern information technology in regulatory affairs: Areas of interest in research and practice. *Intelligent Systems in Accounting, Finance and Management: An International Journal*, 27(4), 161–167.
- Buchanan, B.G., & Wright, D. (2021). The impact of machine learning on UK financial services. *Oxford Review of Economic Policy*, 37(3), 537–563.
- Butler, T., & O'Brien, L. (2019). Understanding RegTech for digital regulatory compliance. In T. Lynn, J. Mooney, P. Rosati, & M. Cummins (Eds.), *Disrupting Finance* (pp. 85–102). Cham: Palgrave Pivot.
- Earls, E.M. (2019). *Preparing students for a future in Fintech: The role of Massachusetts public universities*. Retrieved February 8, 2023 from <https://files.eric.ed.gov/fulltext/ED598543.pdf>
- Fong, D., Han, F., Liu, L., Qu, J., & Shek, A. (2021). *Seven technologies shaping the future of fintech*. McKinsey & Company. Retrieved February 8, 2023 from <https://www.mckinsey.com/cn/our-insights/our-insights/seven-technologies-shaping-the-future-of-fintech>
- Gomber, P., Koch, J.-A., & Siering, M. (2017). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics*, 87, 537–580.
- Heussler, L. (2017). *How Australia's fintech sector differs from the UK*. Retrieved February 8, 2023 from <https://www.fintechbusiness.com/blogs/659-how-australia-s-fintech-sector-differs-from-the-uk>
- Iman, N. (2020). The rise and rise of financial technology: The good, the bad, and the verdict. *Cogent Business & Management*, 7(1), 1725309.
- Institute of International Finance. (2015). *Regtech: Exploring solutions for regulatory challenges*. Retrieved February 9, 2023 from <https://www.iif.com/Publications/ID/4229/Regtech-Exploring-Solutions-for-Regulatory-Challenges>

- Institute of International Finance. (2016). *Regtech in financial services: Technology solutions for compliance and reporting*. Retrieved February 9, 2023 from <https://www.iif.com/Publications/ID/1686/Regtech-in-Financial-Services--Solutions-for-Compliance-and-Reporting>
- Irrera, A. (2017). *U.S. business schools embrace 'fintech' as students clamor for courses*. Reuters. Retrieved February 8, 2023 from <https://www.reuters.com/article/us-usa-students-fintech-idUSKBN18Z20C>
- Karkkainen, T., Panos, G.A., Broby, D., & Bracciali, A. (2018). On the educational curriculum in finance and technology. In S. Diplaris, A. Satsiou, A. Følstad, M. Vafopoulos, & T. Vilarinho (Eds.), *Internet Science, Lecture Notes in Computer Science* (Vol. 10750, pp. 7–20). Cham: Springer.
- Lechman, E., & Marszk, A. (2019). *ICT-Driven Economic and Financial Development: Analysis of European Countries*. Academic Press, London.
- Leong, K., & Sung, A. (2018). FinTech (financial technology): What is it and how to use technologies to create business value in fintech ways? *International Journal of Innovation, Management and Technology*, 9(2), 74–78.
- Maddocks, K.G. (2020). *What is the difference between bachelor's and master's degrees?* Southern New Hampshire University. Retrieved February 8, 2023 from <https://www.snhu.edu/about-us/newsroom/education/difference-between-bachelors-and-masters>
- Mallia-Dare, M., & Meyer, B. (2020). *RegTech: How technology can revolutionize compliance*. American Bar Association. Retrieved from February 9, 2023 from https://www.americanbar.org/groups/business_law/publications/blt/2020/04/regtech/
- Mention, A.-L. (2021). The age of FinTech: Implications for research, policy and practice. *The Journal of FinTech*, 1, 2050002.
- Molnár, B., Tarcsi, Á., Baude, F., Pisoni, G., Ngo, C.N., & Massacci, F. (2020, November). Curriculum guidelines for new Fintech Master's Programmes. In 2020 18th International Conference on Emerging eLearning Technologies and Applications (ICETA), Košice, Slovenia (pp. 470–474). Technical University of Košice.
- Monash University. (2018). *Technological innovation in corporate financing: Regulatory challenges for the Fintech era*. Retrieved February 9, 2023 from <https://www.monash.edu/law/research/excellence/clars/news-events/monash-law-symposium-technological-innovation-in-corporate-financing-regulatory-challenges-for-the-fintech-era>
- Pousttchi, K., & Dehnert, M. (2018). Exploring the digitalization impact on consumer decision-making in retail banking. *Electronic Markets*, 28, 265–286.
- Puschmann, T. (2017). Fintech. *Business and Information Systems Engineering*, 59(1), 69–76.
- PwC Australia. (2017). *Financial services is facing sweeping technological changes that are profoundly impacting the way you do business*. Retrieved February 8, 2023 from <https://www.pwc.com.au/financial-services/fintech.html>
- PwC Global. (2020). *Financial services technology 2002 and beyond: Embracing disruption*. Retrieved February 8, 2023 from <https://www.pwc.com/gx/en/financial-services/assets/pdf/technology2020-and-beyond.pdf>
- Science/Business Innovation Board. (2012). *Making industry-university partnerships work: Lessons from successful collaborations*. Retrieved February 8, 2023 from <http://sciencebusiness.net/sites/default/files/archive/Assets/94fe6d15-5432-4cf9-a656-633248e63541.pdf>
- Sung, A., Leong, K., Sironi, P., O'Reilly, T., & McMillan, A. (2019). An exploratory study of the FinTech (financial technology) education and retraining in UK. *Journal of Work-Applied Management*, 11(2), 187–198.
- University of Sussex. (2021). *Benefits of studying a FinTech degree*. Retrieved February 8, 2023 from <https://isc.sussex.ac.uk/blog/benefits-of-studying-a-fintech-degree>
- Vermeulen, N. (2017). *Redrawing the lines: FinTech's growing influence on financial services*. PwC. Retrieved February 8, 2023 from <https://www.pwc.com/jg/en/publications/pwc-global-fintech-report-17.3.17-final.pdf>
- Wang, A. (2019). The role of Regtech in augmenting regulatory compliance: Regulating technology, accountability and liability. *University of New South Wales Law Journal Student Series*. Retrieved February 9,

2023 from <http://classic.austlii.edu.au/au/journals/UNSWLawJISuS/2019/10.html>

Zavolokina, L., Dolata, M., & Schwabe, G. (2016). The FinTech phenomenon: Antecedents of financial innovation perceived by the popular press. *Financial Innovation*, 2, 16.

