

ADOPT, INNOVATE, REGULATE

Emerging solutions for the use of AI in financial services

A roundtable report from the Schwartz
Reisman Institute for Technology and
Society at the University of Toronto
in collaboration with the Business
Development Bank of Canada



UNIVERSITY OF
TORONTO



SCHWARTZ REISMAN INSTITUTE
FOR TECHNOLOGY AND SOCIETY

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1. INTRODUCTION

How can we better support the adoption of AI innovation to harness its economic benefits?



Setting the stage

Financial institutions are utilizing artificial intelligence (AI) technologies for a wide range of applications today, including high-stakes areas such as risk assessment, strategic decision-making, and security. **The increased use and development of AI technologies is setting the stage to revolutionize the financial services landscape.** However, to facilitate this transformation, institutions, policymakers, and other key stakeholders must better understand how to harness the full potential of the AI revolution.

One key aspect of this transformation will be the adoption of responsible AI techniques—a wide range of interconnected codes and practices that must be better defined and understood by private firms, regulators, and policymakers as they grapple with the development of new regulatory solutions that will allow for groundbreaking innovation while simultaneously providing assurance and security. Responsible AI practices include a focus on fairness and impacts across all stages of development, from design to deployment, taking care to consider the potential consequences of an AI product or system, and designing with the intention of minimizing harms. A fulsome understanding of responsible AI will assist decision-makers in recognizing the vital importance of having the proper guardrails in place as new AI tools and capabilities are developed.

AI is setting the stage to revolutionize the financial services landscape.

Regulation and standards are also vital tools for unlocking both innovation and widespread adoption of AI, in the financial services sector and beyond. The recently proposed *Artificial Intelligence and Data Act* (AIDA) represents Canada's first compre-

hensive attempt at AI regulation. Similar initiatives by other governments and multi-national organizations suggest great promise for companies seeking to utilize the transformative potential of AI. Financial institutions across the globe should take note of these emerging regulatory frameworks and the opportunities they present.

However, AIDA and other global regulatory frameworks are still in their early stages. Despite the increasing prevalence of standardization initiatives and the publication of foundational guidelines by international organizations, **clear standards for AI remain largely undefined—leaving players in a field where they must create their own frameworks for responsible development and implementation.** This factor makes AI innovation and integration especially challenging for smaller firms. On the other hand, it poses an opportunity for large institutions that have the resources available to create strong, robust frameworks that will potentially inform the creation of enduring standards.

The following report invites policymakers, regulators, key players in financial institutions, and other interdisciplinary stakeholders to consider the following questions:

- **How can we better support the adoption of AI innovation to harness its economic benefits?**
- **What regulatory frameworks are required to ensure the development and deployment of responsible AI in financial services?**
- **What needs to be done to promote the widespread adoption and innovation of AI technologies?**

Emerging solutions

On June 14th, 2022, the **Schwartz Reisman Institute for Technology and Society (SRI)** and the Deep Tech Venture Fund at the **Business Development Bank of Canada (BDC)** hosted a roundtable entitled “**Adopt. Innovate. Regulate?**” focused on innovative approaches to the development and regulation of AI in financial services. The event brought together stakeholders from financial institutions, leading startups, academics, and representatives from government, with the aim of:

- **Hosting open conversations regarding how AI is currently used in financial services;**
- **Developing a common understanding of responsible AI, and why it is important for innovation;**
- **Uncovering challenges faced by businesses attempting to integrate AI into existing practices;**
- **Highlighting emerging technological solutions, and learning how to support innovative growth;**
- **Discussing the current and future status of AI regulation in Canada and globally.**

During the course of the day-long event, attendees participated in four sessions featuring a range of expert panelists. Each session centered around a specific theme: responsible AI, how financial institutions are using AI today, innovative solutions, and new regulatory frameworks.

Among the many insights that came forward throughout the roundtable’s engaging conversations, **four key takeaways emerged:**

1. Practicing responsible AI means more than ensuring that an AI system is “explainable” and involves a range of consultations at every phase, from development to deployment. Ensuring that AI systems are responsible means ensuring that they are *justified*, with the opportunity to argue against undesirable outcomes.

- 2. Common definitions are vital to enable trans-disciplinary work, expand opportunities, and minimize risk.** We cannot certify a system as “fair” or “responsible” unless we have a common framework defining these terms.
- 3. Responsible AI tools and information need to be democratized to enable broader implementation.** Quality assurance needs to be accessible for everyone, not only the companies with the most resources.
- 4. Regulators may need to consider implementing new frameworks and tools to tackle the fast pace and unique risks posed by AI.** While too much regulation can impede innovation, little or no regulation can also stifle growth.

The following report expands upon these takeaways. Smaller points of interest from each of the sessions are also extrapolated and discussed in further detail, to provide readers with a strong sense of the major discussion points and conclusions that arose from this workshop.



2. OPPORTUNITIES AND RISKS: HOW FINANCIAL INSTITUTIONS ARE USING AI TODAY

Integrating **responsible AI** practices can foster innovation and increase revenue, efficiency, reliability, and robustness.

From credit scoring and fraud detection to insurance claims processing and personalized customer services, AI has tremendous potential to transform the financial services landscape. In one of the roundtable's first sessions, SRI convened stakeholders from major financial institutions to discuss the ways in which AI is being used today to augment or generate new products and services, and how responsible AI is a critical enabler for their adoption.

The panel highlighted that the **use of AI is typically prompted by a desire to increase revenue, efficiency, reliability, and robustness**. AI can enhance elements such as customer engagement, cost management, and strategic decision-making by uncovering new techniques for doing more with less. Importantly, organizations that are able to deploy these methods first will gain a competitive advantage. The ensuing discussion addressed the transformative potential and risks of these new approaches, and where the industry is headed.

Responsible data sharing

One common theme that emerged was that the application of new AI techniques within large organizations generates challenges around data governance. **While different departments may gather different data about one particular customer, this is not shared across the institution to create a single, holistic profile**. Instead, customer information remains in pieces, segmented by department and service, largely due to current mechanisms for the collection, use, and disclosure of data.

Panelists also suggested **there is both significant opportunity and risk involved in holistic data collection**. Having one complete customer view instead of a mosaic of siloed data points could bring significant advancements in customer experience and support,

informed by all points of engagement between an individual and service provider.

However, there are also clear legal and ethical risks associated with this approach. As one panelist noted, privacy and confidentiality concerns can arise if an institution starts to facilitate the sharing of client data between departments. As the panelist observed, **in many instances, companies could share customer information interdepartmentally—but that does not mean they should**. These questions are amplified when considering commercial customers' data, as legal issues and reputational damage can quickly arise if financial institutions violate confidentiality through irresponsible data sharing practices.

Panelists pointed to a growing understanding that it is both challenging and necessary to get appropriate data management and sharing right, and that **cultural change at the institutional level is necessary to better understand the risks involved in AI development**. While financial institutions and their employees can easily develop effective frameworks and tools, putting them into practice can be difficult.

One panelist identified that the rapid growth of AI has led to the potential existence of **"jungles where people are building AI without understanding what they are doing and why."** In a large organization where everyone is excited about AI's potential, certain questions—such as how to ensure new systems are trustworthy or that privacy protocols are sufficiently robust—can fall to the back burner.

At the same time, **many data scientists do not want to work without clear guidelines in place**. Another panelist suggested that financial institutions need to recognize that there is no reason why they cannot develop internal guidelines. In fact, this could help solve both problems: offering structure and guard-

rails to keep the development of new AI technologies out of “jungles” and providing assurance to those who require guidelines before they will begin a project.

Panelists agreed **it is the responsibility of leadership to ensure organizational structures guide AI development and adequate guardrails are put in place**, including the establishment of internal strategies such as “key pillars” for responsible AI development and the standardization of workflows. The panel also pointed to a pressing need to sufficiently educate data scientists on how to conduct audits and impact assessments of their AI models, and to ensure both development teams and leadership understand just how long these safeguarding processes can take. Audits to ensure that systems are sufficiently robust to meet regulatory standards may soon become mandatory, and data science teams should be prepared to meet these requirements.

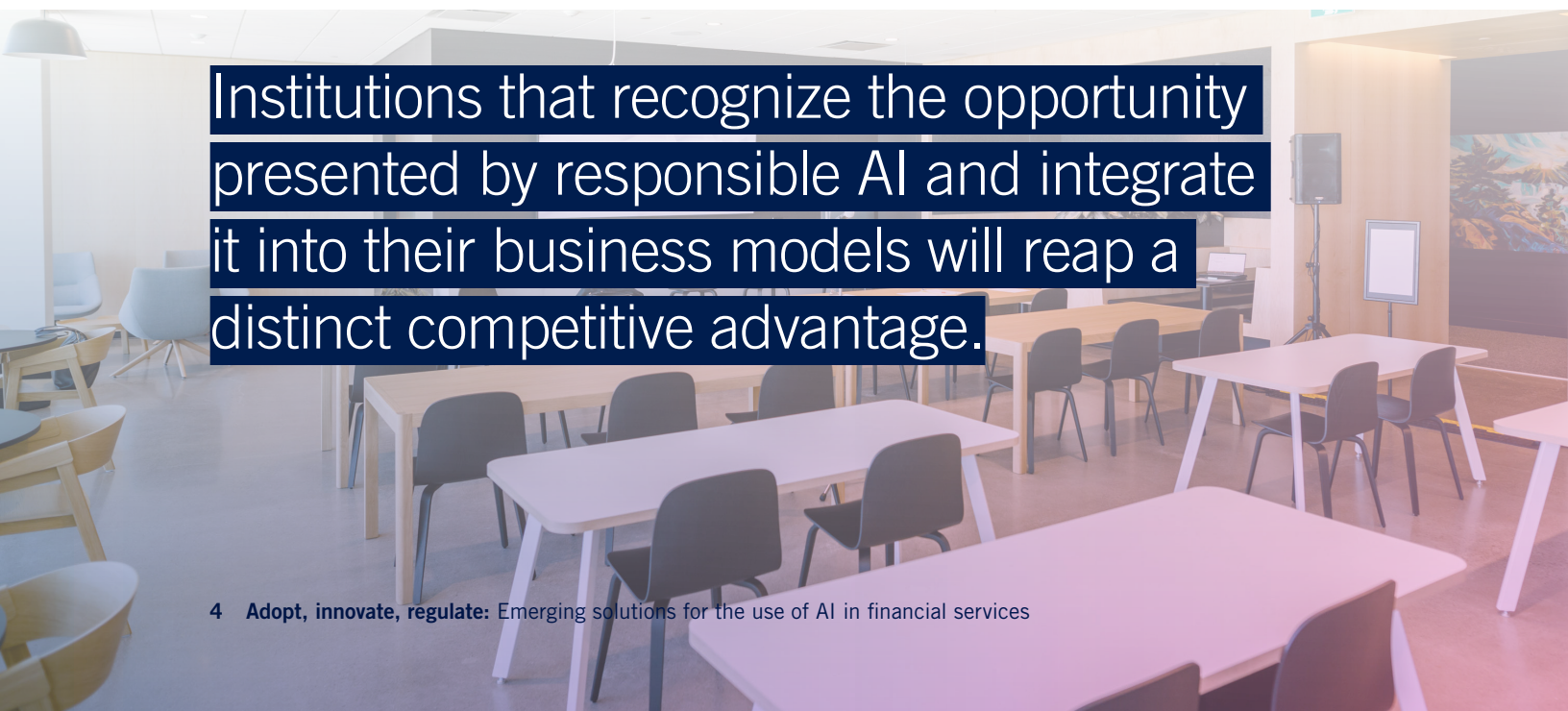
Forecasting ahead

Panelists discussed a common vision for the next five years in which responsible AI becomes a central and commonly considered aspect at every stage of development. As one panelist proposed, **in an ideal context for AI development, when a new system is finished it should already be certified**, through the application of real-time tools that ensure responsible principles are integrated in the product. This kind of real-time certification would allow financial institutions to continuously innovate, without having to delay the roll out of new technologies designed to improve their offerings.

Additionally, panelists expressed a desire for **a more comprehensive, dynamic, and systematized way for understanding a system’s potential impacts**. The lack of an easy means for testing new systems at scale was noted, as well as the difficulties in retracting a system once it has been put into production. Having the ability to simply and safely test new systems would enable better feedback to help data science teams pinpoint and resolve issues faster and with greater certainty.

Panelists also agreed **it would be valuable to have third-party responsible AI service providers grouped within an integrated ecosystem**. Currently, many providers individually offer support for development, impact assessments, and auditing services. One panelist suggested it would be preferable to engage multiple service providers in an integrated “hub,” to assist institutions in more efficiently validating the responsibility of AI offerings and pave the way for faster roll-outs.

This vision of the future imagines a world in which financial institutions are well aware of the importance of responsible AI and have made full use of it to streamline innovation, resolve issues faster and with greater certainty, and improve the value of their offerings. **Financial institutions that not only recognize the opportunity presented by responsible AI, but successfully integrate it in their business models, will reap a distinct competitive advantage vis-à-vis their competitors.**



Institutions that recognize the opportunity presented by responsible AI and integrate it into their business models will reap a distinct competitive advantage.

3. RESPONSIBLE AI: MORE THAN EXPLAINABILITY?

Explainability is an important aspect of responsible AI, but more is needed.



What components make an AI system responsible? Is it enough for a system's outcomes to be explainable? What types of consultations must AI developers engage in for their techniques to be sufficiently ethical? What should researchers and industry focus on to achieve more holistic approaches?

In this session, stakeholders from government, academia, and law discussed definitions of responsible AI, why standardization of responsible AI practices are vital for AI innovation and adoption, and some of the key challenges for implementing it.

What is responsible AI?

Panelists provided a range of different frameworks to better understand responsible AI and how to achieve it in practice, including legal, technical, ethical, and regulatory perspectives. As one panelist described it, **responsible AI is not merely a technology but a process** engaged in the mindful development and deployment of technology in a way that is respect-

ful of all stakeholders affected by its use. Since AI is now entrenched in all aspects of daily life, the panelist observed, the “stakeholders affected” are all of us.

One focal point of the discussion was that some definitions of responsible AI necessarily shift in relation to the stakeholders engaged in the conversation: **when describing a system as “explainable,” we need to first ask why we are explaining it, and to whom.** While an AI system might be sufficiently understood by the data scientists who built it,

this may not be enough to justify its outcomes to a consumer or regulatory body. Similarly, some harms may be of greater importance in certain contexts. Panelists agreed that a necessary first step towards

cultivating responsible AI practices must include building a foundation of cross-disciplinary collaborations to develop robust definitions that account for a wide range of frameworks and paradigms. As one panelist noted, **the need for transdisciplinary work represents both one of the biggest challenges and biggest opportunities in AI development today.**

From a legal perspective, responsible AI means **ensuring that a system's developers are able to explain and defend the decisions they made throughout the development-to-deployment process**, including the collection of data, system design, and impacts. This may involve asking providers to consider foreseeable harms—including classifying different types of harms, e.g., physical, property-based, environmental, or social—and demonstrating that decisions regarding development were justifiable through assessments conducted after a system is deployed. By putting **reasonable safeguards to ensure that AI systems do not generate negative impacts**, developers can also adhere to responsible AI principles.

From an ethical perspective, responsibility is grounded in causation and accountability—**we cannot hold an agent responsible if they do not have the means to control their outcomes.** For a system to be responsible, it must have agency to decide from a range of options and reflect on and compensate for mistakes. One panelist noted that this is not possible for current AI systems today—if an algorithm incorrectly denies a small business a loan, the capacity to reflect on this error and revise future assessments must occur at the level of human oversight. Similarly, AI systems are currently unable to compensate for past harms.

Finally, the panel discussed striving not just for *responsible AI*, but *socially responsible AI*, including what it might look like to design systems that

Since AI is entrenched in all aspects of daily life, the “stakeholders affected” are all of us.

contribute to social good. **While responsible AI systems should have a baseline target of protecting against unduly negative or inaccurate outcomes, a more rewarding goal would be to use AI to eradicate social harms (e.g., money laundering) and promote economic stability.**

Explainability vs. justification

Explainability is often pointed to as a core element of responsible AI, as many are concerned about the “black-box” nature of machine learning (ML) techniques. This lack of transparency can raise concerns when complex ML systems contribute to important decisions. In response, there have been increasing calls to make AI systems more explainable, influencing computer scientists to provide accounts of the factors that produce and impact the decisions of an AI system.

But explanations from a mathematical or statistical point of view are not the only accounts we need of AI systems. It is unclear that the general public, or even some specialists who use AI systems, will benefit from an understanding of the mathematical parameters of a complex ML model. While the developers building the system might benefit from this technical information, **what users more often want to know is that the model is adequately tested and behaves reliably—in other words, that its decisions are justified.**

However, there was a consensus among the panel that **“explainability does not guarantee ethics.”** From a financial services perspective, explainability also does little to prevent harms such as market instabilities caused by automated trading, large-scale disruptions caused by incorrect automated assessments, or errors in managing capital requirements intended to balance stability and liquidity across the economy. If issues in the financial services sector become automated and replicated at a scale only possible due to fast-moving technologies, there will be far-reaching consequences for businesses and the economy in which these issues are allowed to spread. As one panelist noted, **“explanation is not quite the right question to be asking, but it’s an important question because we don’t want to lose control of the systems we build.”**

The right to recourse

Having come to a consensus that explainability alone cannot guarantee responsible approaches, panelists considered alternative frameworks. A key point in this discussion was issues with systems in which deliberations are rendered opaque due to trade secret protections and therefore cannot be argued against.

Drawing on this insight, the panel concluded that **a right to recourse is necessary for any system to be fully responsible.** While we expect to have access to an explanation when a decision affects us, this is based on an expectation that we should have some avenue for arguing against it, should we feel it is unfair. Panelists proposed that companies and consumers asking for explainability may really be asking for a guarantee that decisions made about them will be fair and justified, and access to a mechanism that will allow them to argue against that decision if it causes them harm.

It is important to note that a right to recourse is not only necessary at the level of the individual, but at an institutional level as well. Most cases that require forms of recourse in the financial services sector are corporate (business to business) litigation and contracting. Such a right will be widely applicable to a bank or company seeking justification for how regulations have been applied to them, or for a commercial partner seeking justification for how a financing or insurance agreement has been enforced by a bank.

The broader implication for stakeholders in the financial services landscape is that **an inefficient legal infrastructure—for commercial banking, insurance, or any other core financial service—is bad for the economy.** Individuals must have a right to recourse to ensure their rights are protected in the face of new and revolutionary technologies. Businesses must have a right to recourse to ensure there is no opportunity for substandard AI technologies to wreak havoc on economies in which they are deployed.

4. INNOVATING RESPONSIBLE AI FOR FINANCIAL SERVICES: EMERGING SOLUTIONS

What techniques are needed to ensure the **successful implementation** of responsible approaches?

As responsible AI emerges as a critical requirement for adoption, a new market of startups that provide responsible AI services and technologies has developed. In this session, representatives from three leading Canadian startups in the responsible AI assurance ecosystem discussed what their services can do to accelerate AI adoption in the financial services market and beyond.

Panelists agreed that **a primary goal of responsible AI development and deployment is obtaining and retaining the trust of consumers**. Even if an institution is technically acting within the law and following all regulations, it is still possible to lose trust by neglecting best practices.

The panel also pointed out that data scientists and engineers are sometimes not held to the same standards that are well established in different departments. For example, there are clear processes in place that must be followed when an institution decides to publish a new page on its website, yet often data scientists developing new AI workflows are not likewise expected to follow any particular process (typically, because the process does not yet exist). This can lead to AI systems being launched before being sufficiently tested, generating inefficiencies, issues for consumers, and public-relations catastrophes.

Responsible AI must integrate three key principles: regulation, testing, and standardization.

One panelist suggested financial institutions must integrate **three key principles** to achieve responsible AI. First, **policies and controls** are needed from a regulatory perspective. Second, **consistent and regular testing** must be conducted, both before and after deployment. Third, **strong standardization efforts** are

necessary. Furthermore, it is critical that all three principles are aligned within a common vocabulary. Although it is challenging to develop a common lexicon, this will be a crucial catalyst to ensure success, and cannot come from data scientists alone.

Democratizing quality assurance

Panelists pointed out that only a minute portion of data science groups are currently able to perform sufficient levels of quality assurance. While it is important to have the right controls and conduct regular audits and impact assessments, this can be difficult for organizations that lack the vast resources of large, established players. **Finding ways to democratize quality assurance will ensure that responsible AI techniques are not only the domain of the largest and best-equipped organizations**. Startups and small- and medium-sized enterprises need to have access to support and resources that can assist with proper quality assurance and testing.

Panelists agreed that **an open-source library of tools that data scientists can access would have a huge impact**. This would allow small- to medium-sized enterprises in the financial services space to make progress towards responsible and trustworthy methods, without needing the budget to put quality assurance processes in place from scratch.

To support the proliferation of responsible AI and quality assurance tools, **startups need to be able to get to market and test their products quickly**, but developing new contracts with established institutions can be a lengthy process. One panelist noted that while lengthy sales cycles often result from issues around security and data sensitivity, a deeper issue is that innovations often require cultural change at an institutional level before they are accepted and adopted.

How much does a human-in-the-loop really solve?

Human-in-the-loop (HITL) refers to an AI system that incorporates a human actor or decision-maker to provide feedback and guidance to a ML model. HITL can be used to help a human and/or a machine achieve something together that neither could on their own. For example, the model might take over complex computing tasks with well-labelled data, while the human manages tasks and improves accuracy by supplying judgment and expertise not captured in the data. **HITL is sometimes pointed to as a safeguard against AI risks, since it requires some level of human participation or oversight.**

Panelists discussed the limitations of using HITL to deem an AI system sufficiently trustworthy. For example, if a credit officer is given an AI decision-assistance tool, but told they will be judged on their efficiency, they will likely end up accepting whatever decision the AI makes in order to move as quickly as possible—even if their role is to check each decision for accuracy or fairness. **The AI becomes the real decision-maker, because it is faster to just accept what the AI suggests.**

This is not to say that HITL should be discarded entirely. Rather, as participants in a previous panel noted, responsible AI practices must consider how **training humans to use AI systems, or failing to do so, can affect outcomes.** Furthermore, leadership must prioritize the operationalization of responsible AI systems against typical productivity metrics. Engaging operators, and potentially even creating a standard taxonomy of operators, is a crucial yet currently under-examined aspect of how AI systems are deployed today.

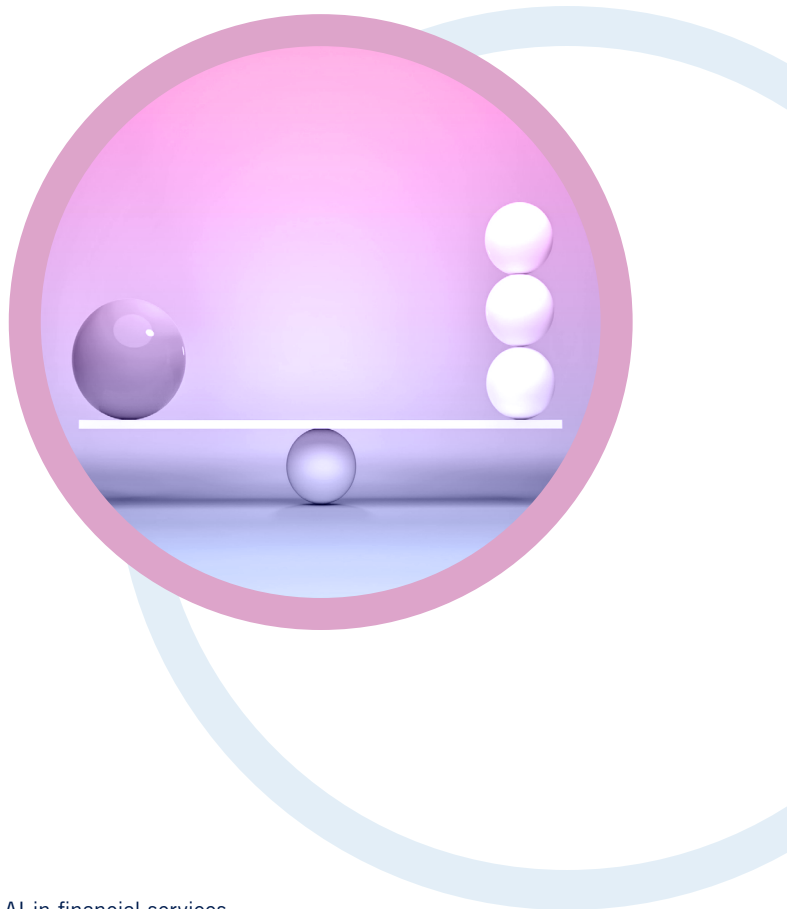
The need for standards

Standards will be needed in order for any service provider to offer certification that meets regulatory requirements. For now, responsible AI startups are focused on providing informal audits, since there are no existing formal certification protocols in Canada.

Still, it is not enough to simply create standards. As one panelist noted, existing standards for the use of data are often archaic in current contexts, and

it is likely that new forms of protection are needed. We need more than just new standards—**we need new frameworks that evaluate how new technologies impact society, and the standards supporting such frameworks must be created by people with technical expertise.** Panelists agreed that allowing standards to be developed by people without much technical knowledge could generate major barriers to AI development and deployment. There is currently a gap between regulatory and technical understandings of AI that must be bridged to successfully bring new systems into alignment with legal and ethical frameworks.

This underscores the importance of interdisciplinarity in AI regulatory and standardization initiatives. Policymakers must engage technologists to ensure the development of relevant and robust standards for AI. However, the successful development and implementation of new frameworks will require input from a diverse range of experts, ensuring that they can be effectively applied to the technologies they have been developed to supervise.



5. ARE NEW REGULATORY FRAMEWORKS NEEDED?

To contend with AI's **unique challenges**, regulators must consider agile frameworks.

Our fourth panel considered current regulatory frameworks for AI, and how these frameworks impede or unlock innovation. AI poses unique challenges for regulators, partially because of the speed at which new AI technologies are developed and deployed. This prompts the question: **Will the law adapt to meet the rapid pace of AI innovation, or will innovation be impeded by the slow pace of legal and regulatory evolution?** Given that the former option is undesirable because it would severely hamper innovation, it is necessary for regulators to consider the possibility that entirely new frameworks will be needed to properly regulate AI. If law and regulation are developing too slowly and not getting at the heart of the problem, what new structures can be developed to better address these issues?

In adapting existing regulatory frameworks, the speed at which AI evolves will not be the only challenge for regulators to contend with. Beyond simply being a fast-moving technology, AI is also difficult to predict and understand. It can make decisions

or take actions that no human ever expected or asked it to do—and understanding why it did so is not a simple task. In building new regulatory frameworks for AI, these additional unique challenges must be brought into consideration.

The panel discussed how regulatory bodies develop guidelines through ongoing processes of consultation with stakeholders. For example, a regulatory body may conduct surveys to better understand how corporations and for-profit organizations are using AI. These processes help regulators develop principles (e.g. soundness, explainability, or accountability) that

can be published as guidelines. Working groups can also help regulatory bodies understand the challenges companies face regarding AI uses and risk. One facet of this can involve targeted outreach to specific stakeholders (e.g., small businesses) to help understand the unique challenges that those particular groups face in comparison to larger firms.

How should regulators approach AI?

Regulators must continually evolve to keep up with the fast pace of emerging technologies. One of the key challenges in this area is creating sufficiently balanced guidelines. Putting enough regulation in place to help companies navigate the development of responsible AI, without over-regulating the space such that small players cannot enter it, will be crucial to cultivating economic growth. As the discussion highlighted, **too much regulation can impede innovation, but the absence of regulation can also generate roadblocks.**

Standards will be an integral piece of the AI regulatory puzzle. Drawing from a previous panel, participants made clear that without well-developed guidelines or standards that anticipate sector growth, innovation can quickly become stifled. Regulation must therefore be sufficiently prescriptive to ensure responsible approaches are standardized, with guidelines that are integrative but also allow for a spectrum of testing.

Consistency in standards is extremely beneficial. A principles-based approach, for example, can allow guidelines to be applicable for a longer period of time. However, this approach can also potentially lead to guidelines that are too generalized, generating vastly differing interpretations and a lack of true standardization. Again, there is a need for balance: in this case, between the need to leave room for new developments, and the need to be specific enough

AI is not only a fast-moving technology, but is also difficult to predict and understand.

that the guidelines mean the same thing to the organizations that follow them. **While principles that are too high level can lead to undesirable variations in outcomes, principles that are too detailed can become overly stifling or easily outdated.**

Emerging solutions

While financial services are highly regulated through prescriptive industry standards and legislation, gaps remain in the regulation of AI within the sector. As previously mentioned, AIDA is Canada's first attempt at AI legislation. While not directed at the financial services sector specifically, its implementation will no doubt affect the design, development and use of "high-impact" AI systems by financial institutions. The federal Office of the Superintendent of Financial Institutions (OSFI) is also currently revising its Guideline E-23 on Model Risk Management, with a planned publication of a draft guideline in March 2023, and a final version expected in September 2023. **Beyond purely prescriptive regulation, other novel solutions such as regulatory markets and regulatory technologies (RegTech) have been proposed by academic experts, government bodies, and other stakeholders as having strong potential to fill the regulatory AI gap in financial services.**

In a regulatory market system, private-sector organizations compete to achieve government-mandated regulatory outcomes. A leading example of a regulatory market is the AI Assurance Ecosystem proposed by the UK Centre for Data Ethics and Innovation, wherein independent third parties would offer AI assurance services to developers and executives deploying AI technologies. The goal of these assurance services is to mitigate issues such as algorithmic bias, as well as ensure robustness and data protection through the auditing and inspection of AI systems. Regulation and standards will be an essential component in enabling assurance by setting requirements that empower organizations to manage their AI risk and achieve compliance. Regulatory markets will require strong government oversight to ensure the preservation of high standards and the continued ability to mitigate risks even as the technology is constantly evolving.

As with regulatory markets, regtech requires government- or industry-mandated regulation against which to evaluate compliance. **RegTech attempts to solve challenges arising from the deployment of AI systems through automation.** RegTech tools are developed and sold by third-party Software-as-a-Service providers and have the potential to help businesses, including financial institutions, comply with regulations in an efficient and cost-effective manner. RegTech has the potential to facilitate the collection and tracking of data and information that would otherwise exist in silos across an organization, conduct bias assessments, and collect automated evidence to monitor for drift in AI models. These capabilities would help mitigate risk for individuals, businesses, financial institutions, and society at large.



6. CONCLUSION: NEXT STEPS FOR INNOVATION

Several **barriers and challenges** must be addressed before responsible AI innovation can flourish.

While some view the burdens imposed by responsible AI as a barrier to innovation, major stakeholders from across sectors are echoing its importance—not only from an ethical perspective, but also to protect business interests. To this extent, conversations throughout the roundtable provided important insights on how to promote the adoption and innovative use of responsible AI approaches in financial services.

As many panelists reiterated, business interests can sour when a company fails to incorporate responsible practices or is unable to present itself as trustworthy. The roundtable's discussions unveiled a key consideration for institutions and policy-makers: **protecting innovation at the cost of consumer trust does nothing to help businesses**. No company wants to be known for leading the cutting edge of innovation, only to suffer reputational harm when an inadequately tested innovation results in major harms and negative headlines. It is here where standards and regulation can perform a critical role, informing how organizations can continue to innovate while simultaneously offering protection to consumers by incorporating responsible AI practices into their design, development, and deployment processes.

However, in order for standards and regulation to have the greatest impact, clear frameworks—such as an AI assurance ecosystem—will be necessary. As highlighted by our panelists, the newly developing market of services to assist organizations with developing and implementing responsible AI practices is currently scattered. This ecosystem needs a framework, ideally supported by government regulation that clearly sets out the role of standards and third-party audits (as has been signaled in the current draft of AIDA).

Having confirmed the importance of responsible AI for private interests as well as the general public, the natural question that emerges is: **what comes next?** The first step towards answering this question is to address what challenges remain to be solved.

Barriers highlighted by panelists included:

- **The lack of standards informed by sufficient technical knowledge and experience to conduct certification against.**
- **The lack of shared definitions for key value-based terms like fairness, developed through consultations with a wide range of stakeholders and experts.**
- **The lack of democratization when it comes to quality assurance and testing. Without clear guidelines and free access to information and resources, it is difficult for all but the largest organizations to conduct proper quality assurance.**
- **The challenge of finding the right balance between principles, guidelines, and/or regulation that is specific enough to prevent confusion, while remaining sufficiently broad to be adaptable to the fast pace of technological advancement.**

Despite these barriers, the future of AI adoption holds considerable promise, and is poised to provide a shockwave of innovation to the way Canadian financial institutions conduct business. With many different stakeholders—including researchers at both private and public institutions, large organizations, startups, and regulators—all focused on the need for new solutions, it is clear the fast-moving landscape of AI innovation will continue to generate rapid new developments in the coming years. While the specific ways in which these changes will impact and transform the landscape of financial services remains yet to be seen, it is clear that change is on the horizon, and that those who are able to adapt and lead will reap the greatest benefit.



BDC Lead Partner **Thomas Park** (top) and SRI Director and Chair **Gillian Hadfield** (bottom) at "Adopt. Innovate. Regulate?" (Photos: Josh Fee.)



7. ABOUT

About the Schwartz Reisman Institute for Technology and Society

The Schwartz Reisman Institute for Technology and Society is a research and solutions hub within the University of Toronto dedicated to ensuring that powerful technologies like artificial intelligence are safe, fair, ethical, and make the world better—for everyone. SRI develops new modes of thinking in order to understand the social implications of technologies in the present age, and works to reinvent laws, institutions, and social values to ensure technology is designed, governed, and deployed to deliver a more just and inclusive world. SRI researchers specialize in diverse array of fields, from law to computer science, engineering, philosophy, political science, and beyond. SRI draws on world-class expertise across universities, government, industry, and community organizations to unite new research on emerging technologies with actionable solutions for public policy, law, the private sector, and citizens alike.

About the Business Development Bank of Canada

The Business Development Bank of Canada is a crown corporation and a bank for Canadian entrepreneurs. BDC helps create and develop strong Canadian businesses through financing, advisory services, and capital, with a focus on small- and medium-sized enterprises. BDC's \$200 million Deep Tech Venture Fund supports startups with the potential to have a transformative impact on global industries.

8. APPENDIX

Roundtable attendees

Panel 1: Responsible AI: More than explainability?

Ebrahim Bagheri, Professor, Department of Electrical, Computer, and Biomedical Engineering, Toronto Metropolitan University; Canada Research Chair in Social Information Retrieval; NSERC Industrial Research Chair in Social Media Analytics.

Monique Crichlow (moderator), Executive Director, Schwartz Reisman Institute for Technology and Society.

Joel Martin, Chief Digital Officer, National Research Council.

Sheila McIlraith, Professor, Department of Computer Science, University of Toronto; Associate Director, Schwartz Reisman Institute for Technology and Society; CIFAR AI Chair; Faculty Member, Vector Institute.

Carole Piovesan, Co-Founder and Managing Partner, INQ Law.

Panel 2: Opportunities and risks: How financial institutions are using AI today

Baiju Devani, Head of AI/ML and Advanced Analytics, TD.

Joe Greenwood (moderator), Vice-President of Data Strategy for North America, Mastercard.

Eugene Wen, Vice-President of Group Advanced Analytics, Manulife.

Ozge Yeloglu, Vice-President of Advanced Analytics and AI, CIBC.

Panel 3: Innovating responsible AI for financial services: Emerging solutions

Dan Adamson, Founder and CEO, Armilla AI.

Francesco Bova (moderator), Academic Lead, Creative Destruction Lab Toronto; Associate Professor, Rotman School of Management, University of Toronto.

Kory Fong, Vice-President of Engineering, Private AI.

Tahseen Shabab, Co-Founder and CEO, Penfield AI.

Panel 4: Are new regulatory frameworks needed?

Gillian Hadfield (moderator), Schwartz Reisman Chair in Technology and Society; Professor, Faculty of Law and Rotman School of Management, University of Toronto; Senior Policy Advisor, OpenAI.

Romana Mizdrak, Managing Director, Office of the Superintendent of Financial Institutions.

Roundtable participation does not indicate authorship or endorsement of this report.

ADOPT, INNOVATE, REGULATE

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