Next Gen Financial Advice: Digital Innovation and Canada's Policymakers:

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Historically, Canada's banks and retail financial institutions have been enthusiastic participants in innovation and the adoption of new technologies but, over the next few years, their commitment to agility will be tested.

The rest of world is pursuing fintech technologies at a dizzying pace.[1] However, despite organizational changes, commitments to research, the funding of incubators, and lofty statements, it is difficult to see evidence of sizeable progress on fintech in Canada.[2]

While all change brings some trepidation, industry players need to understand that with fintech, a failure to act is a bad option. The disruption is already well underway. The opportunity to prudently and methodically analyze the implications of brave new worlds is behind us. It is time for firms and policy makers to act - before a 25-year-old technologist in parts unknown defines the future for some of our most respected institutions.

This paper will focus on one example of fintech: digital advice - popularly known as robo-advice - with the goal of helping to imagine the future of digital advice in a uniquely Canadian context, with advice for incumbents, new players, and policymakers. When first launched in Canada in 2014, robo-advisors stoked fears for many of the current incumbents. Is the fear justified? We examined this and other pressing fintech issues in working sessions with a broad spectrum of thought leaders in the Canadian financial services industry, which took place in 2017. Drawing on those discussions, we will show that this fear has been largely misguided, and we will outline ways in which advisors, firms, and policymakers can maximize the benefits of technological advancements.

The term robo-advisors comes with a popular narrative that suggests these are actual robots that not only look like humans, but are here for their jobs. There's also a sense that these "machines" require science-fiction grade technology, which will be impossible to regulate. While the prevailing narrative makes for a compelling story, our research has found it to be untrue. In our working sessions with key players from across Canada's wealth management industry, the overwhelming consensus emerged that existing technologies could be deployed to deliver better financial advice to Canadians, today.

This point is important. All stakeholders agreed that digital technology creates an opportunity for better financial advice[3]. The majority of the required technology is at hand, and would augment the work of human advisors – not take it away. There are some tasks that are better

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[1] In July 2018, KPMG estimated the global investment in fintech at $57.9 billion - for the first six months of the year - more than the entire 2017. See The Pulse of Fintech 2018, July 31, 2018, KPMG.

[2] In 2016, the UK had in excess of 60,000 employees working in the fintech sector with a market north of C$10 billion. New York State alone had more than 55,000 fintech workers and a market north of C$9 billion. Canada's fintech sector had secured just over C$1 billion since 2010 (Deloitte 2017).

[3] For a detailed description of advice, in the context of this paper, please refer to Appendices 1 and 2

performed by machines, while others only work in the hands of humans. If these are integrated into our financial services industry in the right way, the evidence suggests that they will lead to better outcomes for clients.

Regulators and policymakers are often seen as a major roadblock to the implementation of new technology. While current regulations accommodate digital advice in principle, our research shows that the innovators – both small and large firms alike – are frustrated because of the mosaic of Canadian regulators and the complexity they represent.

"We tend to overestimate the effect of a technology in the short run …

The first step of this research project involved taking stock of the current state of digital advice in Canada and then defining a path forward. We wanted to move away from the misleading descriptor "robo-advice," and toward a new, more actionable model. It was our working assumption that there was room for all stakeholders to come together as the financial advice field evolved, and to create a digital structure that would make the best use of humans and machines. To further the discussion around digital advice and its role within the wealth management industry, we also felt it was important to begin to build a framework for its execution.

Innovation and technology are not new to financial services or financial advice.[4] Given the complexity and the time-sensitive nature of most financial instruments, the industry has relied on technological innovation for growth and competitiveness for decades. What is new is the pace of innovation driven by the power and diversity of the new technologies. Today, the delivery of financial services isn't just confronted with technological breakthroughs in Artificial Intelligence (AI) or Big Data; it is simultaneously confronted with breakthroughs in AI, Big Data, Social Media, Analytics, User Experience design (UX), Blockchain, Biometrics, the Internet-of-Things and more.

Since 2014, the digital-advice industry has been through a number of significant pivots.[5] Today's innovators evaluate their impact in weeks and months; therefore, we will restrict our conversation to a five-year planning horizon. We believe it is almost impossible to imagine, with precision, where technology might take the industry beyond that time horizon. Keep in mind that for some traditional industry players, five years is a relatively short planning horizon but to tech players, it can feel like forever.

… and underestimate the effect in the long run," Roy Amara.

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[4] In their *FinTech Advisor Service report* (Fall 2016), iNVESTOR ECONOMICS cites Fund wrap rebalancing, innovations in the online/discount brokerage channel, automation for discretionary retail investment managers and ETFs as recent technological innovations in Canada.

[5] Since Jan. 1, 2016, the nascent Canadian robo-advice industry has announced significant changes to funding, strategy, products or services at a pace of one per month. Fundamental changes to strategy have included a shift from B2C to B2B, international expansion and multi-million dollar funding agreements with incumbent firms. Source: Authors' notes from workshops.

This *Commentary* aspires to define what the future for digital financial advice should be as opposed to defining what it might be. Technology is a tool – nothing more. It doesn't wake up in the morning hoping to disrupt. It facilitates innovation only when people – humans – use the tool to pursue their ambitions. One of the things that still differentiates us from machines is a conscious ability to thoughtfully and imaginatively choose those ambitions. We can either wait for the technological options to overwhelm us or we can seek to define, in advance, the best use of those tools.

With all of that in mind, we set out to define a five-year aspiration for the application of digital technology to prudent and valued financial advice. Readers should note that for this paper we define financial advice in broad, holistic terms that extends well beyond the scope of the first generation of robo-advisors who have focused almost exclusively on investment advice[6].

There are several myths we were able to dispel as a result of our research, which we hope will form the basis for a discussion about what's needed to facilitate a higher level of digital adoption. We've nicknamed it "Next Generation Digital Advice" and in Appendices 1 and 2, we have articulated the guiding principles and best practices that will define Next-Gen Advice. They encompass a holistic view of the client, objective data-driven recommendations, full transparency and ease of use

At a high level, the next generation of digital advice offers an opportunity for stronger client impact. It will see human advisors complimented by digital collaboration through technology that is not disruptive but generally proven, likely economical and widely available. Our current regulations per se are not a barrier to this next generation of advice - but our regulatory practices are. And just how much the industry will be disrupted matters because wholesale disruption of our financial services comes with wholesale economic risk.

Policymakers play an important role in this transformation starting with a need to take the lead and get in front of the innovations in order to understand their full implications. We need to move swiftly towards open banking and improving the benchmark set in Europe, break down regulatory silos to allow data mobility in furtherance of stronger client outcomes, update advisor proficiencies for a new normal where technical skills are automated and behavioural skills are required and de-risk the decision to innovate – for start-ups and incumbents alike.

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[6] Refer to Appendices 1 and 2 for a detailed description of the eight principles and ten practices developed during our workshops to define Next Generation Digital Advice.

Methodology

Many researchers have noted the slow development of fintech in Canada.[7] The research team at the Ivey School of Business decided to tackle one area in particular: digital financial advice.

To do this, the team engaged a broad spectrum of thought leaders in the Canadian industry. Under the auspices of the Chatham House[8] rule – ensuring an open and honest dialogue without ambiguity – we worked with bankers, dealers, start-up executives, vendors, consultants, regulators, academics, students and advisors[9] over the summer and fall of 2017. After publishing our initial findings in November 2017,[10] we then followed up with interviews of industry executives and regulators to gauge their reaction to our conclusions – and their progress towards the vision.

Given the range of participants (including some who are die hard competitors), we had expected, and encouraged, a diversity of conclusions. We were pleasantly surprised by how quickly the participants reached a consensus. The implications for specific competitors, product lines or market segments were different but many of the core principles turned out to be similar.

We also looked to parallels in other digitized industries[11] in an attempt to help imagine what "could be."

Over the summer of 2018, we supplemented the 2017 workshops with industry interviews and surveys asking participants three specifics questions.

- How are firms progressing with their plans for digital advice? Is it a priority?

- Where specifically are they focused within the spectrum of advice as defined by our Next Generation Digital Advice practices?

- What are the specific barriers they are encountering on their journey?

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[7] In an April 2018 study by EY and Forrester Consulting they noted that 80 percent of wealth and asset managers were low to medium in terms of transformation maturity. "Wealth and asset managers are playing catch-up on digital transformation and are the least prepared to deal with customer dynamics."

[8] When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

[9] In addition to numerous one-on-one conversations, three workshops were hosted over the summer and fall of 2017. The first workshop engaged industry executives and thought leaders to help delineate the definition, scope, processes and principles of Next-Gen Digital Advice. Subsequent workshops engaged technology leaders and regulatory experts to confirm the scope and then help identify the barriers to and implications of Next-Gen Digital Advice.

[10] Readers are invited to refer to the whitepaper entitled "Financial Advice in Canada: A Way Forward" at https://www.ivey.uwo.ca/cmsmedia/3779954/financial-advice-in-canada-a-way-forward-web-3.pdf

[11] For example, the media industry has faced substantial disruption as a result of social media platforms and the digitization of news. The low-cost platform of digital news has changed the economics in which larger media conglomerates have operated. Telecommunications provides another example of low-cost digitization alleviating entry barriers. The substantial number of "cord cutters" is changing the nature by which television is consumed as consumers seek streaming services from alternative sources. In a 2016 article entitled *The Industries that are being most Disrupted by Digital*, a survey of more than 2,000 C-level executives revealed Media and Telecom as the industries most disrupted by digital.

Results

Six broad conclusions came from our research. We investigate each in turn. We consider these to be the tidal forces guiding the next generation of digital advice in Canada.

Digital offers an opportunity for stronger client impact.

The consensus among our workshop participants, and subsequent interviews, was they strongly believe that integrating digital technology into the world of wealth management will lead to better outcomes for clients. While some participants worry, in a practical sense, about what this evolution of their industry may mean, they agree in theory that there are simply some things machines can do better than people and they have embraced the concept. The use of technology can lead to cheaper,[12] more efficient outcomes for clients, who will also get the added benefit of ease of access. With digital solutions, clients can stay on top of their finances, remain on track and disciplined.[13] They can also get answers to their questions much faster than they would if they had to book an appointment with their advisor.

The use of technology also provides an opportunity to incorporate a financial education component when the programs are designed, which would lead to more informed clients, able to make better decisions or ask more relevant questions.

Broad access to easy and intuitive applications would mean access to advice for stakeholders currently underserved by today's business paradigms.

Finally, the automation of the advice processes will lead to standardized, predictable recommendations – something the industry has struggled to achieve with human advisors.[14] The question of the value of digital advice needs to be re-framed to ask what clients need, not how to digitize an advisor's brain.

The Future of Financial Advice Is a Human Advisor Complemented by Digital Collaboration.

There will always be room for human advisors in the financial advice equation because there are certain things machines simply cannot do well.[15] A digital platform will not be able to hold a client's hand when the stock market drops by 20 percent, for instance, or truly understand

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[12] At $80 a month, or $960 annually, it could be argued that Nest Wealth has established the new benchmark for the value of advice. In the US, Charles Schwab's Intelligent Advisory platform (a Robo/Human Hybrid) is priced at 28 bps to a maximum of $3,600 annually.

[13] In their paper entitled *Beyond FinTech: A Pragmatic Assessment of Disruptive Potential in Financial Services*, the World Economic Forum concluded that finechs had seized the initiative by defining the direction, shape and pace of innovation, that they were reshaping customer expectations and setting new and higher bars for user experience.

[14] In their 2017 paper entitled "*Do As I Say*", authors Grable, Hubble and Kruger noted that amongst a sample of professional financial planners, the primary driver behind asset mix recommendations was not such things as investor knowledge, risk tolerance, risk capacity or liquidity needs (for example) but a client's age – and in particular the controversial age-based allocation heuristic: *Allocation to Equities* = 100 – *Client Age*.

[15] In their 2016 paper entitled *Future of Digital Financial Advice*, the Center for Financial Planning estimates the probability of a fully digitized experience at 33 percent. They identified four scenarios for the future of digital advice –-
 three of which incorporate some form of a hybrid approach.

what someone is saying by reading between the lines. In contrast, humans remain uniquely skilled at subjective tasks – the automatic, intuitive mind that lets us navigate the world easily and successfully. We move quickly and effortlessly between thoughts, we are highly visual, and great storytellers. Readers will often hear these attributes referred to in the context of behavioural finance or behavioural economics.

Our deliberative, analytical mind - or objective side - works with data and logic to perform complicated actions. Humans are often skilled at these tasks as well but machines have proven to be faster, more precise, and capable of handling large quantities of data.

For financial advisors, the ideal scenario appears to be one where they use digital technologies to perform the analytics, while they focus on the subjective or behavioural tasks. Research is beginning to show that the combination of a human with a digital assist is more effective than either one by itself.[16] This divvying of responsibilities would give them more time to do what robots can't—develop human relationships—while improving service and achieving stronger client outcomes. The goal is to augment or "nudge"[17] what advisors can do in furtherance of stronger client outcomes.

Yes, technology will eliminate the advisor from a growing number of routine tasks, like rebalancing a portfolio or determining an optimized asset mix.[18] But technology also means advisors will be able to focus on managing client relationships and providing advice based on data-driven outcomes. Advisors will also need to review the algorithm-generated recommendations before anything goes to a client to ensure it's actually the best option. And as the role of the advisor changes, advisor licensing and training will also need to change,[19]

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[16] Authors McAfee and Brynjofsson discuss at length the intersection of subjective versus analytical thinking in their book *Machine Platform Crowd*, W. W. Norton & Company 2017.

[17] Nobel prize winner Richard Thaler championed the concept of "nudging" in his studies in behavioural economics. Numerous examples of "nudging" are attributed to the finance industry including the UK government's 2012 policy of auto-enrolment for private pensions, where people have to opt out rather than opt in, and which has led to considerably higher private-sector, pension-saving participation. Refer to *Nudge: Improving Decisions About Health, Wealth and Happiness*, Thaler and Sunstein, Penguin Books, 2008.

[18] To the extent that an advisor defines their value proposition by one of the objective tasks, there is a distinct possibility that the number of required advisors will shrink as those tasks are automated. At the Money Management Institute's Wealth Summit in October 2017, panelists estimated the shrinkage at 25 percent, over five years.

[19] It would appear that we are currently training new advisors predominantly in the areas most susceptible to digitization. For example, at present, the Canadian Securities Course (CSC) allocates 85 percent of its curriculum to analytical activities (www.csi.ca), the CFP Core planning areas allocate 82 percent to analytical activities (www.fpsc.ca) and the CFA curriculum allocates 36 of 37 study sessions to analytical activities. (www.cfainstitute.org)

Table 1 Examples of Objective versus Subjective Tasks in Financial Advice

	Machines Do Well (Objective)	Humans Do Well (Subjective)
Goals	Empirical options	Prioritization, balancing trade-offs, confirming values, clarifying aspirations
Savings Discipline	Projections, scenarios, holistic view, visualizations	Creating a call to action (Inertia), helping with financial literacy
Asset Mix	Risk required, risk capacity, optimization, rebalancing	Confirming risk tolerance
Fees & Taxes	Optimization, product due diligence	Handling exceptions
Catastrophic Risk	Projections, scenarios	Articulating product options, overcoming inertia

The Required Technology Is Not Disruptive – It Is Generally Proven, Likely Economical and Widely Available.

The pace of innovation in the tech world is so fast that we can only reasonably look a few years out if we are trying to determine what technology is needed to make Next Generation Digital Advice possible. While new iterations of current technology will continue to evolve,[20] the basic technology is already in place, and is often already being used to similar ends. For the purpose of our discussions, we looked at three categories of technology required to implement Next Generation Digital Advice (Table 2):

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[20] For example, a January 2016 article by Fulvia Montresor for the *World Economic Forum* estimated that by 2025, 10 percent of people will wear clothing connected to the internet and that 3D-printed cars will be in production. She noted that the United Nations has set a goal connecting 100 percent of the world's inhabitants to affordable internet by 2020, up from 43 percent today, and references a study out of the University of Oxford that suggests a 58 percent probability that the occupation of 'personal financial advisor' will be automated.

- "Plumbing," which refers to technologies in place today, widely adopted by the industry and proven to be scalable.

- "Emerging," which refers to technologies in place today but not widely adopted by the industry and not proven to be scalable.

- "Stealth," which refers to technologies in place today in other industries but not widely adopted by the financial series industry.

Table 2: The Technology Landscape - Two Year View

Next Generation Architecture	Plumbing Technologies	Emerging Technologies	Stealth Technologies
Client Request & Onboarding	• Cloud	• Digital onboarding	• Chatbots • Social media data aggregation
Algorithms & Processes	• Mainframes	• GPUs (Graphic Processing Units) • Psychographics	• Account aggregation • Risk & scenario analytics
Inspiring Action	• Smartphones	• Social media • SMS (Short Message Service) • Web chat	• Personal dashboards • Always there (24/7, anywhere, anytime)
Ongoing Engagement, Life's Changes	• SQL (Structured Query Language)	• AI/Machine learning	• "Emotion" predicators • Goal based reinforcement
Data Driven Requests	• Local servers	• Cloud storage • Internet of Things devices • Crowd-sourced data	
Supply Chain	• "Lean" manufacturing platforms	• APIs (Application Programming Interface) • AI (Artificial Intelligence)	• Account aggregation

Transaction Fulfillment	• Trade execution	• Personal dashboards	• MY device (Always there and always in my pocket)
		• Client portal	

The participants in our workshops noted that across the matrix of technologies and Next Generation architecture, none of the required technologies would be considered leading edge by today's standards.[21] They identified the key technologies, for enhanced client outcomes, as the Cloud, digital onboarding, psychographic profiling tools, the ability to interact through social media, AI, online portals, account aggregation and lean digital manufacturing.[22]

They also noted, however, that at this point most of these technologies are applied in isolation and their power will really only be recognized when they are integrated into a comprehensive platform.[23]

The main concerns at this stage are around data security and privacy, which cut to the root of trust – the cornerstone of financial advice. The lack of proper infrastructure to be able to share information between players and current regulatory silos also poses a data aggregation challenge, given the time and cost it would require. This is consistent with research on this topic (see Le Pan 2017).[24]

Digital Progress Is Possible Under Current Regulations – But Only to a Point

The assumption has long been that regulators were an obstacle for digital progress and needed to "get out of the way." But our research found that many of the processes companies are looking to automate are already happening. Firms can currently, for instance, use technology to onboard clients. There are no regulatory impediments to that work, and the regulators who participated in our research maintained that if the advice generated by an algorithm is wrong, the firm using it is liable, just as it would be when a human advisor makes a mistake.

As a result of that liability tract, the regulators told us at the time our sessions were held (2017) they weren't overly concerned with the perceived lack of audit trail with digital advice. In fact, Next Generation Advice may actually be a better option, because it can provide a digital recording of what was presented to the client and why, instead of the "he said/she said" situation we sometimes get with a human advisor.

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[21] An August 2017 *Discussion Paper* from the European Banking Authority noted that across 16 innovative technologies, the typical application rate for the technology was 5 percent to 10 percent. The EBA's list of innovative technologies was consistent with our workshop participants' conclusions and none, by themselves, are disruptive.

[22] Lean digital manufacturing refers to the systematic elimination of waste and redundancy in business processes – using digital technologies. In financial services, the vast majority of business processes are digital but, in many cases, still reliant on older, inefficient legacy platforms.

[23] Authors McAfee and Brynjofsson discuss at length the impact of platforms on modern day business strategy in their book, *Machine Platform Crowd*, W. W. Norton & Company 2017.

[24] In his September 2017 CD Howe Institute paper entitled "Ottawa, Provinces should Close Gaps in Systemic Risk Monitoring," author Nicholas Le Pan notes: "It is clear that there are numerous federal and provincial regulatory agencies that have an interest in the management of systemic risk; however, no one agency or formalized grouping of agencies has the clear legal authority or mandate to manage all aspects of systemic risk across the country."

Regulators we spoke with generally felt the adoption of digital technologies was more of a business issue than a regulatory one, since it is be up to individual firms to figure out the regulations that govern any changes to their business models – just as they do today with other human-centric issues.

However, there were three exceptions, or questions, that stakeholders felt needed to be considered, from a regulatory perspective, for Next Generation Digital Advice to move forward:

- Exception #1: Open Data.[25] Digital strategy pivots on data and fences built around data will limit the effectiveness of the algorithms – there is much that can't be done today because tech firms can't access the data they need to create the right solutions. Open data is needed to make sure the algorithms are legitimate and verifiable. This poses a challenge in terms of privacy and security issues, but also an opportunity for regulators to encourage innovation.

- Exception #2: Fulfillment. While the platforms can be built to deliver prudent advice, they can't always execute on the plan – which is an obvious problem in terms of effecting strong client outcomes. In Canada, we have built regulatory silos between the product regimes – for example between the purchase of securities and insurance – which creates enormous complexity when it comes time to implement a holistic recommendation. Our machines can calculate with precision an optimal solution but they can't execute on it. To be effective, digital needs permission for an electronic hand off between regulatory regimes if the trade engines are to remain compliant.

- Exception # 3: Complexity. While our regulations per se aren't an overwhelming issue, our current regulatory silos are complex, slow and expensive to navigate. In Canada, financial services are regulated at both the federal and provincial levels. Each province, for example, has its own securities regulator. [26] Canadian banks are regulated federally by the Office of the Superintendent of Financial Institutions (OSFI) in collaboration with the Department of Finance, while credit unions are largely regulated at the provincial level. Life insurance falls under OSFI or the provinces, with the distinction between prudential and conduct regulation; OSFI is responsible for the former whereas the sale of life insurance is regulated provincially. The fragmentation of various functions between and across different regulatory platforms makes the delivery of solutions that are broad enough in scope to be multifunctional and take into account the entirety of a person's financial circumstances and needs very expensive and a significant barrier to innovation. In our 2017 workshops, regulators cited the challenge this issue posed for start-ups. In our 2018 update, the

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[25] In August 2017, the Department of Finance Canada asked for industry comments on a paper entitled "Potential Policy Measures to Support a Strong and Growing Economy." Comments closed on September 29, 2017. The Department of Finance asked for comments on "open banking" – a framework under which consumers have the right to share their own banking information with other financial service providers. The authors would note that, in order for Next Gen Digital Advice to be effective, this same provision would need to extend beyond the banking sector to include such areas as insurance and investment funds.

[26] It should be noted that in November, 2018, the Canadian Supreme Court ruled that the Canadian Constitution allows the federal and provincial governments to create a National Securities Regulator which could, over time, act to streamline some of these silos.

incumbents expressed an even greater sense of frustration with the issue. From that perspective, many industry participants actually encourage and welcome the opportunity to clarify regulations and their application.

How Much Disruption, and By Whom, Matters.

While we see technology disrupting the financial services field and creating the hybrid model described above, not all disruption is created equal. Despite "disruption" becoming a popular term widely touted as a prerequisite strategy in the digital space, our observation is that the Canadian robo-advice field displays the attributes of "architectural innovation," (see Henderson and Clark 2015)[27] – and not the popularized term "disruptive innovation" coined by Professor Christensen.[28]

The fundamental components of financial advice have not changed in 50 years and the new technologies aren't leading to a fundamentally new product or innovation. However, they do offer an opportunity to realize dramatic efficiencies and heightened performance.

Professors Henderson and Clark note that architectural innovation occurs when the ways in which components of a system are integrated change without a fundamental change in the components themselves. Incumbent firms often struggle with architectural innovation due to embedded processes and legacy systems that have led to success. These process changes may be subtle, but have significant competitive implications.

For Next Generation, the incumbents have to figure out how digital advice can benefit their business model and provide the services their clients need – and they have to do it quickly. They currently have an opportunity to shape how digital will be integrated into both their own individual businesses and the industry as a whole, if they choose to take control of the narrative now. Incumbents that do control the narrative and engage in architectural innovation may be able to avoid the disruption that Professor Christensen describes, in which a new trajectory of customers supplants the previously desired group of customers, ultimately leading to the failure of incumbent firms.

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[27] In a *Harvard Business Review* article dated December 2015, authors Christensen, Raynor and McDonald discuss "disruptive innovation" noting that disruptive innovations originate in low-end or new-market footholds and don't catch on until quality catches up to their standards. The authors would note that while Canada's robo-advice industry has initially targeted the "millennials", their quality matches anything produced by the incumbents, thus far. In contrast, Harvard Professors Henderson and Clark describe "architectural innovation" as innovations that change the architecture of a product without changing its components (such as Next Gen Digital Advice). Henderson and Clark note that "established firms find it difficult to recognize and hard to correct." See *Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms.* Professor Joshua Gans attempts to bring the two competing views of disruption together in his book "*The Disruption Dilemma" (MIT Press, 2017*) and concludes that "successful firms and their investors can calm down. This does not mean they can relax; there is always much to be done. But academic research and market experience demonstrate that the fear of the inevitable and imminent disruption is unfounded." The authors would suggest that Next Gen Digital Advice represents a little of both innovation camps. We don't care what you call it, but we do believe now is most definitely not a good time to relax.

[28] ibid

Things move quickly in the digital field, and if the incumbent firms don't act, someone else will.[29] Desperation can drive radical innovation and the start-ups can't afford to coast. By embracing the new technologies, today's start-ups can disrupt simply by moving much faster than their larger competitors. The disruption is welcomed in some industries because it can lead to a better user experience by the end consumer but in financial services, unintended consequences have the potential to disrupt our economic stability. It is therefore important that we nurture innovation with the start-ups and incumbents alike.

The Current Inertia is Difficult to Explain.

Given that many of the perceived barriers to Next Generation Digital Advice are not really barriers at all, and considering the speed of innovation on the tech side, it becomes difficult to explain why there is such inertia around moving digital advice forward. In 2016, the robo-advice industry in Canada had a market share of approximately 0.02 percent.[30] The players needed to bring Next Generation Digital Advice to the next level don't appear to be very far apart, so we must look at what's holding them back and what it will take to encourage them to issue the call to action. That could mean having big banks integrate digital infrastructures into every aspect of their operations, or regulators creating the environment supporting change. Start-ups, for their part, need to focus on the business side of their firms as well as the technology, and understand what's needed from a regulatory and business model perspective to make this work. We refer to this as putting the 'Fin' in Fintech.

In our 2017 whitepaper, we suggested that the general lack of progress by the stakeholders was something that needed to be studied further.[31] Over the summer of 2018, we dug deeper into that question and discovered a myriad of complex issues confronting market players (Table 3) – many, but not all, of which are internal issues. It turns out inertia isn't the problem - most industry players are working on digital advice [32] but they are struggling to make progress. The implementation of holistic advice is bigger and more complex than they imagined largely because of the way our financial services are organized in Canada – which is directed by our policymakers.

Indeed, the barriers highlighted by stakeholders are where we believe policymakers and regulators need to take a leadership role.

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[29] In their *World Wealth Report 2017*, Capgemini notes that 56 percent on global high net worth customers would be open to working with the BigTechs – Google, Amazon, Facebook and Apple. They also note that hybrid-advice solutions are making a big impression on the same customers.

[30] Source: *FinTech Advisory Service – Canada*, Fall 2016, .iNVESTOR ECONOMICS

[31] A report commissioned by the Innovation Policy Lab at the Munk School of Global Affairs in 2015, entitled *Current State of the Financial Technology Innovation Ecosystem in the Toronto Region* notes, "Canadian financial institutions have not been as effective as their competitors in other international centres … at developing strong partnerships with FinTech startups. Even where relationships exist, they tend to be located at the margins of the financial institutions' main operations."

[32] In our 2018 survey, 100 percent of the survey participants identified hybrid, digital advice as either the top or one of the top five priorities for their firm.

Tablet 3: Barriers to Change

	At Smaller Firms, Start Ups & Disruptors	At Large Incumbent Firms	Common to Both
External Barriers	Lack of APIs Talent acquisition	Talent acquisition Vendor capacity	**Data mobility** **Regulatory silos** Digital adoption
Internal Barriers	Ability to scale Funding	Leap of faith General inertia **Data architecture** Advisor resistance Economic incentives Channel conflict Risk aversion Change management	**Complexity** Development capacity Sequencing

For Policymakers: A Call to Action

If the financial services industry is ripe for disruption, and if, as we have found, stakeholders from across the spectrum are as close together as they appear, the adoption of digital advice should happen more swiftly than it is.[33] The lack of substantive progress is an issue because it is preventing stronger client outcomes. While there is work to be done by all, we focus on specific recommendations for policymakers and regulators.

Step 1. Take the Lead

General inertia and a motivation to maintain the status quo are generally dangerous for incumbents. Free market advocates will argue that a failure to act is part of 'only the fittest survive' mantra, but failure within our financial services arena comes with systemic risk well beyond that of a specific firm.

This isn't about which of our domestic banks 'wins.'

Nor is it about whether the Googles or Amazons choose to enter the market as so many pundits warn. A far more lethal threat might be if, for example, Fidelity[34] moves their mature platform north of the border, Nutmeg[35] from across the Atlantic, or Alibaba[36] from across the Pacific. Digital technology often has trouble recognizing borders. A failure to address this issue in advance can lead to unwelcome disruption in the form of regulatory arbitrage.

Financial advice in Canada is already being digitized. Watching passively from the sidelines is an abdication of a policymaker's responsibility to nurture a stable financial services industry. Leadership in this arena isn't simply about broad policy, rules and regulations. In a digital world, policymakers also have a responsibility to 'get in front' of the technology to understand its full implications – both good and bad – before it is deployed.[37] Policymakers need look no further than the 2016 US elections for an example of the unintended consequences of poorly understood digital technologies[38] that originated in areas that were previously outside of the established regulatory field of view.

To be clear, the Canadian federal government has taken some steps to address some of these issues. However, we believe the pace of those deliberations is out of step with pace of

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[33] Ibid EY and Forrester Consulting. Readers should also note that in November 2018, RBC announced its intention to launch its Robo-Advisor, Investease, and Vanguard Canada was reported to be preparing to launch a Robo-Advice platform in the next 12 to 18 months.

[34] Launched in 2017, Fidelity's AMP platform enables 'white labeled' onboarding and financial advice through banks and wealth management platforms in the US.

[35] Nutmeg is Britain largest 'robo-advisor' offering ISAs (Individual Savings Account), general investing and personal pensions.

[36] Alibaba is China's largest e-commerce company and offers on-line financial services through its subsidiaries Ant Financial and Youyu.

[37] Canadian regulators may wish to consider the 'monitoring roadmap' concept proposed by Center for Financial Planning, Digital Advice Working Group, 2017

[38] In July 2018, the US Department of Justice charged 12 Russian intelligence officers with hacking Democratic officials during the 2016 elections.

change on the technology front and we would encourage all parties to proceed with a stronger sense of urgency. In particular, client privacy and data security should be addressed with a sense of urgency – not to prohibit the exchange of client data – but to define the rules of engagement before unusually creative players create situations that are tilted perhaps more to their best interest than their clients.

Our call to action isn't restricted to our own research. In December 2017, the Competition Bureau of Canada released a study entitled "Technology-Led Innovation in the Canadian Financial Services Sector."[39] Their recommendations included, amongst others, a move to proportional risk, harmonization across geographic boundaries, encouraging collaboration, open access to systems and data and identifying a fintech policy lead for Canada. We agree with these recommendations and suggest policymakers implement them as soon as possible. We also suggest further areas where policymakers can demonstrate their leadership in Steps 2 through 5.

Step 2: Open Banking

Data are the oxygen for algorithms and Canadian firms are turning blue from a lack of it. Canadian firms simply do not have access to the external data required to fuel the algorithms that focus on holistic, client centric advice. Canada's mosaic of regulatory silos has created situations where clients are forced to spread their finances amongst three or more different companies – and trap their data within those silos. Holistic, client-centric advice (i.e., client best interest) is impossible without functional access to banking, investment, debt and insurance data – at a minimum.

Policymakers will know this issue under the reference 'open banking,' which is widely touted as a catalyst for the fintech community.[40] But open banking has implications well beyond start-ups, and the implications are much, much broader for the incumbents who currently house much of the data. The implications extend not just to financial advice but to privacy and data security as well. Intrinsic to the conversation is the question of "who owns the data" – the client or the firm that stores the data? Again, these are questions that would benefit from proactive policy leadership.

We encourage Canadian policymakers to move swiftly and methodically towards the benchmark set by Britain and the EU with respect to Open Banking. The EU model is known as the Payments Systems Directive 2 (PSD2) and extends to operators of e-commerce marketplaces, gift card and loyalty schemes, bill payment service providers, public communication networks, account access services, mobile wallets and parties involved in digital or electronic payments. Under PSD2, the EU has standardized APIs for access across the system, consent and authentication flows, a liability model, the regulatory treatment for data access and oversight of

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[39] See "Technology-Led Innovation in the Canadian Financial Services Sector," Competition Bureau of Canada, December 2017 www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04322
[40] In its Budget 2018, the Government of Canada asked for comments on whether Open Banking had the potential to benefit from a broader range of financial products and services and in September, 2018, Minister of Finance Morneau launched an Advisory Committee on Open Banking.

third parties. Under the model the consumer is fully empowered and must provide explicit approval before their data can be shared. Likewise, financial service providers must respond to a consumer's request to have their data shared. At its core, it implies that the consumer now owns their data. The PSD2 model is widely acknowledged as a work-in-progress but never the less it has effectively set the global minimum standard.

Without access to the right data, our fintech innovators, both small and large, will stall and any benefits to clients will evaporate. In addition to the adoption of open banking in Britain, the EU and Australia, versions of it are being pursued in the US,[41] China and Southeast Asia. In 2017, our federal government undertook a process to study in merits.[42] We applaud the initiative but would encourage the policymakers and regulators to study and act on their findings with a prudent sense of urgency. The EU regulations are by no means perfect, and Canada could look to improve on them, but they have set the minimum standard by which other regimes will be measured. The standardized processes noted above should be viewed as table stakes.

Step 3: Data Architecture

Data mobility is about more than open banking – it's also about open data architecture. Firms are also struggling with access to their own internal data. Our product and regulatory silos have created large complex transaction machines that gather and store vast quantities of data – but don't allow firms to share it across their own platforms; as the 'client's user experience' would demand.

The machines are often fed by business processes that capture the same data in multiple places, in different ways and with different levels of due diligence – creating extraordinary layers of intra-firm complexity. For example, 'know your client' data will be different at the bank, its investment dealer, the mutual fund subsidiary and a related insurance subsidiary and the firm can't reconcile the differences because of the regulatory walls that preclude the sharing of the data.

Our regulations need to enable intra-company data mobility when it is in furtherance of holistic, client centric advice. In the language of the industry, it would mean dual-licensing for digital applications. Our regulatory practices preclude our incumbent firms from offering holistic advice because data can't move between the regulatory silos. We need to level the playing field with the data aggregators who don't blanch at collecting data wherever the client happens to house it. If the future of digital advice addresses a client's holistic financial needs then our regulatory silos need to align. Regulatory product silos (banking, securities and insurance) place Canada at a disadvantage on the world stage but more importantly they are seldom in the client's best interest. If policymakers are serious about transparent and objective advice then they will

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[41] The U.S. Department of the Treasury issued a position paper in July 2018 on the topic entitled "A Financial System That Creates Economic Opportunities: Nonbank Financials, Fintech and Innovation."
[42] See Department of Finance Canada comment paper "Potential Policy Measures to Support a Strong and Growing Economy." www.fin.gc.ca/activty/consult/pssge-psefc-eng.asp

knock down some of the walls that block the sharing of client data within firms – even if it means broaching the complex topic of harmonization and a national securities regulator.

To be clear, we are not advocating complete open access. It is prudent to ensure that data gathered in one line of business can't be used to coerce sales in another line of business or compromise privacy. However, surely innocuous data elements such as the client's birthday – from which we can help objectively derive time horizon, underwrite mortality or feed risk tolerance determination, for example – need only be stored in one, easily accessible data store.

Perhaps it is time for the regulatory walls to look more like the carbon filters used in water filtration where some, but not all, data elements are allowed to pass freely (when they are in furtherance of accurate, transparent and objective advice) but contagions are blocked.

Step 4: Advisor Proficiency

We are currently training, recruiting and licensing advisors for a world that will not exist in three to five years. Regulators and SRO's still heavily favour hard, technical skills in assessing advisor proficiency – the same skills the new technologies will automate. For example, the Canadian Securities Course (CSC) allocates approximately 85 percent of its curriculum to technical topics while the Conduct and Practices Handbook course allocates only a 7 only weighting to 'client communication.' With many of the technical skills embedded in the new technologies, it will require advisors to be proficient at interpreting and explaining the outcomes from the math (instead of generating it), in the context of their clients goals and behaviours.

In addition, we need updating to licensing and proficiency requirements to include behavioural insights. The Ontario Securities Commission has taken a good first step on this issue in their Staff Notice 11-778.[43] The notice lays out the principles and a framework for the application of behavioural insights within the regulatory environment. We would like to see that taken a step further and applied to advisor proficiencies across all the regulatory constituencies.

To share the burden, our schools and advisory firms also need to adjust their curriculums and recruiting criteria.

Building digital platforms alone will not create better client outcomes. We need to simultaneously build the platforms and prepare the human advisors. Our research noted that some organizations – industry and regulators alike – are approaching this as two separate issues and increasing the probability of unintended consequences.

Step 5: De-risk the Decision to Innovate

During our 2018 interviews, firms talked repeatedly of attempting to collaborate with regulators and their own compliance teams on innovative, client-centric solutions only to be cited later by enforcement, compliance or internal audit.

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[43] See OSC Staff Notice 11-778 entitled "Behavioural Insights: Key Concepts, Applications and Regulatory Considerations," March 2017 www.osc.gov.on.ca/documents/en/Securities-Category1/sn_20170329_11-778_behavioural-insights.pdf

When the OSC created LaunchPad[44] in 2017, they talked of collaborating with fintechs who may be unaware that they need to comply with securities regulatory requirements. They have subsequently joined forces with a global network of financial regulators through the Global Finance Innovation Network (GFIN).[45]

Our research suggests the barrier to innovation doesn't lie with the start-ups who may naively circumvent a regulation. Innovation can happen much closer to Bay Street (with the incumbents) and it needs to happen at a faster pace. Far too often, internal compliance teams are constraining innovation because of their nervousness with a regulator's auditors. The practices cited during our interviews included e-signatures, e-docs, auto-rebalancing, data aggregation, unique suitability criteria and asset transfers practices – all of which are compliant on paper but somehow seem to cross a line during a regulator's audit.

We need to de-risk the decision to innovate. If the battlefield for fintech in Canada is architectural innovation then policymakers can play the role of enabler when they explicitly support the incumbents creativity and keep an open mind when it comes to experimenting with digital technology and new data sources that enable client-best-interest outcomes. We should find ways to put the rulebook on ice until the prototype or pilot demonstrates its contribution to transparent, unbiased financial advice. One idea might be to work with the incumbents internal compliance staff to identify emerging processes up front and to then monitor the outcomes in partnership and with an open mind.

By all means continue with the sandboxes[46] but expand them into playgrounds or gymnasiums – places where multiple stakeholders such as incumbents, start-ups, vendors, technologists and academics can use an array of technologies to explore ideas at scale. Sponsor innovation that crosses regulatory boundaries – a Canadian sandbox – and works with start-ups and incumbents alike. Better yet, help facilitate collaboration between the start-ups and incumbents in a win-win environment. Sponsoring design sprints, networking events and Hackathons are examples of techniques that have been proven to be productive when conducted in open and 'safe' (i.e., non-proprietary) environment. Sponsoring digital advice research

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[44] OSC LaunchPad "engages with Fintech businesses, assists them in navigating the requirements and strives to keep regulation in step with digital innovation. In short, we help Fintechs avoid costly regulatory surprises and accelerate time-to-market, all while fulfilling our mandate to provide protections to investors and promote confidence in our markets." www.osc.gov.on.ca/en/osclaunchpad.htm

[45] See OSC joins global network to support financial innovation, August 2018, www.osc.gov.on.ca/en/NewsEvents_nr_20180807_osc-joins-global-network-to-support-financial-innovation.htm

[46] "The Canadian Securities Administrators (CSA or we) today launched a regulatory sandbox, an initiative that supports businesses seeking to offer innovative products, services and applications."
"The objective of this initiative is to facilitate the ability of those businesses to use innovative products, services and applications all across Canada, while ensuring appropriate investor protection. We will consider applications, including for time-limited registrations, on a coordinated and flexible basis to provide a harmonized approach throughout Canada for business models, whether they are start-ups or incumbents. Our ability to regroup and coordinate our involvement and expertise in this busy environment is another example that demonstrates the agility and proactivity of the CSA. The CSA regulatory sandbox is open to business models that are truly innovative from a Canadian market perspective. The CSA will assess the merits of each business model, on a case-by-case basis, and businesses that register or receive relief could be permitted to test their products and services throughout the Canadian market." February 2017, www.osc.gov.on.ca/en/NewsEvents_nr_20170223_regulatory-sandbox.htm

through government agencies such as NSERC or the Financial Consumer Agency of Canada is another option. Partnering with research institutes such as the Centre for Quantitative Analytics and Modeling, the Behavioural Economics in Action at Rotman or Ivey's Digital Banking Lab would enhance the collaboration.

As noted above, financial innovation also needs to expand beyond the numbers and embrace behavioural insights.[47] Our laboratories need to explore both simultaneously.

On Thin Ice

A fairly well-known Canadian named Wayne Gretzky once said that the key to success is to "skate to where the puck is going to be, not where it is."

While industry wrestles with its internal demons, our policymakers have an opportunity to take a lead role in defining Canada's place within the global digital advice landscape. There are numerous creative and exciting solutions being discussed. What we haven't seen a lot of is client-facing holistic solutions – and what we don't have is much time. We are, too mix metaphors, skating on thin ice.

This paper provides a series of steps for regulators and policymakers to follow that will improve innovation for incumbents and start-ups alike, all while providing an enhanced customer experience in financial advice. Firms are dealing with a looming perfect storm – fee compression, shifting demographics, unrelenting regulatory changes and an erosion in the number of human advisors as the babyboom advisors look to their own retirement. In this context, technology should be viewed as a savior, rather than a threat.

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[47] ibid OSC Staff Notice 11-778

Appendix 1: Next Generation Digital Advice Guiding Principles

To meet the definition of Next Generation Digital Advice, participants in our workshops concluded that a digital/hybrid offering must, at a minimum, respect the following principles:

1. All processes will be sufficiently easy and intuitive that interaction with an advisor or service representative is not required, unless requested. Recommendations are presented in a transparent and easy to understand format.

2. Client communication will be personalized and provide seamless access to advisors and other professionals as required or requested. Communication will be, at a minimum, two-way, and include an option for advisors or service representatives to proactively anticipate communication requirements before the client initiates them. Clients can initiate access to an advisor or service representative in a manner and time that is convenient for them. All communication with the client is in plain language and jargon-free. Access to market intelligence and financial literacy resources is quick and simple.

3. Recommendations and actions will conform to all regulatory requirements. Processes will include real time escalation of compliance infractions before or as they are transacted. All client data and recommendations will meet the industries best practice thresholds for privacy and security.

4. Algorithms used to generate recommendations will be open to the appropriate professional bodies for review and approval. In addition to numerical integrity, the review will include independent verification that the algorithms and recommendations are free of bias.

5. Portfolio and product recommendations will be "open shelf," support "client's best interest" and meet the regulatory requirements for "suitability."

6. Clients will retain explicit ownership of their data while firms retain responsibility for ensuring the integrity and accuracy of all data used to derive platform-generated recommendations.

7. Access will be device and media agnostic and ensure the broadest accessibility available.

8. Recommendations will be data-driven, but material recommendations will be subject to a human override before a recommendation is shared with a client or a transaction is processed. When the platform generates a recommendation, prudent steps will be taken to ensure the client understands the options and the implications of their decisions.

Appendix 2: Next Generation Digital Advice Practices

To meet the definition of Next Generation Digital Advice,[48], participants concluded that a digital/hybrid offering must deliver, at a minimum:

1. Electronic Onboarding and Trade Fulfillment:

The onboarding, or life cycle-triggered processes, will facilitate data capture, signatures, approvals, compliance requirements and cash handling electronically. All required disclosures and confirmations will be facilitated electronically. Processes will facilitate trade fulfillment consistent with professionally defined, best execution practices.

2. Goals Based:

Processes will include a specific determination, confirmation and approval of the client's goals. All recommendations will conform to the client's goals and will allow for client customization (Socially Responsible Investments, for example).

3. Full Financial Needs:

The platform will generate a financial needs analysis of the client's current and projected situation, in the context of the confirmed goals. It will allow the client to explore, either by themselves or with trusted advisors, a variety of options and the implications of each option. Household debt will be included in the needs analysis process with recommended repayment plans based on both objective and behavioural components. Recommended repayment plans will align with client's goals and objectives.

4. Risk Profiles:

The platform will generate risk profiles that objectively balance tolerance, capacity and required risk characteristics that include both objective as well as psychological points of reference.

5. Holistic View:

The platform will aggregate, and then integrate cash flows, historic and projected, into the needs analysis. The facilitation of savings discipline will be intrinsic to all recommendations. Processes will include the ability to aggregate and maintain third party information for the purpose of facilitating holistic, client centric decisions.

6. Asset Mix:

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[48] In defining the scope of wealth management and "advice," the participants started with the components of financial advice included in the 2014 Advocis/PWC report entitled *Sound Advice, Insights into Canada's Financial Advice Industry*.

The platform will generate asset mix recommendations that are customized to each client, plan and account, in alignment with the client's objectives and risk profile. It will include the ability to digitally rebalance portfolios at the client, plan and account levels, in an economic and timely fashion. Rebalancing will be based on the client's desired thresholds and frequency but will at a minimum include annual rebalancing.

7. Client reporting:

The platform will provide a holistic client view (Dashboard) that is customizable. Performance reporting will incorporate transparent, auditable data points and will include a line-of-sight analysis relative to the client's goals. Proactive alerts will be triggered when results drift offside from goals. Reporting and data points will be available to all stakeholders including clients, advisors and other professionals, simultaneously.

8. Fees and Taxes:

Recommendations will optimize for cost efficiency with respect to all fees incurred by the client. Recommendations will optimize for tax efficiencies through vehicles such as RSPs, RIFs and TFSAs. Tax loss harvesting will include automated scenario planning, triggered for use in discussions with the client's professional tax, legal and accounting advisors.

9. Risk Management:

Asset protection, insurance and catastrophic loss recommendations will be generated as part of the financial needs process. Recommendations will be consistent with the processes identified above.

10. Analytics:

The platform will use information from both inside and outside of the organization to anticipate and prompt client action. Analytics will be used to personalize, in a timely manner, the experience of the client, empower the client-advisor relationship and facilitate achievement of the client's goals. Data analytics will be used to inform and anticipate client behavior that is counter-productive to the achievement of their goals.

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