



Aligning Canada's Evolving Climate Information Architecture

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Smart Prosperity Institute

1 Stewart Street, 3rd Floor, Ottawa, ON K1N 6N5



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Key messages

- As climate change impacts public- and private-sector balance sheets—and as climate action creates new business and economic opportunities—decision-makers need reliable climate-related information to achieve positive environmental and economic outcomes.
- A **climate information architecture (CIA)** consists of informational and transparency tools, such as disclosures, transition plans and taxonomies, for organizations to collect, manage, analyze and share climate-related information.
- Rapid progress is being made globally. To keep pace, Canadian governments, regulators and standard setters have advanced several of the components, or ‘building blocks,’ of the CIA. Work is underway to develop a [climate finance taxonomy](#) tailored to Canada’s economy and to conduct [standardized scenario-analysis](#). Voluntary adoption of [climate transition plans](#) and the establishment of made-in-Canada [climate-disclosure standards](#) has also begun.
- The building blocks of the CIA depend on and reinforce each other but are being developed separately by different institutions with varying mandates. To maximize the effectiveness of these tools and reduce the cost of doing business, the CIA building blocks must be aligned and made coherent.
- Governments, regulators, standard setters, financial institutions, non-financial corporations, academics and civil society can work together to strengthen alignment between the different building blocks. They can do so through standardization, regulatory action and public-private partnerships.
- This brief provides the rationale for policymakers and financial sector-related stakeholders to work together to align Canada’s nascent CIA and proposes methods for doing so.
- Aligning the building blocks of the CIA is a critical first step toward integrating effective climate data into policies and climate-related investment strategies that support a competitive low-carbon economy and rising living standards.

1. Introduction

To protect and grow the Canadian economy, public and private sectors require a range of climate-related information to navigate climate instability and to maintain profitability. For example, to assess a firm or project's vulnerability to climate-related risks (i.e., how climate instability and climate action will impact their business model) financiers, regulators, standard setters and other stakeholders need firm-level information on exposure to physical hazards such as wildfires and floods, as well as the entity's plans to reduce its emissions to remain competitive in a low-carbon economy.¹

These types of granular information can help inform several key climate-policy and business-risk management objectives. These include:

1. Enabling better management of firm- or project-level climate-related physical risks (posed by the increasing severity and frequency of climate change-induced weather events and longer-term gradual shifts of the climate) and transition risks (presented by the process of adjusting to a future low-carbon economy);²
2. Re-orienting firms or projects to more climate-friendly business models that will likely reduce costs and future-proof business;³ and
3. Improving the stability and resilience of the financial system by reducing risk.⁴

Despite these benefits, [our previous research](#) shows that climate information is not easily accessible, often inaccurate and/or is not comparable across datasets.⁵ The unavailability of decision-useful climate information adds to decision uncertainties and the cost of doing business for private and public sectors.⁶

International efforts to address this issue have resulted in the development and adoption of a climate information architecture (CIA). The CIA is a set of foundational transparency and informational tools to improve climate data availability, reliability and comparability, foster market confidence and safeguard financial stability.⁷ The individual building blocks or tools of the CIA work together as an information governance framework that enables stakeholders to effectively and efficiently leverage climate-related data.

Governments working with regulators, standard setters, financial institutions, industry groups, civil society and other stakeholders have taken various steps to bolster the flow of climate information within the CIA. For example, the federal government has made recent announcements on the implementation of a climate finance taxonomy and mandatory climate-related financial disclosures across privately owned companies.⁸

To be effective and reduce the cost of doing business, the building blocks of the CIA need to be aligned with one another. However, in practice, these tools are implemented by multiple institutions—federal and provincial regulators, supervisory bodies and standard setters—each with distinct mandates and timelines. This creates alignment-related challenges that need to be resolved.

By achieving internal coherence, the CIA can be fully integrated into climate and economic-growth policy regulations and investment strategies. For example, the technical benchmarks of the taxonomy can help calibrate the rates for the investment tax credits that will support clean energy and technologies. It can also be used to scale up innovative financing instruments such as sustainability-linked bonds.⁹ Expanding the uses of these information tools can provide decision-useful information and help create a competitive, climate-resilient Canadian economy of the future.

To this end, this brief provides analysis and recommendations to support this foundational step in developing a robust and interoperable CIA. Specifically, it identifies and examines the key components of the CIA, explores their connections and the need for alignment, assesses Canada's progress relative to global trends and outlines recommendations to guide government action.

2. Building blocks of the climate information architecture

There are five key information tools (building blocks) that make up the CIA. They are described below at a high-level. Each building block feeds into each other and relies on one another as illustrated in Figure 1:

1. **Climate-related financial disclosures¹⁰**

- Completed by companies either voluntarily or through regulatory mandates.
- The disclosure of climate-related information is the process and output of gathering, reporting and verifying relevant information and data. The public availability of this information allows companies and, in turn, financial institutions, regulators and other stakeholders to analyze, quantify and integrate climate-related risks and opportunities into their respective decision-making processes.

2. **Entity-level climate transition plans¹¹**

- Undertaken by companies as an internal process. The disclosure of transition plans is voluntary or via regulatory mandates.
- Transition plans are time-bound and strategic actions that outline how an organization, through governance, implementation and engagement strategies will pivot its existing assets, operations and its entire business model towards a trajectory aligned with a fixed and defined target, such as achieving net-zero GHG emissions by 2050.

3. **Climate scenario analysis¹²**

- Conducted internally by companies and are either disclosed voluntarily or regulatory mandates. Financial regulators and supervisory authorities also conduct scenario analysis with support from other financial institutions.
- Scenario analysis is the assessment of likely future scenarios to understand the climate-related risks and opportunities. The goal is to develop strategies for building resilience under different potential futures.

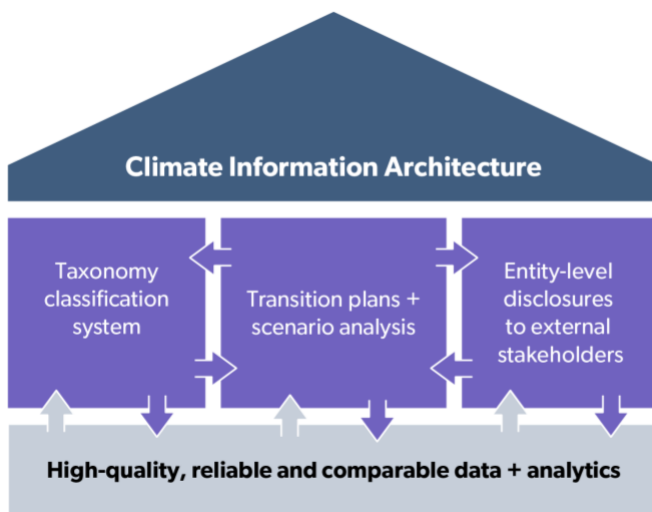
4. Climate finance taxonomy¹³

- Usually established by governments or separate third-party entities with support from different groups of stakeholders (e.g., financial institutions, business, policy experts, regulators, civil society, academics, etc.).
- Taxonomies are standardized classification systems for identifying economic activities that contribute to climate and other sustainability objectives. Countries have often differentiated between “green” taxonomies that include only low-carbon activities and “transition” taxonomies that also include activities that support a low-carbon transition without themselves being low-carbon, such as building electrical transmission lines.
- A taxonomy has a multitude of use cases.¹⁴ For example, it can be used by investors and lenders to classify climate-related financial instruments (e.g., green bonds) and monitor green/transition investments. It can also be used by policymakers to support decisions (e.g., promoting market integrity and supporting consumer protection through anti-greenwashing measures).¹⁵

5. Data and analytics¹⁶

- Produced and sourced by both public and private sectors.
- High-quality, reliable and comparable information that feeds into other information tools, providing an evidence base to help support decision making.

Figure 1: Building blocks for the climate information architecture



Global progress in developing CIAs has been widespread. According to the UN-convened Taskforce on Net-Zero Policy, which assessed more than 1,000 corporate and financial policy instruments across the G20 nations, these information tools are advancing rapidly worldwide as part of the broader climate and net-zero emissions-related policy packages.¹⁷ International jurisdictions are quickly developing their architectures through regulatory frameworks, such as the [EU Sustainable Finance Framework](#) or by using top-down strategies, such as the [UK Green Finance Strategy](#).

However, there is high divergence across different markets regarding scope, depth and ambition of the building blocks as well as their overall comparability.¹⁸ Climate disclosures have emerged as the most used tool to date, evidenced by an increasing number of disclosure mandates for public and private corporations and financial institutions around the world.¹⁹ On the other hand, different jurisdictions are making progress on developing and disclosing climate transition plans, using taxonomies to define green/transition assets or entities and employing scenario analysis to analyze climate-related risks/opportunities and safeguarding financial stability from systemic risks posed by climate change. In response to the divergence, the building blocks of the CIA are starting to converge around emerging standards and regulatory approaches. For example, the International Sustainability Standards Board (ISSB) is developing a global baseline for climate-disclosure and transition-plan standards.²⁰

Canada needs to follow suit and adapt to these standards and emerging practices to meet its environmental and economic goals. However, this effort requires coordination across multiple institutions, spanning federal and provincial jurisdictions, including government ministries, regulators, supervisory authorities and standard setters. These entities operate under different mandates and timelines, and without deliberate alignment, there is a risk of dissonance across the interconnected components of the CIA.

As explained further in section 3 below, although the individual CIA tools are at various stages of implementation in Canada, it is critical to recognize that they need to be designed and implemented to work together so that the CIA functions coherently and each component delivers on its intended objectives.

3. CIA building blocks: why do they need to work together?

The five building blocks of the CIA feed into and rely on each other.²¹ This section provides a few illustrative examples.

Climate transition plans and scenario analysis form the center of the CIA by supporting internal, entity-level processes and informing external decision-makers such as investors and regulators.²²

- **Supporting internal processes:** The internal process of developing transition plans and undertaking climate-scenario analysis can help inform the setting of emissions reductions targets and identify different pathways an entity may take with their climate transitions, generating credible climate data and analysis.
- **Informing other CIA building blocks/external policy and financial decision makers:** The outputs from climate transition plans and scenario analysis can be used by other stakeholders such as investors, regulators and policymakers to make more informed climate-related decisions, including feeding back information to the taxonomy classification system.

A climate finance taxonomy can support other building blocks of the CIA and inform broader policy and financing discussions.²³

- **Supporting other CIA building blocks:** Taxonomies can be used as an input in developing credible transition plans (e.g., define the dollar-value green/transition investment targets set by banks or large institutional investors). It can also enable better use of scenario analysis (e.g., provide benchmarks for sectors and assets that are expected to face significant physical and transition risks under various climate scenarios).
- **Informing broader policy and investment discussions:** Taxonomies, in conjunction with the other tools, can assist policymakers to prioritize sectors and assets based on different objectives (e.g., climate mitigation/low-carbon transition).²⁴ It can also help solve key financing challenges (e.g., credibly define green and transition assets to narrow down investment opportunities) and support climate policies (e.g., use benchmarks to calibrate policy tools such as investment tax credits).²⁵

High-quality climate data and analytics fundamentally underpin the other building blocks of the CIA.²⁶

- **Informing other tools in the CIA:** Climate data helps to inform disclosures, develop science-based climate scenarios and create climate transition plans and taxonomies to classify assets. If companies are trying to set GHG emissions reduction targets as part of their climate transition plans, they need to use different data points such as GHG emissions factors and activity levels to measure and map out emissions. Similarly, if an entity is trying to gauge and disclose their exposure and vulnerability to different types of physical risks, they would need scenario-based physical hazard data to conduct their analysis.²⁷
- **Supporting broader decision-making by other stakeholders:** Data and analytics can support decision-making across the climate finance ecosystem.²⁸ For example, if entities could obtain data from their suppliers and other parts of the value chain in a timely manner, they would be able to better disclose their own Scope 3 GHG emissions. In turn, stakeholders across the ecosystem would have access to more robust data that could inform climate policy choices and enhance the ability to attract capital from domestic and foreign sources.

The interdependencies among the five building blocks highlight the need for coherent and aligned development to strengthen the system.²⁹ The following section provides context and recommendations to strengthen alignment and coherence across the building blocks.

4. Steps to strengthen alignment and coherence

As section 3 argues, alignment must first be created between the different building blocks for the CIA to reach its full potential. To achieve this alignment and integration, different levels of government, regulators, standard setters, financial institutions, businesses, civil society, academia and other stakeholders need to work together to continue developing and fine-tuning these tools to achieve stronger market uptake and create a positive learning cycle and spillover effects.

To date, Canada has made progress in key areas. Work is underway to establish the foundations of a climate-finance taxonomy tailored to Canada’s economy.³⁰ Regulators, in collaboration with financial institutions, have piloted and are now advancing standardized approaches to climate-scenario analysis.³¹ Many companies are voluntarily adopting climate transition plans to show their pathways to a low-carbon transition.³² In parallel, Canada has begun establishing domestic climate-disclosure standards in line with rapidly emerging international climate and sustainability standards.³³

Governments and abovementioned stakeholders can work together to build on this momentum and further reinforce alignment and coherence between the five building blocks through standardization, regulatory action and public-private partnerships (Table 1).

Table 1: Steps to strengthen Canada’s climate information architecture

Information tools	Standardization	Regulations	Public-private partnerships
Disclosures	✓	✓	
Transition plans	✓	✓	
Taxonomies	✓		✓
Scenario analysis	✓		✓
Data and analytics			✓
Note: ✓ represents the step(s) that are/need to be taken to build alignment across the Canadian climate finance system.			

The following section outlines the alignment challenge, implementation entities, recommended actions and expected outcomes for each building block of Canada’s CIA.

4.1 Climate-related financial disclosures

Alignment-related challenge:

The world is heading towards standardization of climate-related financial disclosures as set by the ISSB.³⁴ Disclosures are becoming mandatory requirements through regulatory action in different jurisdictions such as the European Union, United Kingdom, Australia and others. Canada needs to align with global markets and ensure uniform availability of standardized, high-quality climate-related information across the economy and the world.

However, the responsibility for setting and implementing disclosure requirements is distributed across multiple institutions—federal and provincial regulators, supervisory bodies and standard setters—each with distinct mandates and timelines. Additionally, a significant coverage gap remains for large privately held companies, which often fall outside the reach of current regulatory frameworks.³⁵ Without stronger coordination among these authorities, Canada risks ongoing misalignment in its climate disclosure regime. In turn, it could lead to fragmented availability of information, higher transaction costs and missed opportunities to attract capital.

Implementing agencies:

- The Canadian Sustainability Standards Board (CSSB) is responsible for developing reporting standards for climate-related financial disclosures in Canada.
- The Office of the Superintendent of Financial Institutions (OSFI) is responsible for mandating climate-related financial disclosures for federally regulated financial institutions. Provincial financial regulators, such as Autorité des marchés financiers (Québec) (AMF), are responsible for mandating disclosures for provincially regulated financial institutions.
- The Canadian Securities Association (CSA) is responsible for mandating climate-related financial disclosures for publicly listed companies.
- Regulatory amendments to the Canadian Business Corporation Act (CBCA) and coordination with provincial and territorial partners are needed to mandate climate-related financial disclosures for private companies across Canada.

Recommended actions:

- Following the launch of the Canadian Sustainability Disclosure Standards (CSDS 1 and 2), the CSSB could take further steps by providing guidance and supporting capacity building on climate disclosures. Guidance could focus on addressing challenges that could improve alignment with the other building blocks of the CIA (e.g., how to develop green- and transition-related financing metrics using the taxonomy and disclose the information effectively).³⁶
- The CSA and the federal government need to move forward quickly with the implementation of the national instrument 51-107 and proposed amendments to the CBCA to mandate standardized disclosure requirements for publicly listed and private companies.³⁷ These would work in complement with OSFI's and AMF's climate risk guidelines requiring financial institutions to disclose their climate-related information.³⁸

Outcomes:

By providing guidance on standards and fast-tracking regulatory implementation for different types of companies, financial institutions, companies engaged in other non-financial sectors, Canadian standard setters and regulators could ensure that Canadian companies are providing

uniform climate-related information that could be used effectively by other stakeholders across the economy for their purposes.

4.2 Entity-level climate transition plans

Alignment-related challenge:

For climate transition plans, different frameworks and guidance materials are starting to converge into standards. The ISSB is developing disclosure frameworks for transition plans based on the work done by the [UK Transition Plan Taskforce](#). As other countries mandate standardized climate transition plans, Canada needs to chart a path forward in implementing the development and use of climate transition plans to ensure global alignment and a uniform flow of information.

As with disclosures, the responsibility for standardizing and mandating climate transition plans is distributed across federal and provincial regulators, supervisory bodies and standard setters. These organizations operate under different mandates and processes, which may result in standardization and regulatory gaps in transition planning.

Implementing agencies:

When climate transition plans are implemented in Canada:

- The CSSB would be responsible for developing reporting standards for climate transition plans.
- OSFI would be responsible for mandating climate transition plans for federally regulated financial institutions. Provincial financial regulators, such as AMF, would be responsible for mandating transition plans for provincially regulated financial institutions.
- The CSA would be responsible for mandating climate transition plans for publicly listed companies.
- Regulatory amendments to the CBCA and coordination with provincial and territorial partners would be needed to mandate transition plans for private companies across Canada.
- Finance industry and NGO-driven actors, such as [Business Future Pathways](#), are expected to undertake research and coalition-building activities to support the implementation of climate transition plans.

Recommended actions:

- Working collaboratively with academia, civil society, industry and policy makers, coalitions like Business Future Pathways can analyze global developments on climate transition plans to better understand domestic market implications. Analysis of global practices could help identify important linkages with the other information tools of the CIA (e.g., technical benchmarks arising from climate taxonomies can inform development of transition plans by firms).³⁹
- The CSA, OSFI and federal, provincial and territorial governments and regulators can work together to develop an implementation plans for mandating disclosures of transition plans across the broader economy, following the work on climate disclosures.

Outcomes:

Close collaboration by governments, regulators and standard setters on implementing climate transition plans across the economy is of key importance. Methods for doing so can be informed by analysing international experience in standardizing and mandating disclosures. This would ensure wide alignment where companies that prepare such plans gather the right type of information, analyze, develop and disclose standardized climate transition-related information that different stakeholders can, in turn, use for their purposes (e.g., banks for lending decisions).

4.3 Climate finance taxonomies

Alignment-related challenge:

There has been rapid progress globally in implementing climate finance taxonomies. Canada's [Sustainable Finance Action Council](#) (SFAC) laid the groundwork for implementation in Canada with its [Taxonomy Roadmap Report](#). Now, Canada needs to fast-track the development of its climate-finance taxonomy as outlined in the federal government's 2024 Fall Economic Statement and at the UN PRI conference.⁴⁰ Without it, regulators, standard setters, financial institutions, industry groups, civil society and other stakeholders may not obtain the much-needed technical performance benchmarks to define green and transition activities. This may impede decision-making for the other building blocks of the CIA (e.g., supporting the development of credible transition plans, disclosure of green/transition alignment) and build coherence across the climate financing ecosystem.⁴¹

Implementing agencies:

An independent organization at arm's length to the federal government has been proposed to take the lead to develop, implement and maintain the standards and benchmarks for the taxonomy.⁴²

Recommendations:

- The federal government could support building the operational capacity of the proposed third-party organization (i.e. the taxonomy custodian), through financial and other related supports, to develop and implement Canada's climate-finance taxonomy.
- The third-party organization could form effective public-private collaborations with all stakeholder groups, including civil society and academia, by adopting best practices in taxonomy governance, such as the [three-tiered governance system](#) proposed by SFAC.⁴³
- Once established, the taxonomy custodian could take the following steps to develop the taxonomy benchmarks and promote system-wide alignment with the other CIA building blocks:
 - Use science-based criteria and emerging global best practices to develop benchmarks across sectors, starting with priority sectors and/or activities;
 - Create a comprehensive framework to prioritize sub-sectors and activities where taxonomy benchmarks can play a strategic role to increase private financing and support policy objectives;⁴⁴
 - Consider the interoperability and harmonization between Canada's taxonomy and those of other countries through common design features;
 - Engage with regulatory, standard-setting bodies and other stakeholders that could use the taxonomy for their purposes (e.g., work with the Competition Bureau to verify corporations' climate-related claims and address greenwashing-related concerns).⁴⁵

Outcomes:

If developed as recommended above, the made-in-Canada climate finance taxonomy could provide the necessary information to credibly guide investments, support effective climate policy decisions and feed into the other building blocks of the CIA (e.g., development of climate transition plans, scenario analysis and disclosure of climate-related financial information).

4.4 Climate scenario analysis

Alignment-related challenge:

The use of scenario analysis is expanding rapidly worldwide.⁴⁶ However, Canadian financial institutions, large corporations and regulators have difficulty translating global scenarios for

analyzing risk and opportunities to regional- and sectoral-level projects and activities. In addition, decision-makers face challenges in accessing relevant environmental and economic data to conduct the analysis.⁴⁷ Both these aspects are crucial to ensure alignment between the other tools of the CIA (taxonomy, transition plan and disclosures).

Implementing agencies:

The Bank of Canada (BoC), OSFI, along with AMF, are taking on the responsibility to pilot and develop standardized climate-scenario analysis for federally regulated financial institutions, which in turn could provide guidance to companies receiving bank loans or investments on how to conduct their own scenario analysis.⁴⁸

Recommendations:

- The BoC and OSFI, along with AMF, could continue refining standardized climate scenarios to facilitate comparable internal, sector-level and economy-wide forward-looking analysis. This includes standardizing data assumptions, helping to create common data repositories, developing common templates, etc.⁴⁹
- The BoC, OSFI and AMF could find ways to develop effective partnerships with other stakeholders such as organizations representing corporations from outside the finance industry, standard setters and policymakers to enhance their ability to analyze potential macroeconomic and sectoral pathways. Broader collaboration will help identify systemic exposures to climate-related risks, identify gaps related to environmental and economic input data and add further value to OSFI's standardized climate-scenario exercise.
- The BoC, OSFI and AMF could help mobilize knowledge and lessons learned from these exercises to a broader group of stakeholders such as civil society, academia and others in Canada. Both organizations could also bring forward lessons learned from scenario analysis conducted by other regulatory and supervisory authorities across the globe via the [Network for Greening the Financial System](#).

Outcomes:

By standardizing climate scenarios, stakeholders could translate global scenarios to more regional and sectoral levels to analyze different risks and opportunities associated with climate change and have a clear understanding of the input data to conduct scenario analysis. These scenarios could feed into the other building blocks of the CIA (e.g., by supporting taxonomy benchmarking, informing transition plan development and fulfilling external disclosure requirements) and ensure alignment across the architecture.

4.5 Climate data and analytics

Alignment-related challenge:

Climate data is indispensable for effective climate risk management by companies, policy development by governments and financing decisions by lenders and investors. High-quality data is a crucial component of a functioning CIA. However, data availability remains a significant challenge. In other instances where data is available, users are still confronted with the task of identifying what data attributes and metrics are most relevant to their analytical needs, limiting its utility for decision-making.⁵⁰

Implementing agencies:

While the federal government needs to lead from the front, effective public-private partnerships are needed between different levels of government, regulators, supervisory bodies, financial institutions, businesses, academia and civil society to ensure the availability and decision usefulness of data and analytics.

Recommendations:

- The federal government and other relevant stakeholders outlined above could follow through on the recommendations made by SFAC to close climate data gaps and improve reliability and comparability.⁵¹
- The federal government, through the Ministry of Environment and Climate Change Canada, could promptly finalize the climate data strategy. The strategy would help ensure data users have access to climate change-related data that is available with the federal government. It would also provide other support (e.g., guidance on how to use data) to inform their respective decision-making.
- Financial and securities regulators, supervisory bodies and other stakeholders could consider and analyze the different uses for climate data (e.g., data needs for taxonomies and transition plans) and form partnerships to identify and solve the related data gaps and challenges.⁵²

Outcomes:

By ensuring widely accessible, reliable and comparable climate data and analytics, stakeholders would be able to use the other CIA building blocks and enable its optimal functioning.

5. Conclusion

Climate change threatens Canada's economy, financial systems and public welfare by exposing corporations, financial institutions, governments and households to severe economic and social disruptions. Climate action positions Canada to capitalize on economic opportunities by harnessing our resource wealth, innovation capabilities and strong market advantages.⁵³ The CIA—as an information governance framework—could bolster the mitigation of climate change-related risks and help secure economic opportunities by aligning policies and investments with emissions reductions. In turn, an integrated CIA could help support broader climate regulations (e.g., clean fuel standards). The CIA could also support innovative financial tools and investment strategies (e.g., sustainability-linked bonds) to build a prosperous, globally competitive and climate-resilient Canadian economy.⁵⁴

To maximize the effectiveness of these tools, the CIA building blocks need to be aligned with one another. Governments, regulators, standard setters, financial institutions, non-financial corporations, academics and civil society could work together to strengthen alignment through standardization, regulatory action and public-private partnerships. The alignment process will look different for each of the building blocks. However, there is a need to move forward quickly to keep pace with global developments and build a clean, competitive, climate-resilient Canadian economy.

The Smart Prosperity Institute recommends beginning with the following actions:

- Standing up the third-party organization, with monetary and other non-financial support, which will be responsible for leading the made-in-Canada taxonomy effort;
- Implementing the federal government's climate data strategy to provide access to climate-related information;
- Developing guidance on scenario analysis based on BoC's, OSFI's and AMF's standardized climate scenarios to support the organizations taking loans or getting investments to conduct their scenario analysis;
- Closing the regulatory coverage gap in climate-related financial disclosures for private companies through amendments to the CBCA; and
- Developing a coordinated implementation plan for standards setters and regulators to ensure consistent and effective disclosure of climate transition plans across the economy.

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