The Technological Revolution in Financial Services: Introduction

By Prof. Michael R. King, Gustavson School of Business, University of Victoria, and Richard Nesbitt, Rotman School of Management, University of Toronto

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Change is a constant theme in banking and financial services. The industry never stands still, with every decade witnessing innovations that lead to new products, services, and ways of doing business. The financial sector is characterized by waves of expansion and consolidation in response to both short-term shocks and longer-term structural forces.

While the financial industry is continuously evolving, the past decade has seen a breadth and depth of changes that is unprecedented in our lifetimes. These changes are being driven by a combination of structural forces that are transforming this industry: heightened regulation, technological disruption, and changing demographics. These forces are lowering barriers to entry and increasing competition from within and outside the industry.

A diversity of new entrants are challenging the incumbent banks, assets managers, insurance provides and other industry stakeholders (collectively "incumbents""). The new entrants range from entrepreneurial financial technology (FinTech) start-ups to large, non-financial technology-based companies (TechFins and BigTech). This increased competition is forcing banks, asset managers, and other incumbents to improve their product offerings and customer service. While some new entrants may be looking to disrupt and replace incumbents, others seek to partner with or sell to them.

Overall, the technological revolution in banking and financial services is a good news story for customers. Individuals and small businesses are benefiting from new innovations that improve the user experience while reducing its cost. They soon will have access to a full suite of financial products and services how and when they like. Underbanked customer segments are also better served, with technology promoting greater financial access, inclusion, and understanding.

Learning Objectives and Key Questions

The goal of this edited volume is to provide insights on the evolution and future landscape of banking and financial services over the coming decades. This book exposes financial practitioners, policymakers, and students pursuing careers in financial services to the views and insights of industry leaders, regulators and academic researchers. The contributions to this volume address the following questions:

1. What are the primary structural forces transforming banking and financial services?
2. How are these forces changing the competitive landscape and the value proposition for customers?

3. How should incumbents adapt their strategies and business models to respond to these challenges?
4. What actions do senior leaders and executives at financial institutions need to take to be successful in this new environment?

Our working hypothesis is that traditional banks, asset managers and insurers will continue to dominate financial services. But the most successful incumbents will partner with FinTech start-ups to provide a better experience to customers at a lower cost. FinTechs are leveraging technology to provide innovative solutions to address customer pain points and improve the user experience. But only a handful of FinTechs will succeed in building scale, with many pivoting to sell their products to incumbents.

Rather than being disrupted by FinTechs, banks will be more threatened by large technology companies whose platform ecosystems encompass financial activities including payments, deposits, lending, and investing. The Chinese TechFins Alibaba and Tencent are pioneers whose strategies are being copied by BigTech companies like Amazon, Apple, Facebook, and Google. These players will prove to be the real competitors to incumbents on the financial landscape over the next decade.

We highlight how bank business models need to adapt to these challenges and threats in order to be successful. Our goal is to provide the reader with a critical appreciation of the trade-offs facing the financial services industry and to highlight the strategies bank executives need to adopt to succeed in this changing environment. Successful incumbents will be those who shift from a product-centric perspective to a customer-centric orientation. They need to partner with FinTech start-ups in many specialty areas, and exploit new technologies and data to provide customers a better experience at a lower cost. What may be an even larger challenge – incumbents need to transform their cultures, incentive structures, and governance to be able to meet these challenges.

The book outlines the strategic implications for the financial industry in North America, Europe, and other advanced economies. The dynamic between FinTech companies and incumbents in advanced economies with developed financial systems and markets is very different from the path in emerging market economies where these institutions are less developed. While the expert contributors in this volume provide global insights on technological developments affecting financial services, the examples and prescriptions are largely based on advanced economies, not developing.

The Structural Forces Driving Transformation

The expert contributors provide a roadmap on how this industry will evolve in light of three structural forces that are driving the transformation of financial services globally – changes that will have a profound impact on our economies and societies.

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1. Heightened Regulation post-GFC

The heightened regulation that followed the shock of the 2008-2009 Global Financial Crisis (GFC) continues to affect the direction and profitability of the financial services industry. The GFC was unlike previous banking and currency crises that have punctuated the financial sector over the past forty years. It was not limited to one set of bad actors, like the 1998 Long Term Capital Management crisis, but brought down the strong with the weak. It was not confined to one set of financial institutions, like the 1990s US Savings and Loan Crisis, but affected all financial actors from banks to insurance companies, from money market funds to government-sponsored entities. The GFC was not confined to one country or region, like the 1994 Mexican Peso Crisis or the 1997 Asian Financial Crisis, but damaged financial systems around the world. Worse still, it was not contained within the financial economy, but spread to the real economy causing a coordinated global recession, dubbed the Great Recession. The GFC continues to impact the industry a decade later as seen in the continuing struggles of European banks and sovereigns.

The public backlash post-GFC was loud and intense. Angry citizens elected populist politicians who set about re-regulating financial services, ring-fencing banking activities, erecting national borders, and segmenting financial markets. The G20 countries, working through the Financial Stability Board (FSB), introduced comprehensive and far-reaching regulations designed to stabilize the global financial architecture. International efforts overlapped and, in some cases, conflicted with national regulations such as the U.S. Dodd-Frank Act (2010) and the UK Banking Reform Act (2013). The result may be a financial sector that is safer and more stable but it is also less profitable with lower returns on capital, less liquid, and more fragmented with greater competition from shadow banking and other non-regulated players.

The GFC had an unexpected benefits – it unleashed a wave of innovation and technological disruption from within and outside the industry. A first source of disruption were industry insiders who left incumbents to launch entrepreneurial start-ups. These former bankers understood where the industry profit pools were located and set about draining them. A second source of disruption were outsiders who drew inspiration from innovations in consumer product, social media, design, and ecommerce companies. These entrepreneurs saw an opportunity to disrupt financial services whilst the incumbents were weak and unhappy customers were willing to try new financial providers. A third source of disruption were incumbent banks that had been bailed out or nationalized during the GFC. These near-death experiences spurred a change of culture and creativity, allowing some banks to reinvent and reposition themselves as digital challengers and leaders in innovation.

2. Innovation Fueled by New Technologies

The opportunity to disrupt incumbents coincided with a wave of technological innovation that provided the tools for disruption. New entrants and incumbents leveraged both existing and emerging technologies such as the internet, smartphones, peer-to-peer (P2P) networks,

application programming interfaces (APIs), and distributed ledgers, among many others. These tools were combined to provide customers with financial products and services through digital channels – a business model known as FinTech.

The term FinTech was used in different contexts during the late 1980s and 1990s.[1] In 1994, the *American Banker* published its inaugural list of the "Top 100 companies in FinTech" featuring the data processing company Fiserv, the computer manufacturer NCR, and the news agency Reuters in the top three positions. Over the last decade the media has used FinTech to describe the thousands of entrepreneurial start-ups who are offering financial products directly to retail customers and small businesses online or through mobile applications (apps). FinTech start-ups operate in different lines of business including personal finance, crowdfunding, P2P lending, robo-advisors, payments, insurtech, among others. The media also uses FinTech to describe the electronic money Bitcoin, and the world of cryptocurrencies and distributed ledgers known as blockchain.

Over the past decade, KPMG estimates that FinTech start-ups have attracted more than $400 billion of equity funding from angel investors, venture capitalists (VCs), corporate VCs, institutional investors, and strategic partners. Another $20 billion was raised through initial coin offerings. By 2019 CB Insights counted more than 40 FinTech unicorns with privately valuations of $1 billion or more.

While advocates say FinTech is new, practitioners counter that technology investments have been a hallmark of the financial services industry for a century or more. In fact, a study for the CFA Institute describes the current wave as "Fintech 3.0", the third era of technological innovation that followed two earlier periods:[2]

- Fintech 1.0 began in 1866 with the laying of the transatlantic cable and ended in 1966 with the development of the facsimile machine. This era was characterised by analog technology that transmitted continuous electrical pulses of varying amplitude.
- Fintech 2.0 began in 1967 with the appearance of the automatic teller machine (ATM) and ended in 2008 with the GFC. This era featured the transmission of discreet binary values, allowing data to be shared rapidly over an ever-growing network of computers.
- Fintech 3.0 began in 2009 and is characterized by the use of technology to deliver financial products and services directly to retail customers and businesses. This era is driven by start-ups and new entrants, with distinct variants in developed vs. developing countries.

Despite the media's focus on the customer-facing FinTechs, many start-ups are building innovative business-to-business (B2B) technologies to increase the efficiency of the back-office of incumbents. These applications work behind the scenes to enable front-office customer interactions, to speed the clearing and settlement of securities, or to facilitate payments and other basic banking functions. If the world of FinTech is an iceberg, business-to-customer (B2C)

applications are the part visible above the water, while B2B applications below the surface are many times greater in number, size, and diversity.

Incumbents have responded by investing to upgrade their legacy information technology (IT) systems, both to reduce costs through automation and to meet the burdensome reporting and compliance requirements of new regulations. Banks reportedly employ between two to three back-office staff for every front-office employee. One consultancy estimated that automating costly back-office processes could reduce banks costs by up to $20 billion each year by 2022.[3] With a decade of new regulation and litigation now coming to an end, investment and talent at incumbents can be re-directed to new technologies, products and services. Incumbents that succeed in this technological transformation will retail customer relationships and improve profitability and returns over the coming decade.

3. Demographic Changes Fueling the Transformation

This technological disruption of financial services is linked to demographic trends, specifically the arrival of millennials and the retirement of baby boomers. While FinTech adoption has varied across age cohorts, now we all expect a better experience at a lower cost for financial services.

Many FinTechs first gained a foothold by appealing to millennials, who are the cohort born between 1981 and 1996 (and in 2019 range from 22 to 38 years old). Millennials are called digital natives, because they are comfortable with technology and suspicious or hostile towards traditional financial intermediaries. Older millennials have grown up with social media and the heightened expectations concerning user experience created by technology companies like Apple. Younger millennials have never known a time without smartphones and the internet. Millennials have been the earliest adopters of FinTech applications, and put greater trust in consumer brands (like Facebook and Google) than in banks. They value the ability to view their finances online 24/7, putting convenience ahead of security.

The baby boomers, born in the two decades after World War II, are very different. Baby boomers are close to retiring or retired. They put their trust in incumbents and value face-to-face contact when dealing with their finances. Baby Boomers may never be fully comfortable with a completely automated banking experience. They are more focused on security and privacy concerns. No surprise here as they are also the generation with significant financial assets that they seek to preserve, enhance and ultimately pass on to the next generation. They are slower to adopt FinTech products and more likely to visit bank branches and seek personal contact from advisors. Baby boomers are also more cost-sensitive given the impact of the GFC and Great Recession on their retirement savings. The ageing population and declining workforce are also forcing greater use of automation and technology to deliver financial services.

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Structure of the Book

This book is divided into three main sections. The first section examines the structural forces and technologies transforming financial services and how these catalysts are changing customer expectations and the competitive landscape. The second section examines the business models and value proposition of new entrants and how incumbents are adapting their strategies and business models to respond to these challenges. The third section focuses on what actions senior financial leaders need to take to be successful in this new digital era.

Section I: The Structural Forces Transforming Financial Services

This first section consists of five chapters that set the stage and explain the context for the technological transformation of financial services.

Financial Technologies and the Disruption of Financial Services

R. Jesse McWaters is the Financial Innovation Lead at the World Economic Forum where he has co-authored five reports with working groups of practitioners on the future of financial services. In "Financial Technologies and the Disruption of Financial Services", McWaters examines the supply and demand factors behind the rise of Fintech, including the role of regulators who desired to foster competition and lower costs for consumers post-crisis. The strategies of these innovators are deliberate and predictable, targeting the pain points of customers where the profit pools were largest in payments, lending and wealth management. But he warns that FinTechs face an uphill battle to win customers' trust and build scale.

Incumbent financial institutions have spent considerable time and resources reinforcing their defenses against these new entrants. By innovating internally and increasing their efficiency, incumbents can replicate the innovations of FinTechs, as seen in the example of asset managers like Vanguard with robo-advisors. In addition to building out new internal capabilities, many incumbent financial institutions have sought to invest in or acquire emerging FinTechs, or have partnered with them. Many incumbents, however, are struggling to be fast-followers due to a lack of organizational agility and the burden of complying with existing and new regulations.

Looking to the future, McWaters highlights the rise of the Chinese TechFins Ant Financial and Tencent, who have built vast financial empires on the back of highly successful digital payment products. While FinTechs in the advanced economies appear to be alleviating the same frustrations for consumers, unlike the TechFins these FinTechs have fragmented the customer experience across many applications and platforms. To be successful, incumbents need to move away from a product-centric focus to a customer-centric focus built around digital platforms. He warns that a failure to adapt will leave incumbents as the manufacturers of financial products on platforms owned and operated by BigTech companies like Amazon or consortiums of FinTechs.

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The Economic Forces Driving FinTech Adoption across Countries

Jon Frost is a Senior Economist in the Innovation and the Digital Economy unit of the Bank for International Settlements, where he researches FinTech and digital innovation. In "The Economic Forces Driving FinTech Adoption across Countries" Frost highlights the curious geography of FinTech adoption across advanced, emerging market, and developing economies. The pattern of adoption is puzzling, showing little regard for the state of economic development or political boundaries. Frost provides data on the size and breadth of FinTech activity globally showing that it remains tiny by comparison to the global financial system but that it is growing fast, and becoming economically relevant in some specific markets.

Frost argues that the pattern of FinTech adoption is explained by four factors: unmet customer demand, competition, regulation, and trust. First, FinTech innovations are increasing financial inclusion where households do not have a bank account or access to basic financial services. FinTech is also fulfilling unmet demand for credit and payment services (including remittances) to individuals and small businesses globally. Second, FinTech is having more success in countries where there is less domestic competition and financial services are relatively more expensive. Academic researchers are documenting this connection using cross-country studies comparing the cost of credit, payments, and other services.

Third, regulators in some jurisdictions are taking steps to increase local competition by easing entry for FinTechs. And FinTechs may be strategically entering jurisdictions where existing regulations are lower or incumbents are facing increased compliance costs. Fourth, Frost links Fintech adoption to two dimensions of trust: the loss of trust in financial incumbents in countries where the financial crisis hit hardest, and the trust placed in new technologies by younger age cohorts. Frost concludes that FinTech activities may address specific market failures but remain subject to the same well-known risks present elsewhere in finance. Supervisors and market participants alike need to monitor and adapt to changing players and networks that may increase financial efficiency and economic growth, but also pose threats to financial stability.

Banking and Finance since the Global Financial Crisis

Tiff Macklem is the current Dean of the Rotman School of Management at the University of Toronto, and a board member for a large Canadian bank. In "Banking and Finance Since the Global Financial Crisis", Macklem gives an insider's account of how policymakers responded following the collapse of Lehman Brothers, and outlines the intended and unintended consequences of the subsequent regulatory reforms. At the systemic level, the G20 Leaders wanted to make banks safer and end the moral hazard problem of 'too big to fail' banks, while ensuring core financial markets continue to function effectively, and market-based financing by shadow banks becomes a source of resilience rather than a vulnerability. Macklem concludes that these reforms have made the financial system safer, but contributed to the fragmentation of the global banking system and a decline in financial market liquidity.

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Macklem argues that the GFC and its aftermath have forced bankers and business schools to broaden the scope of finance, to put a renewed focus on culture and ethics, and to consider "non-financial" risks from employee conduct, technological disruption, and climate change. At the bank level, Macklem views weak cultural foundations and significant ethical failures at global banks as leading causes of the GFC. Compensation schemes that delivered large bonuses for short-term returns encouraged excessive risk-taking and led some individuals to commit stunning conduct failures. Bank CEOs, boards of directors and regulators have come to recognize the importance of culture for creating social norms that influence what people do when nobody is looking. Business schools have a role to play to teach future business leaders about ethical issues and moral failures. Academic research shows that reminding people of the social and moral considerations of decision making is effective in overcoming the situational effect caused by roles dominated by money and numerical calculations. Universities need to provide more simulation-based experiential learning, while moving the curriculum beyond traditional financial topics to risk management broadly conceived.

Looking forward, Macklem highlights two mega-forces affecting the economy, finance and society: technological disruption and climate change. While new technologies from artificial intelligence (AI) to blockchain are creating new opportunities, Macklem argues for more focus on commercializing innovations and equipping start-ups with the business judgment to succeed. He points to the success of Rotman's Creative Destruction Lab (CDL) for helping science-based ventures at the seed-stage to resolve failures in the market for business judgement, raise capital, and scale their businesses. On climate change, Macklem highlights to need for sustainable finance to move beyond its niche in financial markets to the mainstream. Already, more extreme weather events linked to climate change are generating more frequent extreme loss events and – even under the best scenarios – this situation is expected to worsen. The financial sector, he argues, has a critical role to play in channeling savings to more sustainable investments and helping households and businesses manage new climate-related risks.

Data and Privacy in the Next Decade

Brian O'Donnell spent more than two decades in risk management and treasury at a large Canadian bank including serving as its Chief Data Officer. Today he is co-founder of a data advocacy company that helps individuals and businesses to protect and monetize their data. In "Data and Privacy in the Next Decade", O'Donnell observes that industry experts and global think tanks are focusing on individual privacy rights and methods to protect personal data. Around the globe regulators are introducing legislation to strengthen consumer privacy rights.

Data is often being sold and resold, and then being analyzed and exploited in ways individuals never contemplated when they accepted the "Terms and Conditions" of mobile apps and software. O'Donnell describes a lopsided business model, where the benefits and power are held

by the app provider and the risk is left with the individual. Significant efforts and progress are needed to help individuals deal with this model and the evolving cyber risk it creates.

Open banking legislation allow customers to share their financial data held by banks with FinTech firms over application programming interfaces (APIs). The goal is to promote innovation and greater competition in the banking industry. But open banking raises concerns, chiefly related to data safety and security. Today banks invest significant resources, time and focus to ensure their security levels are amongst the highest of any industry, and that customer's personal information and transaction data is secure. Will FinTech start-ups be able to provide this same level of data security? Will they actively protect client data? Or will they try and monetize it like so many other technology companies and app developers?

O'Donnell describes a new model of Personal Data Advocacy as a logical extension of current trends in technological advancement and regulatory policy. He argues that it is time for the banks to help their clients gather, store, secure and thereby truly own their personal data, so that the benefits and value flows back to the customer, not to third parties.

How open is the future of banking?

Dr. Markos Zachariadis is an Associate Professor in Information Systems and Digital Innovation at Warwick Business School and has given expert testimony to government committees on open banking and application programming interfaces (APIs). In "How 'open' is the future of banking? Data-sharing and open data frameworks in financial services", Zachariadis examines the trend towards legislating open banking across different jurisdictions and its impact on financial services. At its core, the financial services industry is predominantly an information business. Access to and sharing of data can provide significant advantages to players in the industry and change the shape of competition in financial services.

Data-sharing in finance has a long history with screen-scraping and APIs being used in recent years by financial institutions and FinTechs to share data and develop new products. An API is a technology or a set of instructions that allows two systems or computers to "talk" to each other over a network using a common data standard. APIs can be internal or external to an organization, and built on open standards or closed. Open banking legislation has generally included a requirement for banks to provide open APIs based on common standards, data formats, and security arrangements to allow customers to share their financial transaction data with third-parties. But different countries are each pursuing their own path to open banking.

While open access to data provides numerous benefits to the financial ecosystem and end-customers, Zachariadis notes that hoarding data for exclusive use can offer significant competitive advantages to a single, or a narrow group, of organizations leading to a monopolistic environment. Hoarding data is also an effective barrier to competition that is common in banking markets globally. For this reason, open banking will significantly increase the competitive

dynamics in the finance industry. It may lead to changes in incumbent business models, as well as the financial system infrastructure.

Zachariadis argues that the legislation and voluntary adoption of open APIs in finance is laying the foundation for the emergence of multi-sided platforms and the FinTech ecosystems around them. The successful incumbents or challenger banks will seek to control these platform ecosystems and intermediate interactions between FinTechs and the end-customer. This business model would allow banks to sell more innovative services to their customers, keeping customers engaged on their own platform and allowing the bank to reap the benefits from data monetisation. To achieve this position, forward-looking banks should voluntarily invest and create premium APIs that exceed mandated interfaces and provide increased functionality to third-parties, growing their open banking ecosystem.

The Impact of Banking Regulation on Technological Innovation

Greg Wilson has been a consultant and author on financial services policy and regulation for 40 years with a recent focus on U.S. policy and regulatory reforms after the global financial crisis. In "The Impact of Banking Regulation on Technological Innovation", Wilson provides an overview of the U.S. regulatory landscape in the decade following the passage of the Dodd-Frank Act and plots a path forward for banks and FinTechs alike. He provides a roadmap to the overlapping agendas of the U.S. agencies responsible for banking regulation and concludes that they lack a coherent and comprehensive strategy on technology and innovation.

While most crisis-related reforms are now in place, banks and regulators are struggling with implementation and oversight at a time when new non-bank competitors are seeking to offer financial services to the public. While innovation and technology are nothing new to incumbents, they remain an important source of competitive advantage, on one hand, and a source of disruption, on the other. Wilson illustrates this point by examining the entry of PayPal, Walmart, and Amazon into financial services. He also reviews the U.S. Treasury's 2018 report on these FinTechs and non-bank financials. He defines what bank regulators call "responsible innovation", which has three dimensions: competition, consumers, and compliance.

According to Wilson, the two regulatory issues to watch to anticipate how U.S. regulators will proceed on innovation and technology are real-time payments settlements and anti-money laundering (AML). New technologies have undermined the Federal Reserve Board's control of the outdated U.S. payments system and are pushing the Board to make improvements to allow real time settlement. Technology and innovation are also undermining the effectiveness of the U.S.'s AML regime. The agencies responsible may turn to the innovators themselves to address these emerging gaps, while continuing to require compliance and reporting. Going forward, banks and FinTechs need to engage and educate regulators to meet customers' needs responsibly.

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Section II. NEW STRATEGIES, TECHNOLOGIES AND BUSINESS MODELS

The second section examines the strategies, technologies and business models that incumbents need to understand and respond to in order to be successful in the coming decade.

The Competitive Threat from TechFins and BigTech in Financial Services

Professor Michael R. King has been leading outreach to start-ups, incumbents and policymakers since co-founding a university FinTech research centre in 2016. In "The Competitive Threat from TechFins and BigTech in Financial Services", King examines the threat from technology companies who are moving into financial services. He illustrates this trend through a case study of Ant Financial, the Chinese TechFin that grew out of the payments business of Alibaba's e-commerce platform. Ant Financial now offers deposits, loans, investments, bank accounts and insurance to more than 640 million users. Chinese rival Tencent offers the same financial services bundled through its WeChat app to 1.1 billion users.

The North American equivalents to the TechFins are known as "BigTech", highlighting that their main competitive strength comes from massive datasets on customer transactions and behaviour in their platform ecosystems. King argues that Amazon, Apple, Facebook and Google all pose a threat to incumbents as they possess massive customer bases, well-recognized brands, a focus on customer experience and design, and expertise of the technologies driving FinTech. He illustrates the BigTech' strategy using a case study of Amazon in financial services showing how Amazon's experimentation in payments that began more than a decade ago has build a foundation for offering loans, methods of payment, and other financial services today. He points to Facebook's proposed launch of a digital currency to facilitate low cost money transfers and payments globally as a signal of its future plan to take a leading position in retail financial services.

Creating Strategic Value by Partnering with or Acquiring FinTechs

Jay D. Wilson is a senior member of Mercer Capital's Depository Institutions practice and leads their FinTech industry team. He is also the author of the 2017 book Creating Strategic Value through Financial Technology, published by Wiley Finance. In "Creating Strategic Value by Partnering with or Acquiring FinTechs" Wilson assesses the different options for banks and other incumbents who are looking to engage with FinTech start-ups. In particular, he contrasts the dominant position of the largest banks against the weaker position of many small community banks spread around the country that collectively represent the largest number of US banks. Community banks are under threat from heightened competition, higher regulatory and compliance costs, a challenging interest rate environment, and demographic changes in rural America.

Larger U.S. banks have the budgets and the expertise to develop digital solutions in-house. Smaller banks are in a more difficult position, caught between well-funded competitors on one hand and low-cost innovators on the other. Wilson argues that the solution is to form partnerships with FinTech companies in order to leverage innovation and new technologies to

offer customers enhanced services while remaining competitive with the larger banks. FinTech can boost revenues from fees and commissions, while reducing expenses related to branch operating costs.

Wilson outlines a framework for FinTech partnerships consisting of four steps: determine how FinTech might complement or enhance the bank's existing strategic plan; identify attractive FinTech niches and companies within those niches; develop a business case for each of the available options; and compare the costs and execute on the best strategy. Wilson provides three case studies of successful and failed bank-FinTech partnerships. He then outlines a strategy for identifying, valuing and acquiring a FinTech start-up.

A FinTech Founder's Perspective on The Future of Financial Services

Andrew Graham is the co-founder and CEO of Borrowell, an online lender and Canada's largest Fintech when measured by number of users. In "A FinTech Founder's Perspective on The Future of Financial Services" Graham describes how he got the idea for his start-up by identifying a pain point facing a specific customer segment, namely credit card holders with strong credit histories who rolled-over balances but could borrow for less. Borrowell partnered at an early stage with two Canadian banks – Equitable Bank who purchased loans originated on the platform, and CIBC who licensed the software for offering loans online. Graham notes that a key selling point for CIBC was the user experience as Borrowell's software made it very easy for borrowers to get through the process of applying for a loan.

Graham describes how Borrowell solved the #1 problem facing a FinTech business – acquiring customers. Borrowell was having a difficult time connecting with customers who would qualify for their loans and had to turn down many who applied because of poor credit history. The founders realized most borrowers did not know their credit scores, which led them to their "give and get" business model. Borrowell began giving customers their credit score for free, a viral promotion that attracted thousands of customers but did not lead to enough loans to justify the expense. Borrowell then evolved their business model to partner with over 40 financial institutions to build a marketplace offering credit cards, auto loans, mortgages, savings accounts, checking accounts and insurance. This model is now growing and has attracted $90 million Canadian in equity funding from angels, venture capitalists and strategic partners.

Graham concludes by describing the management problems of scaling a business, illustrating how growth may be harder for a start-up than finding product market fit. He also discusses the difficulties of partnering with much larger institutions. Graham then describes the business of online lending, the value drivers, and the risks. Graham dismisses the view that most FinTechs pose a threat to incumbents, and makes the case instead for banks of all sizes to partner with FinTechs. He concludes by discussing the importance of the FinTech ecosystem and government support to encourage start-ups and promote innovation.

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How the Global Asset Management Industry Will Change

In "How the Asset Management Industry Will Change" Richard Nesbitt and Satwik Sharma summarize the views of this industry based on in-depth interviews and collaboration with global leaders in the asset management business. Successful incumbents are being confronted with many strategic challenges, of which managing technological change is only one of them. These senior leaders agreed that technological innovation is having a profound effect on the asset management business in many ways – some of which are more subtle or less visible than in other sectors. The chapter identifies what are viewed to be the key drivers of the asset management industry in the next decade. The economy and its ultimate direction will continue to have a dominant effect on the industry. Demographic change, global changes in wealth patterns, and regulation will all have material effect on the industry. The chapter re-examines the rise of exchange-traded funds (ETFs) and passive investing strategies, which are now matched with APIs and algorithms to provide digital wealth management via robo-advisors. The authors explain how technology-enabled advisors can provide a higher-level of customer service at a lower cost. Investments in technology will have a material impact on the competitive position of asset managers, making the choice of where to invest critical to the success of the business.

Next Generation Financial Advice: Re-Imagining Wealth Management in the Age of Technology

In "Next Generation Financial Advice: Re-Imagining Wealth Management in the Age of Technology" Chuck Grace and Andrew Sarta summarise their research and interviews with key players about the future of the wealth management industry. While robo-advisors have grabbed most of the media attention, the authors broaden the discussion to examine what they call "Next Generation Financial Advice". They view the future as a hybrid model of a human financial advisor partnered with technologies such as data analytics and machine learning. This combination increases the value of financial advice and enhances the client experience.

They outline seven broad opportunities or themes that guide Next Generation Financial Advice. Integrating digital technology into wealth management can lead to cheaper, more efficient and more accessible service for clients. Human advisors remain uniquely skilled at subjective and behavioral tasks while machines are better at evaluating large quantities of data. Technology will free the advisor from having to perform a growing number of routine tasks, like rebalancing a portfolio or optimizing the asset mix. The technologies to provide superior digital advice are already available, and include generic technologies such as cloud computing, social media, machine learning, and online portals with more specialized tools such as digital customer onboarding, psychographic profiling, account aggregation, and lean digital manufacturing tools.

The authors argue that successful organizations will collaborate around the client experience. Incumbents are burdened with siloed, product-centric IT systems with little connectivity making it impossible to get a holistic picture of the client's financial situation. In contrast, new wealth management platforms developed by FinTech entrants (including robo-advisors) are typically

more flexible and modular, leveraging application programming interfaces (APIs) and open architectures. This situation points to mutually beneficial opportunities for incumbents and FinTechs to collaborate. Control of customer data is a pivotal issue that is being addressed by open banking regulations, which will accelerate innovation. The authors identify the main external and internal barriers to change for organizations of different sizes. A common problem is a lack of understanding of how to manage intelligence-based innovation, as the existing strategy literature focuses on manufacturing-based innovations.

Treasury and Technology

Peter Levitt is Executive Vice President and Treasurer at CIBC (Canadian Imperial Bank of Commerce) and Tom McGuire is Executive Vice President and Group Treasurer at Scotiabank. In "The Challenge Facing Bank Treasurers", Levitt and McGuire explain role of Treasurer at a global bank and how technology is changing The Treasury function. A Treasury department essentially provides the circulatory system of the bank, or can be viewed as its engine room. Treasury manages balance sheet resources (capital, funding and liquid assets) and balance sheet risks (liquidity, interest rate, and foreign exchange risks) to enable the bank to achieve its overall strategy. The Treasury's responsibilities entail a host of low- and high-end technological capabilities.

Over many years, each bank has developed proprietary and customized IT systems to deliver on the mandate described above, including producing risk metrics and generating reports for management and regulators. These IT systems are used for current resource and risk position reporting, scenario analysis, forecasting, and stress testing exercises. Three key factors influence the use of technology in a treasury function:

- Massive data accumulation creates unique technology challenges for the Treasury function. Banks require powerful and stable computer systems to collect, store, process and secure tremendous volumes of data.
- A bank is subject to a significant regulatory burden. Treasury must manage a multitude laws and regulations including solvency/capital requirements and liquidity requirements (LCR and NSFR). These regulations are complex and involve significant use of technology and modeling capabilities for things such as determining risk weighted assets (RWAs) for capital adequacy, and economic value of equity (EVE) or earnings at risk (EAR) for structural interest rate risk management.
- Certain complex Treasury functions related to balance sheet risk management require technology to support modeling and management. In particular, valuations and hedging are complex activities. Bank balance sheets are made up of financial instruments that need to be valued value in order to measure and manage risk. This valuation must reflect both changes in exogenous variables and to hedge exposures.

King, Michael R. and Richard Nesbitt, 'Introduction'. In *The Technological Revolution in Financial Services*, edited by Michael R. King and Richard Nesbitt. Toronto: University of Toronto Press, forthcoming.

Technology and Re-Imagining the Future of Housing

Evan Siddall is CEO of Canada Mortgage and Housing Corporation (CMHC) and Vicki Martin is a Senior Specialist in CMHC's Housing Finance Policy group. In "Technology and Re-Imagining the Future of Housing" Siddall and Martin examine the importance of technological change in the largest single product area within most lenders from the perspective of the national provider of mortgage insurance. CMHC is exploring new approaches to underwriting and mortgage insurance adjudication using technology, analytics and artificial intelligence. Lenders are under increased pressure in many lines of business from start-ups and new non-financial entrants. However, the lessons from other industries — hotels, taxis, recorded music — show that "asset light" business models can attack incumbents — and quickly. Notably, the opportunity to make use of data using technology may shift the competitive balance even further.

The authors propose five factors which are influencing the technological future of mortgage lending:

1. Automating Mortgage Processing: Mortgage originators were early adopters of FinTech in Canada.
2. Distributed Ledgers and Funding: CMHC is co-investing with Accenture in a Blockchain proof of concept involving mortgage funding.
3. Artificial Intelligence Underwriting: AI applications make quality lending decisions based on data and logic.
4. Peer-to-Peer Lending: Just as individuals increasingly own distributed energy systems and entertainment companies have been disintermediated by YouTube stars and social media influencers, financial institutions similarly face an increasingly decentralized future.
5. Changes in Property Tenure: FinTech will enable new models and radically reduce transaction costs to accelerate these changes. These will appeal to the Millennial "sharing generation" while reaping the benefits of increased asset utilization.

The authors foresee a much different mortgage market within just a few years. Where value exists in digital fractionalization, the nearly costless use of technology will create new economic opportunities

Section III. SUCCEEDING IN THE FINTECH ERA

The final section outlines what actions senior leaders in the financial sector need to take to succeed in the FinTech era.

The Business Case for Gender Diversity in Financial Services

Brenda Trenowden has worked in the Global financial services industry for close to 30 years. As the Global Chair of the 30% Club since 2016, she has also been leading a global organization that campaigns for better gender balance on company boards and in senior management of organizations. In "The Business Case for Gender Diversity in Financial Services", Trenowden

outlines the business case for gender balance, which is a performance issue and not just a social issue. She summarizes a large body of research connecting increased gender diversity with improved financial performance measured using accounting metrics and market returns. In addition to financial benefits, she explains the benefits for talent attraction and retention, innovation and productivity, and customer engagement.

Trenowden outlines the successful strategy pursued by the 30% Club in the UK, which has been exported to fourteen countries and regions globally. When the 30% Club campaign was launched in 2010, the largest 100 publicly-listed companies in the UK only had 12.5% female representation on boards, which included 21 all-male boards. Knowing that "what gets measured gets done", the 30% Club set a realistic target of 30% female representation on company Boards of Directors by 2015. By recruiting Board chairs at supportive companies to go out and lobby their peers and getting government support, the 30% Club created a competitive dynamic among laggards and attracted media attention that generated rapid results. By the end of our first campaign in 2015, female representation in the UK's 100 largest listed companies had increased from 12.5% to 26% (and no all-male boards). By 2019, this figure had reached 31% female representation overall with 63 of the 100 companies having at least 30% women on their boards. Since 2016 the 30% Club has focused on executive management recruiting and the talent pipeline, and engaging investors who can see the benefits to long-term shareholders returns.

Trenowden acknowledges that many companies do not know where to start when it comes to addressing gender diversity. She therefore outlines six concrete actions senior leaders can take: recognize and address hidden biases; diagnose the problem and set measurable targets; provide gender-neutral job descriptions; change hiring practices; match women with senior sponsors; and provide female role models.

Bank Strategy and Innovation Utilizing Technology

As CEO of the TMX Group, Richard Nesbitt orchestrated the merger of Canada's two largest exchanges then secured a competitive advantage by adopting new high speed trading infrastructure. He left to become CEO of CIBC World Markets at the height of the GFC, then joined the Global Risk Institute for Financial Services as CEO in 2014. In "Bank Strategy and Innovation Utilizing Technology" Nesbitt summarizes the views from senior banking executives on how to develop a strategic framework for implementing technology. Strategy is about where the organization is today, where it wants to go in the future, and how it plans to get there. Nesbitt argues that technological innovation itself is not a strategy, but a tool for achieving strategy. Both incumbents and FinTech new entrants need to understand that the key drivers of success in financial services are risk management and managing the customer-competition nexus.

Banks are risk-taking entities that are highly leveraged, highly cyclical, and therefore highly regulated. Banking is basically a commodity-business offering undifferentiated goods with many substitutes, leading to high competition with low margins. By applying leverage, banks generate

high returns for shareholders, with risk-taking limited by regulation. But the cyclicality of the industry means that loan losses materialize at the same time as growth slows, pointing to the important role of both risk management and regulation to ensure viability.

Technological innovation can help banks to succeed by establishing a competitive advantage over their peers. This competitive advantage comes from improved risk management tools and improved cost efficiencies. Technology also makes possible new channels for distribution at lower cost, new products and services, expanded data collection, and a better understanding of customers' needs. Nesbitt stresses that the goal of technological innovation is to benefit the customer by providing a better experience. He highlights that when technology is mismanaged, it can also seriously damage a bank's franchise, as illustrated by TSB Bank's flawed upgrade of its IT systems.

Technological innovation is an important part of a successful bank's product offering for its customers. Nesbitt points to two primary threats for banks: (i) the disruptive potential of technology, which enables non-financial firms to compete for financial products; and (ii) the changing expectations and needs of customers, which can leave behind banks who fail to adapt. The outlook on these two issues is unclear. Conditions could arise where banks prosper in this technological age by incorporating emerging technologies and adapting to customer needs. Banks will succeed by building these twin objectives into their business strategy while continuing to manage leverage, cyclicality, and regulation in their business.

Conclusion: Putting the Customer First

In this final chapter, "Conclusion: Putting the Customer First", co-editors Michael King and Richard Nesbitt summarize the key takeaways from this edited volume. They outline six themes to guide both incumbents and new entrants in the coming decade.

The first message is that technology will change financial services, just not in the way or the time horizon stakeholders expect. The authors debunk two myths around disruption. First, while some FinTechs will challenge the banks directly in the B2C space, most FinTechs will seek to partner with incumbents in the B2B space. Second, technologies like blockchain and artificial intelligence have been overhyped, leading to disappointing results in the short run, but will ultimately transform financial services in the long run.

The second message concerns business strategy. Various contributions highlight the importance of promoting innovation and leveraging technology. It is worth stressing, however, that technology is not a strategy but a tool to achieve strategy. Technology and applications are widely available or can be imitated rapidly by fast-followers. They do not provide a sustained competitive advantage. Done right, technology can support a business strategy that provides a unique and sustainable value proposition to customers. But done wrong, a failed roll-out of technology can lose customers' trust and damage a financial incumbent's franchise.

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The third message is that trust in banking remains paramount. The loss of the public's trust in banks due to the GFC created an opening for new entrants. But trust has to be safeguarded and built over time. In financial services, trust is intertwined with data security and privacy. While open banking will create opportunities to develop new products and services for customers, it must be matched by protection of data, restrictions on its use, and investments in cybersecurity.

The fourth message is that regulation and risk management remain pillars of financial services. Regulations exist to protect consumers and businesses, forcing banks to address risks and behaviours that are costly or detrimental to their customers and shareholders. Regulations promote a level playing field and financial stability, lowering bank borrowing costs and making high leverage possible. Risk management is vital for protecting the franchise and delivering a competitive advantage in an industry characterised by cycles and disruptions.

The fifth message is that not all FinTechs will survive but a few will have an over-sized impact. Much like the 1999 Dot-com bubble, a day of reckoning is approaching for many FinTechs. After a period of failures and consolidation, we expect a few FinTech champions to have a transformative impact on financial services. And the winners may include Chinese TechFins like Ant Financial, or North American BigTech companies like Amazon and Facebook.

And finally, the longest-lasting impact of the technological revolution in banking will not be the disruption of incumbents or the leveraging of new technologies. It will be the improved customer experience. The successful financial intermediaries of the next decade will be focused on the needs of the customer, recognising that this industry exists to serve them.

About the Editors

Professor Michael R. King, PhD CFA, is the Lansdowne Chair in Finance at University of Victoria's Gustavson School of Business. He held the Tangerine Chair in Finance at Western University's Ivey Business School (2011-2019), where he co-founded Canada's first FinTech research centre (the Scotiabank Digital Banking Lab). Before joining academia, he worked in investment banking in Zurich, New York and London from 1990-1998 (Credit Suisse, RBC Dominion Securities) and central banking in Ottawa and Basel from 2001-2011 (Bank of Canada, Bank for International Settlements).

Richard Nesbitt recently retired as CEO of Global Risk Institute (GRI), where he served from 2015 to 2018. He is an Adjunct Professor of the Rotman School of Management, University of Toronto. He is also a Visiting Professor at the London School of Economics. In June 2017, he published a book (with Barbara Annis) titled "Results at the Top" on the issue of men's responsibility for gender diversity to improve their organizations (Wiley 2017). He was Chief Operating Officer of Canadian Imperial Bank of Commerce (CIBC) until he retired in September 2014. He joined CIBC in 2008 following more than 20 years in the securities industry, including CIBC Wood Gundy from 1987 to 1997. From 2004 to 2008 Richard was CEO of the Toronto Stock Exchange, having joined

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TSX as President of TSX Markets in 2001. Richard is a graduate of the London School of Economics MSC 1986, Rotman MBA 1985, and HBA Ivey 1978.

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[1] According to the search engine Factiva, the term "FinTech" first appeared in the mid-1980s in the title of an industry newsletter, the *FinTech Electronic Office*, edited by Peter Knight. See: Peter Knight, "Technology: Machines Leap the Language Barrier / Electronic translating", *The Financial Times*, July 10, 1985.

[2] D.W. Arner, J. Barberis and R.P. Buckley, "Fintech and Regtech in a Nutshell, and the Future in a Sandbox", 2017, CFA Institute Research Foundation.

[3] Santander InnoVentures, "The Fintech 2.0 Paper: Rebooting Financial Services," June 15 2015, http://santanderinnoventures.com/wp-content/uploads/2015/06/The-Fintech-2-0-Paper.pdf.