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# Barriers to Adoption of Financial Technology: A Study of the Australian Financial Sector

*Research in Progress*

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## **Abstract**

The Australian Financial sector is the largest contributor to Australian GDP and represents the 4<sup>th</sup> largest pool of investible wealth in the world and the largest in Asia. Traditional businesses in the sector are under pressure from direct competitors and under potential threat from powerful global technology-based platforms. However, the rate of adoption of innovative Financial Technology by the Financial sector has been saliently low and has potentially serious adverse impacts on the sector, individual Australians and Australia's country competitive advantage.

Despite the sector's importance, there is a paucity of Australian-specific research into Board decision making in the Financial sector regarding adoption of innovative technology.

The purpose of this Research-in-Progress paper is to explore and establish, using a mixed methods research methodology, what are the barriers to adoption of Financial Technology by public entities in the Australian Financial sector.

**Keywords:** Boards, decision-making, Fintech, adoption, innovation

## 1 INTRODUCTION

Despite annual investments in excess of \$370bn in global Financial Technology (“Fin Tech”), (Frost & Sullivan 2018), and forecasts of significant disruption of the Financial sector by Fin Tech (PwC 2016), for example, only 10% of global financial institutions, with US\$29 trillion in investable assets, have fully integrated Artificial Intelligence (“AI”) and only a further 24% are testing AI (Fidelity, 2018). Even more telling, with regards to Australia, is the fact that, despite the actual availability of other innovative Fin Tech, such as Robotic Process Automation, Banks in Australia continue to utilise silo-driven, legacy core technology (Frost & Sullivan 2018). In a fast-changing environment, aggressive cloud-based direct competitors, such as Volt Bank, Judo Bank, Xinja and 86400, have entered the Australian market. Open Banking has been introduced. Powerful global indirect competitors, such as Amazon, Google, Facebook, Apple, Fox Corporation and Ali Baba, may potentially disrupt the Financial sector in Australia. Why are Australian Banks & Financial Services entities holding back from adopting innovative core Fin Tech?

The term, ‘core Financial Technology’, has the meaning in this paper of, ‘Fundamental technology providing the configuration and maintenance of a financial product’. The purpose of this Research-in-Progress paper is to explore and establish what are the barriers to adoption of innovative core Financial Technology by public entities in the Australian Financial sector. The paper starts with an analysis of the significant importance of the Australian Financial sector and the associated potential adverse impacts of non-adoption of core innovative Fin Tech for the sector, for Australians and for Australia. The paper proceeds to reviews of relevant literature, discussion of ensuing findings, and an outline of the proposed research questions and methodology. The paper concludes with a synthesis of the identified problem and possible outcomes.

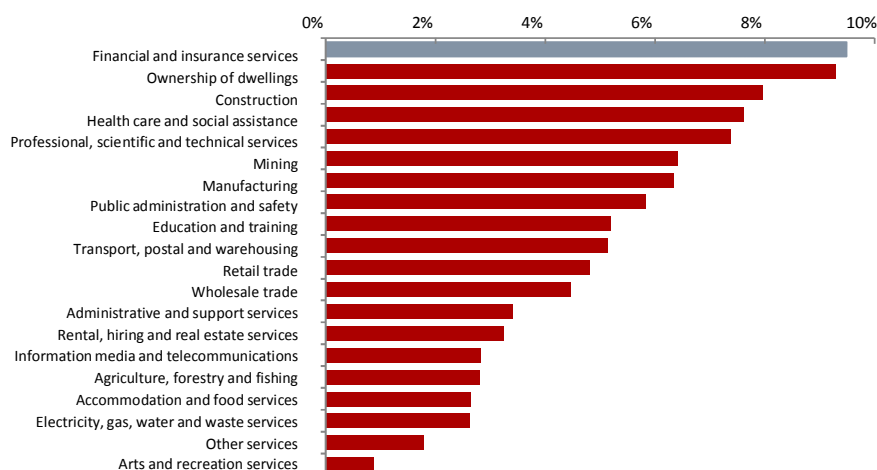
As ‘Research in Progress’ in its early stages, this paper aims to explore and report the significance of the Financial sector to Australia’s economy and the paucity of research into adoption of Financial Technology in this specific sector. It also aims to highlight how the findings of the study at this stage can add to the body of literature and contribute to ‘Making the world a better place with Financial Technology’, in reference to the general theme of the 30<sup>th</sup> ACIS 2019 conference.

## 2 IMPORTANCE OF THE AUSTRALIAN FINANCIAL SECTOR

The extraordinary significance of the Financial sector to Australia and to Australians, and the corresponding potential impact of innovative core Fin Tech on the sector needs to be highlighted.

The Australian Financial sector is the largest contributor to the national economy, contributing c.9.5% of GDP (Royal Commission into Banking 2018):

*Financial and insurance services contribution to real industry gross value added, September quarter 2017\**



\*Source: Royal Commission into Banking 2018

*Figure 1: Financial and insurance services contribution to real industry gross value added, September quarter 2017 (Royal Commission into Banking 2018)*

The sector employs approximately 3.9% of the workforce (Royal Commission into Banking 2018). The sector accounts for over \$2.8 trillion in superannuation assets and \$2.7 trillion in managed funds (ABS 2018). In total, the sector's assets are more than 3 times Australia's GDP. Australia has the 4<sup>th</sup> largest pool of investible assets in the world and the largest pool of investible wealth in Asia (Royal Commission into Banking 2018).

The four major Australian Banks account for over 80% of lending to SMEs, approximately 66% of lending to large businesses and 96% of rural debt as at June 2017 (Royal Commission into Banking 2018).

The legal framework governing superannuation funds in the sector is complex, as it includes Trust Law, Corporations Law and the Superannuation Industry (Supervision) Act. Regulatory oversight of the sector is more complex than, and different from, other sectors, in that Banks, Insurance companies, ADIs ('Approved Deposit-taking Institutions') and Superannuation funds are regulated by APRA ('Australian Prudential Regulation Authority') in addition to ASIC ('Australian Securities & Investments Commission'). Accordingly, the technology required for the sector is differentiated and specific to the sector.

The sector's significant assets and associated transactional, investment, legal, regulatory, compliance and operational complexities are fertile ground for innovative core Fin Tech – ideally Australian Fin Tech. The potential is for (Australian) Technology to make the world a better place.

### **3 IMPACT OF NON-ADOPTION OF INNOVATIVE CORE FIN TECH**

The potential impacts of not adopting innovative core Fin Tech are significant, severe and far-reaching – affecting not just the Financial sector entities themselves but also the Australian people, the Australian economy and Australia's country competitive-advantage.

For Financial entities, the consequences include: loss of competitive advantage (Porter 1980); decline in business value (Keen & Williams 2013); foregone cost savings, foregone operational efficiencies, and foregone associated profit increases, leading to shareholder dissatisfaction and law-suits potentially against the Board Directors for negligence (Valentine 2016). Worse, adverse impacts of not adopting innovative technology can lead to catastrophic failure in accordance with Snowden's 'Cynefin' framework (Snowden 2007), where once-market-leading technologies are suddenly replaced by disruptive and more capable alternatives, such as happened to Kodak, EMI, Nortel, Barnes and Noble, HMV, KMart, Sony, Sears, Target (USA) and AOL (Valentine 2016). Adoption of innovative technology therefore may be not so much a case of improving efficiency and profitability, but more one of avoiding extinction (Chae et al. 2017).

For the Australian economy and Australian people, non-adoption of core innovative technology reduces the opportunity for Australia to capitalise on the outputs of Australia's Technology Universities and stymies the opportunity of Australian technology to flourish in its home market, to then become a global exporter of its Intellectual Property ('IP'). Exporting Australian technology IP globally would create jobs locally in Australia, increasing the living standards for Australians and enhancing the country specific advantage of Australia as the Regional Fin Tech leader (Innovation & Science Australia 2017).

## **4 REVIEW OF RELEVANT LITERATURE**

In light of the size, importance and gravity of the identified problem, this Research-in-Progress paper seeks to establish what are the barriers to adoption of innovative core Fin Tech by public entities in the Australian Financial sector. Further, the related matters include: what is the entity responsible for deciding whether, or not, to adopt innovative core technology; what are the factors influencing the capability of the decision-making entity to make such decisions; and how are decisions made. The following reviews of relevant literature seek to address the above issues.

### **4.1 The Decision-Making Mechanism**

An initial review of relevant literature establishes that it is the Board which is responsible for the decision whether or not to adopt innovative core Fin Tech, and, therefore, that it is not the decision of executive management. The Board is the 'apex' of a company's decision-making process (Fama & Jensen 1983) and needs in-depth knowledge of the company and its environment (Charan et al 2014). The Board must participate actively in 'critical, strategic activities' in an increasingly complex environment, to deliver optimally for shareholders (Klarner 2018). Infamously, Enron failed, due to the Board not understanding corporate strategy (Judge 2017). The Board must be involved in strategy, ex ante and ex

post (Judge & Zeithaml 1992). The Board is responsible for the formulation and oversight management of strategy (Voogt & Verreyne 2018).

Specifically, with regards to the Financial sector in Australia, for Banks, Insurance companies, Superannuation Funds and other financial entities regulated by APRA, the Board's responsibility for the formulation and management of strategy is enshrined in APRA Prudential Standards (CPS/SPS 515 & 510). It is important to note that strategy includes Fin Tech strategy (Jewer and McKay 2012). Boards are directly responsible for the success or failure of IT (Benaroch & Chernobai 2017). Boards have specific responsibility for IT governance (Valentine 2016); for the decision-making regarding adoption of technology (Jewer & McKay 2012); and for the strategic oversight and risk management of technology (Voogt & Verreyne 2018).

## 4.2 Constructs Moderating Board Decision-Making

A deeper review of relevant literature to determine factors moderating Board decision-making is seen through a combined lens of 3 constructs from Strategic Choice Theory and 3 constructs from Institutional Theory, based on earlier work done by Jewer (Jewer & McKay 2012). Strategic Choice Theory is an appropriate lens to view Board decision-making in a rapidly changing technology environment, due to its emphasis on the role of individual leaders, or leader groups, i.e. the Board/Board Directors, in a firm's dynamic decision-making, human resource allocation and performance in a volatile external environment (Child 1997). Strategic Choice is an appropriate lens because individual leaders and leader groups are Directors and Boards respectively, and Fin Tech is a fast-changing, dynamic environment (Voogt & Verreyne 2018; Valentine 2016).

Key constructs from Strategic Choice Theory, therefore, include: the level of Fin Tech competence of Board members; size of the Board; and the proportion of independent to executive directors. The latter factors underpin the quality of the Board's strategic judgement. However, the effect of institutional pressures on individual Board directors should not be ignored and the Institutional Theory factors of company size, company age and the role of technology should also be considered (Jewer & McKay 2012). A tabular summary of relevant Literature reviewed chronologically is as follows:

| Author                  | Data collection           | Country                    | Sample  | Industry sector           | Key Findings  |
|-------------------------|---------------------------|----------------------------|---|---------------------------|---|
| Weill (2019)            | Textual analysis          | USA                        | 1,122 USA public company boards   | Multi-sector              | Positive link b/n Tech savvy boards and improved Firm financial performance   |
| Klarner (2018)          | Case studies & interviews | USA, ASIA, Europe          | 4 case studies of large listed companies and interviews                     | Multi-sector              | Positive link b/n Board firm-specific KSAO and IT corporate governance  |
| Chae et al (2018)       | Textual analysis          | USA                        | IW 500 USA leading Tech Firms   | Multi-sector              | Adoption of new IT for survival rather than increased performance   |
| Benitez (2018)          | Survey & secondary data   | Spain                      | 203 large Spanish companies   | Manufacturing (primarily) | IT operational agility enhances Firm's long-term survival   |
| Voogt & Verreyne (2018) | Textual analysis          | Australia                  | Top 100 largest listed companies ASX  | Multi sector              | Tech skills vital for Directors; Significant deficit in Financial sector Board skills to manage Technology strategy & risk. |
| Spencer Stuart (2018)   | Survey                    | USA                        | 230 Board members of US listed companies                                    | Multi sector              | Boards ill-equipped to deal with acceleration in IT & disruption  |
| Accenture (2016)        | Survey                    | Global Including Australia | 1,925 directors of 109 global Banks   | Banking                   | Only 8% of Australian Banks have a director with IT competence  |
| Valentine (2016)        | Mixed methods             | New Zealand                | 425 senior Executives Private companies, NFP, Government bodies, listed Cos | Multi sector              | Superior IT Board knowledge improves corporate governance and IT strategy decisions   |

| Author                  | Data collection | Country | Sample  | Industry sector | Key Findings   |
|-------------------------|-----------------|---------|---|-----------------|--|
| Russell Reynolds (2014) | Survey          | Global  | All Board Directors of 300 large global companies | Multi sector    | Only 6% Boards are highly digital with “at least 2 directors with IT skills”   |
| Jewer & McKay (2012)    | Mixed Methods   | Canada  | 188 Board Directors                               | Multi-sector    | +ve relationship Board tech-savvy;<br>+ve relationship younger organisation age with IT decision-making<br>+ve relationship IT knowhow & Corp Gov. |

*Table 1: Chronological Summary of Literature Review*

Key positive observations made from the above review of relevant literature are that: increased technology knowledge at Board level improves IT governance and decision-making ability (Voogt & Verreyne 2018; Klarner 2018; Valentine 2016; Jewer & McKay 2012); increased Board technology knowledge improves Firm performance (Weill 2019); adoption of innovative technology is a necessity to ensure business survival (Chae et al. 2018; Benitez 2018).

However key negative observations are that: there is a deficiency of technology knowledge in Boards internationally across various sectors (Spencer Stuart 2018; Accenture 2016; Russell Reynolds 2014); and with regards to Australia there is a serious deficit of technology knowledge at Boards in the Australian Financial sector in particular (Voogt & Verreyne 2018; Accenture 2016).

## 5 DISCUSSION AND KEY FINDINGS

From reviewing the relevant literature, key findings are that three principal factors appear to govern the barriers to adoption of Fin Tech by Boards in the Australian Financial sector: Directors’ level of technological knowledge; the number of directors who have technological knowledge; and the age of the firm.

Further, there appears to be a paucity of research into how decisions are actually made at Board level; and an even more pronounced paucity of Australian-specific research into Board decision making in the Financial sector regarding adoption of innovative core technology and the assessment and management of technology risk – despite the importance of the Financial sector to the Australia economy and to the Asia region.

The proposed research will seek to examine the above factors affecting Board decision making, and seek to establish if there are other factors affecting Board decision-making capabilities and how Board decisions are made.

## 6 IMPORTANCE AND POTENTIAL OUTCOMES

The potential importance and outcomes of the research will be to: establish guidelines as to how to address the apparent deficit in Board technological knowledge; improve the ability of Boards to make decisions regarding the adoption of Fin Tech; improve company performance in the Financial sector; enhance the corporate governance standards of business in the sector; contribute to an enhancement of regulatory standards; and contribute to developing Australia’s standing as the leading financial centre of the Asia Region. An outline of the proposed research methodology follows.

## 7 PROPOSED RESEARCH DESIGN

### 7.1 Relevance and Identification of Proposed Research Questions

In light of the size, importance and gravity of the identified problem, this Research-in-Progress paper seeks to establish what are the barriers to adoption of innovative core Fin Tech by public entities in the Australian Financial sector. The related Research Questions (‘RQs’) include:

1. RQ1: what are the factors influencing the capability of the Board to make decisions regarding the adoption of innovative core Fintech?
2. RQ2: how are Board decisions made?

## 7.2 Proposed Research Methodology

In terms of the research methodology, a mixed-methods approach combining qualitative exploratory research methods with quantitative methods will be selected. The mixed methods design addresses the weaknesses of each separate approach: qualitative being potentially unreliable through subjectivity; quantitative being incomplete in not giving a full in-depth picture (Cresswell 2014). The mixed methods approach will triangulate results, delivering more credible and more robust findings (Cresswell 2014).

Primarily, exploratory research will be followed since it addresses one of the identified gaps in current research, which has been principally quantitative, and can yield rich information and insights into the identified problems of how Boards actually make decisions and what are the key factors affecting decisions to adopt innovative core technology in the sector. The proposed plan is to leverage an extant network of contacts with Board Directors in the Financial Services sector in order to arrange face-to-face interviews with various directors of between 20 to 25 public entities. Projected interviewees include directors from: the 90 Banks and ADIs in the sector (source: Royal Commission into Banking 2018); the 209 APRA-regulated superannuation funds (source: ASFA May 2019); 42 listed investment companies (source ASX 2019); and approximately 12 technology suppliers to the sector.

Questions supporting the above interviews will be derived principally from work done by Voogt (Voogt & Verreyne 2018) and Valentine (Valentine 2016) but will be guided by findings from prior surveys and the findings identified from relevant literature.

Quantitative textual analysis will focus on the companies comprising the S&P/ASX 200 Financials Index, building primarily on the work of Voogt (Voogt & Verreyne 2018) and perhaps of Weill (Weill 2019). Data regarding Directors' professional backgrounds, Fin Tech qualifications and experience are transparently available to the public through the ASX. Under the governance of ASX and ASIC, published data have integrity and are contemporary; therefore, the potential risk of poor data quality is low. Software is available to read relevant text and data.

The results of the quantitative and qualitative findings will then be tested appropriately for rigour, dependability, credibility, confirmability and transferability. Triangulation through the mixed methods approach will enhance the robustness and credibility of findings.

## 8 CONCLUSION AND FUTURE DIRECTIONS

The Australian Financial sector is the largest contributor to Australian GDP and represents the 4<sup>th</sup> largest pool of investible wealth in the world and the largest in Asia. However, the rate of adoption of innovative core Fin Tech in the sector has been saliently low and has potentially serious adverse impacts on the sector, individual Australians and Australia's country competitive advantage.

This Research-in-Progress paper aims to examine and explain what the barriers are to adoption of innovative core Fin Tech by Boards in the Australian Financial sector and how to resolve these barriers. The research aims to contribute to the body of academic knowledge, to be of pragmatic use to business practices and to help "Make the world a better place with (Australian) Financial Technology".

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