Mortgage Data Standards

Technology, business and policy joining forces to advance the industry

Canada

CMHC SCHL

Contents

Executive summary

In this report, we analyse the potential impact of initiating a system of data standards in the Canadian mortgage industry. Based on findings from various reports commissioned by CMHC and other literature, we find that the development of a mortgage data standards framework in Canada represents a potential net benefit to all industry participants, by:

- **generating operational efficiencies** of at least $4 billion annually;
- **accelerating digitization and the future of mortgages** with a foundation for innovation development and easier technology adoption;
- **reducing mortgage funding costs** by increased investor confidence; and
- **enabling** the full potential of **advanced analytics** for business development.

These impacts are essential factors to ensure Canadians have access to a well-functioning, reliable and affordable housing system that will not only remain stable but is also able to thrive in the ever-changing technology environment.

The report also looks at the costs and path of adopting the data standards. Based on experiences in other countries, for firms of all types, including those with complex legacy systems, benefits outweigh costs and all transition costs can be recouped within a five-year time frame for all firms. Following that transition period, the benefits will continue to accrue. Additionally, from the experience we have observed in the U.S., there are different paths to the adoption of data standards that can mitigate the transition costs:

- Transitions are typically performed alongside other technology investments that are justified by business needs; the costs are therefore blended with other expenses that would occur regardless of the data standards transition.
- Data standards provide a reference for any technology transformation to start with, which can sometimes save time and effort.
- Even without modifying systems, gains can be generated as standards provide a single reference to map against, thereby making all data exchanges more aligned.
- Firms that already use modern technologies would be able to adopt with minimal efforts.
- Data standards allow firms to easily integrate technologies created by outside firms into their business processes.

The report encompasses findings from three studies conducted by third-party organizations on behalf of CMHC, including literature reviews, surveys, modelling, data mapping, consultations with over 35 industry participants and experts in Canada, and consultations with organizations abroad who are doing business in a system where data standards are well established.

The objectives were to develop and quantify facts on those potential benefits; identify within the current system where friction points would be most easily addressed or would generate the greatest return; and to assess how existing systems of standards are aligned with the needs of the Canadian industry and could accelerate its development.

In light of the potential benefits identified in this study, CMHC is committed to pursuing the development of a system of data standards in collaboration with organizations that play a role within the mortgage lending ecosystem in Canada who also wish to see these opportunities come to fruition. The report discusses some of the upcoming activities that are needed to move toward a system of standards, where all mortgage participants could have access to a well-defined reference model to use in their operations, when and where it helps.

What Are Data Standards?

- An agreed-upon set of data elements, data definitions and data relationships that make up a reference model to facilitate the exchange of data.
- A common reference model developed by and for mortgage industry participants.
- Commonly agreed-upon definitions, relationships and processes.
- Can be used as guidelines in data models, data exchanges, forms and business operations.
- Developed from business needs, with technology and in regulatory requirements.

Toward Digitization and the Future of Mortgages

- As the mortgage industry becomes increasingly digitized, data standards facilitate this process by:
  - eliminating the need to create new data dictionaries for each of these new products;
  - accelerating innovation developments by providing an easy reference for innovation incubation; and
  - making adoption easier by lowering the commitment as innovations fit within current operating data.
- Examples of promising technologies that require consistent data to function:
  - Microservices – can accelerate time to market, thus increasing customer satisfaction.
  - Blockchain – can provide lenders with competitive loan offers and secure transactions.
  - Application Programming Interface technology (APIs) – can provide data access to engage potential borrowers.
  - Artificial intelligence – can help identify fraud and detect anti-money laundering patterns.
- Despite rapidly increasing consumer demand toward services online throughout the mortgage loan processes (for example, mortgage search functions and loan origination systems [LOS] including pre-qualification), Canada still remains far behind the U.S. in part because of the lack of data standards.

Increased Operational Efficiencies

Data standards are estimated to have the potential to generate $4 billion per year in operating costs savings through the following:

- Reduced staff intervention for reconciling data values and definitions and eliminate the requirement to recollect similar data.
- Improved mortgage application processes reducing the number of person days required from the original intake of application information to loan closing.
- Reduced number of custom IT interfaces, which will extend to interactions with LOS providers, credit report providers, appraisers, brokers, title insurers and lenders.
- Cut post-closing period.
- Allowing technology providers to build single integrations that can then be reused with any firm who builds to the same standard. This eliminates the need to create similar products for multiple firms.

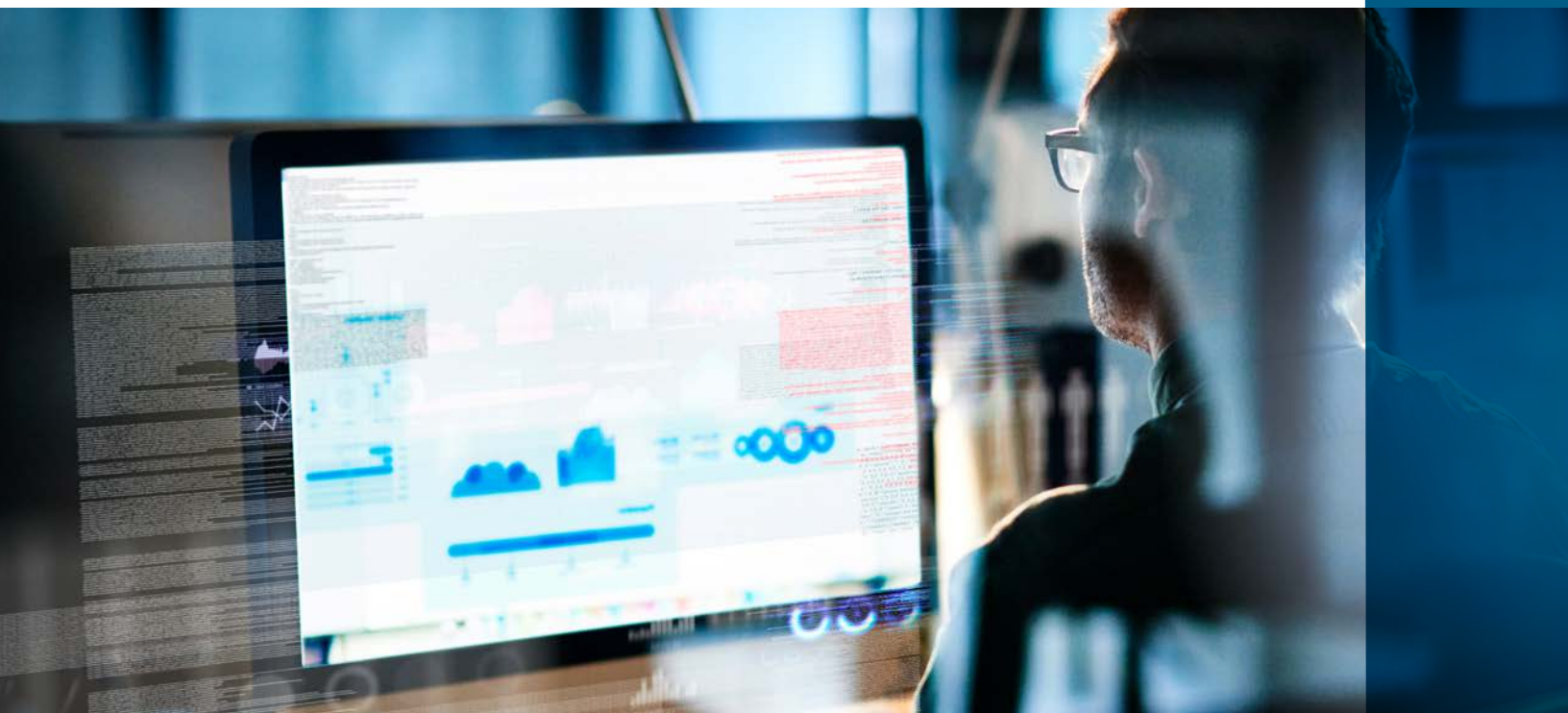
Facilitate Mortgage Funding

Mortgage standards minimize information asymmetry issues by providing investors with better confidence through precision and clarity in the data they use to make decisions, which can:

- incentivize the private label mortgage securitization market;
- reduce risk of systemic mispricing of risk and potential pricing overcorrection, particularly to asset/mortgage-backed securities;
- reduce the risk of adverse selection by increasing the investors' ability to measure credit risk, collateral value and prepayment risk;
- enable to better estimate credit risk, reduce prepayment risk dependency on guarantors and allow rating firms to make decisions; and
- attract an increased number of participants to the market as investors get a clearer view of the Canadian market and institutional investors get increased level of confidence.

Enhanced Analytics and Data Sharing

- The lack of data standards has played a significant role in restricting the availability, reliability and timeliness of housing finance data in Canada.
- Increased market intelligence and advanced analytics resulting from data standards would allow industry participants to:
  - make better decisions by accessing additional and better data;
  - answer key questions related to market trends; and
  - better assess risk.
- CMHC is building a housing data exchange to support decision making by industry participants by making standardized, real-time housing data available.
- The Mortgage Industry Data Analytics Application (MIDAA), the first application in the Data Exchange, joins multiple data sources, analytics and a variety of tools for financial institutions.
- The establishment of a common language will enable CMHC to provide more data, in both scope and granularity.



Introduction

With a rapidly changing mortgage landscape, the usability of data is imperative to further allow the application of digital services and facilitate the transformation of the Canadian mortgage industry, keep operating costs low, allow for advanced analytics and facilitate mortgage funding. As data sharing increases and technologies improve, data management is becoming even more crucial for businesses to maintain their competitiveness and innovate in this transforming market. In this context, data standards provide a high potential opportunity to enable the mortgage finance market in Canada to function at its best.

Having access to a system of data standards provides participants within the industry a reference that they can use in their own operations. This model provides the confidence that it is consistent and coherent within the context in which firms operate, including technologies, regulatory requirements and more.

From a housing system perspective, a convergence of data elements and definitions in the industry has the potential to stimulate a well-functioning mortgage market, ensuring that it remains stable and becomes more effective.

From a business operations perspective, there is a consensus from various industry participants that many data pain points currently exist during the process of either creating, funding or servicing a mortgage. Not only would a data standards program address these inefficiencies, but it also has a great potential of generating substantial annual savings for the lending and other entities involved in the mortgage life cycle.

CMHC knows that to reach its goal of everyone in Canada having housing they can afford and that meets their needs by 2030, it is essential to ensure that well-priced and reliable mortgages are available and that the housing and financial markets are stable. A full set of data standards would ensure that these definitions work for firms across the industry spectrum. An important note is that data standards would not determine what data is necessary, but only provide the definition that is commonly used in the industry. In other words, only after a business need is established would the data standards become relevant.

"For us, data standardization just makes sense." – Simone Tilley, General Manager Residential Broker, ANZ Bank

What are data standards?

Data standards are an agreed-upon set of data elements, data definitions and data relationships that make up a reference model that industry agrees to use at its own pace to facilitate the exchange of data. Data standards are proven successful in different countries across the globe. The most prominent example comes from the U.S.A., where the Mortgage Industry Standards Maintenance Organization (MISMO) was formed in 1999 and gained broad adoption in 2008-2010. In the case of MISMO, as in the Australian standard LIXI, a common language was agreed upon to facilitate exchanges of information in their respective mortgage finance industries. These standards are accepted across the industry and they are developed and maintained by the various entities involved in the mortgage life cycle.

Comparative analysis of automated fraud detection tool

	Citadel (Canada)	LoanSafe (U.S.)	FraudGuard (U.S.)	Hunter (U.K.)
Provider	Equifax	CoreLogic	Interthinks	Experian
Service provided by private sector	✓	✓	✓	✓
Data sharing on applications suspicious for fraud	✓	✓	✓	✓
Allows users to create customized rules for fraud detection	✓	X	X	✓
Data includes all available applications (past/present, suspicious for fraud/non-suspicious applications)	✓	✓	✓	✓
Widely used in the industry	✓	✓	✓	✓
Data includes detailed application information	X	✓	✓	✓
Matches applications and compares information in different applications	✓	✓	✓	✓
Matches application data with property information	✓	✓	✓	X
Provides a fraud risk score for each application	✓	✓	✓	✓

Operational efficiencies

Data management, which data standards greatly simplifies, is a key aspect of the mortgage lending process for all industry participants. The use of data standards can create cost reductions for firms on an ongoing basis. Even though costs are incurred in a transition to data standards, the cost-benefit analysis estimated $4 billion in potential annual savings across the Canadian industry from three of the specific benefits identified:

- Reduced required staff time by lenders due to higher-quality data: by 81 hours less per loan over the life of the mortgage
- Reduced loan processing times: by 2.9 days
- Fewer custom IT interfaces: by up to $1 million saved per year, per firm

The assessment also took into consideration the costs that may be associated with modifications to align with a reference model. From the experience in the U.S., the costs to update an existing data structure to align with the standards will depend on the size of the organization, the complexity of their legacy data system and the degree of difference between their legacy data structure and the standards structure. It also depends greatly on the speed of the transition as firms will be able to integrate a transition to data standards with other, pre-planned updates to their technology systems.

Isolating costs associated with a transition to a system of data standards was, however, nearly impossible for organizations that were consulted. Given the voluntary nature of data standards, firms were usually finding ways to optimize their transition for their individual needs and would align the transition along with other technology investments that were justified by business needs. The costs were therefore blended with other expenses that would have occurred without standards. Firms used the standards where and when it was beneficial to them and did not have an instantaneous transition for the purposes of adopting data standards.

The cost-benefit analysis was able to quantitatively estimate three benefit categories based on the U.S. experience with the MISMO data standards at US$25 billion. Expressing this in the Canadian context would put the benefits at $4 billion per year in annual savings across the Canadian mortgage industry (see table 1). Additionally, there were other costs savings that were identified during the consultations, but could not be estimated with a sufficient level of confidence. However, these could be as or more significant than the three quantified benefits. For more details on the costs and the benefits, see the full cost-benefit analysis.

Table 1. Estimated potential cost savings in Canadian mortgage lending processes

Benefit category	Annual benefit to Canadian industry
Reduced required staff time by lenders due to higher-quality data	$3.2 billion
Reduced loan processing times	$906 million
Fewer custom IT interfaces	$19 million
Reduced hedging costs	Unquantified
Reduced post-closing costs	Unquantified
Reduced development costs for technology providers	Unquantified

(CMHC calculations based on the cost-benefit analysis)

Ultimately, based on interviewees with U.S. mortgage industry experts, it was estimated that 23 person-hours less staff time were required for loan application processing.

Reduced post-closing costs

Post-closing comprises the quality assurance activities that need to be carried out before a mortgage is sold. During consultations in the U.S., interviewees suggested that data standards helped contribute to reducing the post-closing period by half. Given the differences between the Canadian and U.S. markets, this benefit is likely less consequential for Canada, given that, generally, less time is spent on post-closing activities. By improving the consistency and reliability of data, data standards allow for exception-based processing rather than a review of all data. Because data standards create a set of rules that help ensure the integrity of the data, lenders are required to review only those elements of the mortgage that do not pass a rules test.

One example of reduced post-closing activities due to the MISMO standards is the appraisal waiver program of the GSEs in the U.S. This program allows lenders to forgo requiring an appraisal on low-risk loans. This is a new program but is quickly growing, with Fannie Mae targeting 5% of their loans to use this program. Assuming Fannie Mae and Freddie Mac both achieve this target, the potential benefit is approximately $7.5 billion annually. As this program is still new and relatively small, the time savings are also not captured in the other benefit categories. Data standards, however, are not a sufficient condition to allow for appraisal waivers, but they are a necessary prerequisite. In other words, data standards are required for appraisal waivers, but do not automatically result in an appraisal waiver program. While this program is not applicable to Canada, it highlights the potential of having data standards to reduce post-closing activities.

Reduced development costs for technology providers

Data standards allow technology providers to build single integrations that can then be reused with any firm who builds to the same standard. This eliminates the need to create similar products for multiple firms. Technology providers have expressed that data standards allowed them to increase the scope of what they can apply their technology to and allow them to focus on building functionality instead of integrations. Potential alignment between the MISMO standards and the future Canadian standards could also potentially allow technology providers to adapt products they have created for the U.S. market to the Canadian market and vice versa.

"There's a need for data standardization to facilitate change more easily over time." – Simone Tilley, General Manager Residential Broker, ANZ

Canadian mortgage industry operational inefficiencies

From a survey conducted in the Canadian industry, we identified a number of data transactions that are problematic for various participants. These areas are identified as potential ways data standards could be most effective in alleviating business challenges and making the Canadian system more efficient and resilient.

- Lenders noted particular challenges in transmitting data to regulators. This issue has been greatly mitigated in the U.S. because of data standards as all federal housing agencies in the U.S. (HUD, FHFA, Fannie Mae, Freddie Mac, Ginnie Mae, etc.) are required by executive order to use the MISMO standards when they request data. This has greatly reduced confusion in the data requests from regulators as the data is asked for in the same language and same format that the industry is accustomed to. Additionally, the MISMO organization provides for efficiently structured discussion between the industry and regulators, particularly the GSEs, on data-related issues to ensure that all data exchanges are as frictionless as possible for both parties.
- Mortgage loan insurers have challenges in receiving property details, applicant details and estimates for renovations. All three areas are major components of the MISMO standard, with the mortgage insurance community of practice being one of the most active in the MISMO organization. The elimination of these issues has the potential to realize a number of the benefits discussed above, including reducing staff time at the mortgage loan insurers and reducing insurance processing times.
- Title insurers have challenges in receiving policy details. This is another area where data standards can provide consistency to the information that is being provided. Transaction type and policy type are two data points that are inconsistent across the industry but could have agreed-upon enumerations.
- Brokers have challenges in transmitting proof of deposit and source of funds as this information needs to be verified more than once. Other challenges exist with the financial status of applicants, appraised value of the property, and approved mortgage terms and conditions. Consistent requirements could reduce the number of interactions between lenders, underwriters, insurers and regulators.

In a transaction where one party experiences inefficiencies, both parties are negatively impacted.

In a transaction where one party experiences inefficiencies, both parties are negatively impacted even if the other party doesn't observe the inefficiencies. Therefore, organizations may not directly observe all the inefficiencies that negatively affect them. For instance, when brokers have challenges in transmitting proof of deposit, lenders are also indirectly affected. With data standards reducing the costs of doing business, we expect that some of these savings would be realized by both parties in the transaction. For major lenders who directly observe fewer of these inefficiencies, this could mean paying lower ancillary fees. Therefore, it is important for firms looking at understanding how data standards can affect their business operations to also consider how it can impact their business partners in order to fully capture their operational efficiency gains.

Facilitation of mortgage funding

Reducing risk premium lowers funding costs for lenders

The creation of data standards in the securitization market has the potential to significantly reduce information asymmetry between issuers and investors by reducing misunderstanding of the data and increasing the reliability of third-party credit rating agencies. Reductions in information asymmetry in the securitization market attract more investors and lower funding costs for lenders. The ability for the securitization market to function to its best resides in part in information transparency to all parties during the issuance of mortgage bonds and securities. As investors gain more confidence in their understanding of the assets they are purchasing and the risk they are taking, they become more willing to purchase more of the assets and accept lower risk premiums on their returns. For mortgage lenders, this means there may be an increase in the number of investors interested in purchasing mortgage-backed assets at competitive risk returns, resulting in continuous access to low-cost funding.

Reductions in information asymmetry in the securitization market attract more investors and lower funding costs for lenders.

An active secondary market, where investors can actively exchange RMBS, will reduce liquidity risk. This is especially important in the RMBS market where liquidity risk is in addition to default risk, as investors will price their ability to resell the security. If this risk is high and investors expect to have difficulty selling their asset due to low liquidity, they will require a higher risk premium to compensate. A viable secondary market in RMBS requires ready access to data on the underlying mortgages that is reliable, complete, consistent and current as pricing becomes more challenging as securities mature. In Canada, the secondary market is relatively small and could be reinvigorated if investors had access to the following:

- The information on securitized mortgages in the original offering documents, which are not always current and sometimes become less relevant with time.
- Consistent and clear loan-level data to strengthen the accuracy of models used by rating agencies to forecast credit risk.
- Data allowing investors to understand which borrowers are more likely to take advantage of prepayment options and more information on the location and condition of properties.

Even when investors in residential mortgage-backed securities (RMBS) have the technical capacity to assess credit and pre-payment risk, errors or additional risks may arise if there is a lack of clear data definitions, thus increasing the dependency on guarantors or the reputation of the issuers, and/or the opinions from rating firms. According to U.S. experts on the RMBS market, prior to 2008, there were no broadly accepted data standards in the mortgage industry, resulting in data loss and data obsolescence. This continuous uncertainty impacted the quality and consistency of the data to measure credit risk and thus the reliability of credit ratings.

Several factors exist that can potentially weaken the quality, consistency and completeness of mortgage data and thereby hinder the ability of investors and credit rating agencies to assess financial risk. For example:

- the originators of mortgages (banks, credit unions and mortgage brokers) may apply different definitions to comparable variables;
- the originators may omit to collect some types of information that are relevant to assessing the default risk, prepayment risk or collateral risk;

Enhanced analytics and data sharing

Improving data consistency allows for better availability

The establishment of a common language in the field of mortgage finance has the potential to increase data reliability and create better statistics on market trends, allowing policy and business decisions to be better informed. The lack of data standards (that is, the existence of multiple data terminologies and definitions across the mortgage industry) has restricted the availability, the reliability and the timeliness of housing finance data in Canada, therefore limiting the ability to produce analysis and market intelligence.

Through our mandate to contribute to the financial market efficiency and stability, we have been leading a number of initiatives to fill in housing finance data gaps since 2014. These projects consist in making use of existing regulatory and administrative data, as well as creating collection instruments to fill in the gaps and make them publicly available. Industry participants noted the lack of data as a key vulnerability for the industry.

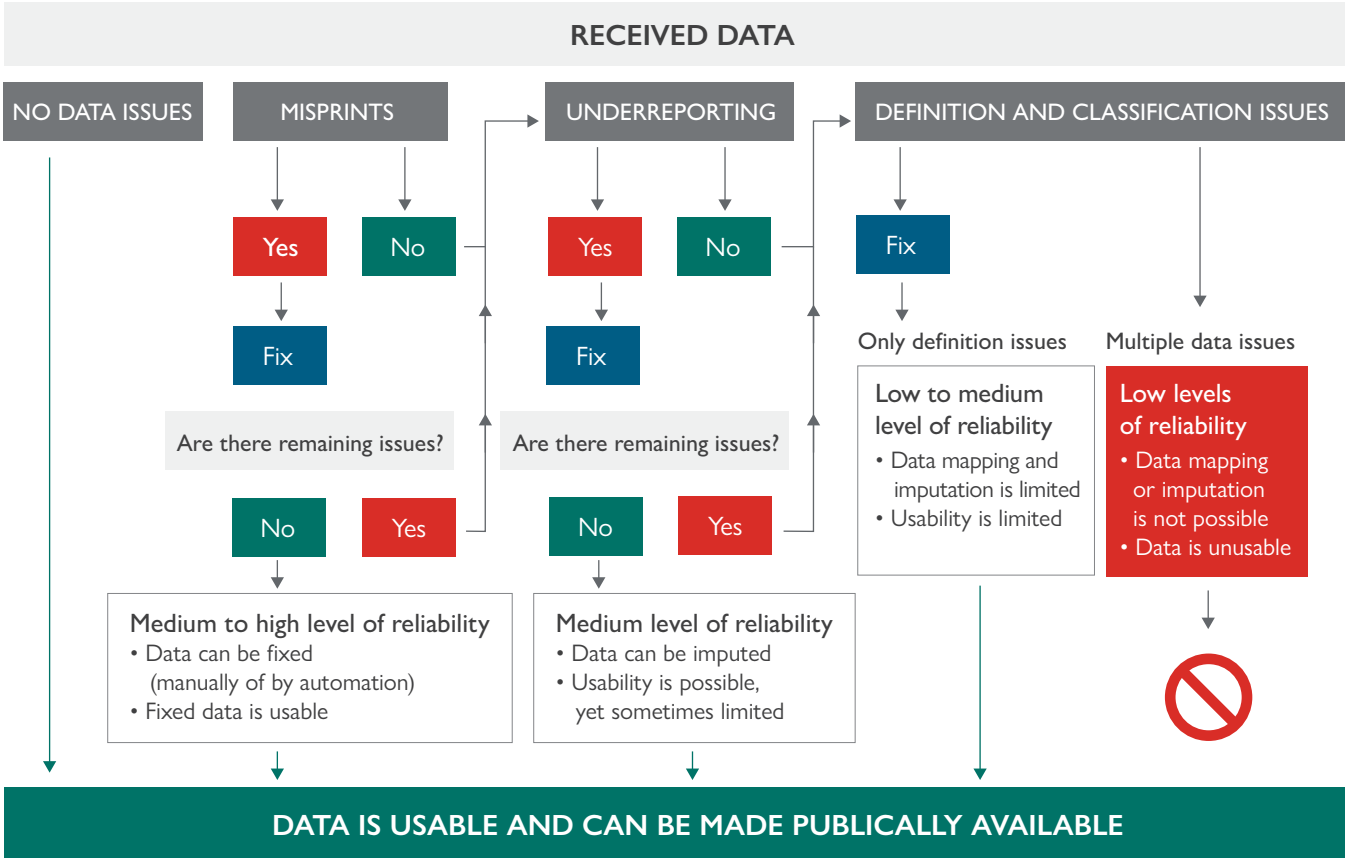
Across these projects, we have encountered considerable data issues and inconsistencies. Our deep dive into reporting, survey and administrative data have highlighted challenges for mortgage participants to provide accurate and consistent data. The reporting issues and inconsistencies were classified into three categories:

- Definition and classification inconsistencies: issues related to the underlying definitions of the data.
- Misprints: data issues related to data formatting or typos.
- Underreporting: refers to cases where the data is not complete or available. In the cases of aggregated datasets, data is not representative.

Definition and classification inconsistencies are the main source of data discrepancies and represent some of the most challenging issues to map correctly in order to enhance data quality. In cases of multiple inconsistencies found in one dataset, such as definition issues and underreporting, the data cannot be used, given the low level of reliability (see figure 4.1).

The lack of data standards has restricted the availability, the reliability and the timeliness of housing finance data in Canada, therefore limiting the ability to produce analysis and market intelligence.

Figure 4.1



Some challenges frequently observed in the variety of administrative and regulatory datasets include:

- Loan classification: some financial institutions classify loans as residential based on the usage of the property, others on the number of units and yet others based on the borrowers' characteristics. This is mostly the case for rental, multi-unit properties and mixed-use properties (for example, commercial and residential). If a loan is erroneously classified, the discrepancy affects the entire set of data, which limits the reliability and the ability to compare their portfolios and mortgage activity within the industry accurately.
- Flows: renewals and refinances, or purchases and sales are examples of inconsistent reporting that restrict benchmarking capabilities and access to accurate market intelligence.

Enhancing data quality and sharing improves anti-money laundering techniques: A use case

Consistent definitions increase the comparability and usability of the data. A clear use case was put forward recently by the Government of British Columbia, who released two reports on money laundering through B.C.'s real estate sector. The reports[25] highlight data sharing and data quality as the key potential enhancements to anti-money laundering techniques. Data is in fact the key to effective AML [anti-money laundering] prevention and detection efforts. The first report proposes a series of recommendations such as:

- a data-sharing framework that provides each agency with access to public domain data (including land data, data from federal and provincial agencies, and proprietary and confidential data) in a way that facilitates analysis and investigation;
- a comprehensive review of data sharing and confidentiality related to anti-money laundering activities; and
- mortgage lending businesses to maintain know-your-customer records and records of the source of mortgage payment funds from borrowers.

Nonetheless, the reports highlight poor quality of data as an impediment to such recommendations and a vulnerability in the system. As a concrete example, much of the data collected by the Land Title and Survey Authority is in a format that cannot be machine-readable, and most fields in its electronic forms are not reliant on drop-down options but rather,

[25] "Combatting Money Laundering in BC Real Estate" and "Turning the Tide - An Independent Review of Money Laundering in B.C. Real Estate, Luxury Vehicle Sales & Horse Racing".

allow an applicant to enter any text or figures they wish. This makes it difficult to conduct the sort of analysis that could identify suspicious transactions and patterns.

Data standards can increase the effectiveness of anti-money laundering techniques by:

- increasing the effectiveness of data accessing and data sharing when all the data is under a commonly understood format and commonly understood definitions;
- ensuring that a data-sharing framework is understandable by all parties and connects data in a way that makes the information useful;
- increasing access to and tracking of borrower information; and
- reducing the need for more intervention to protect against money laundering.

Unlock the potential of advanced analytics

Quality and consistency of data continue to be an impediment when attempting to build analysis, especially as features are automated and produced in a timelier fashion (now nearing real time). In the current context, advanced analytics tools require tailoring to each system's data structure, which limits data interoperability and leads to high development costs. These tools can provide highly valuable insights for decision makers and increase the accessibility to business analytics, but these high costs to adopt often reduce added value of those potential tools when evaluated in isolation. A broader approach to data alignment can accelerate this process and streamline adoption. A few examples of advanced analytics applications that were partially facilitated by an industry-wide coordination on data alignment include the following:

- *CoreLogic* in the U.S. offers a data-enabled software platform, which cultivates a broad range of data sources and provides a wide range of data and analytics services, including consumer, financial and property data.
- *Biopharmaceutical Data Exchange* supports research and development data sharing between participant companies by connecting de-identified clinical and preclinical information through a single platform. In addition to deepening research insights, this app has led to increased confidence in early decision making.

CMHC's investment in advanced analytics

As part of its corporate strategy, CMHC has targeted the building of a housing data exchange as a key pillar to achieving our affordability mission. The vision is to improve housing affordability by making standardized, real-time housing data available, hence improving decisions among industry participants. More specifically, CMHC's Data Exchange is a suite of applications and analytical tools, each targeting a specific housing market participant and addresses their decisions and information needs.

The Mortgage Industry Data Analytics Application (MIDAA) is the first application launched as part of the Data Exchange program, which is exclusively intended for financial institutions. Through this application, CMHC is currently providing two products:

- *Mortgage 360* is a benchmarking tool, allowing financial institutions to compare their data with industry trends, which includes real-time data and different analytical views. This product is expected to be progressively expanded through user input and the inclusion of additional data fields and sources.
- *Securitization Analytics* is an investment analytics product focused on securitization data. This product provides analysts with the ability to assess the potential performance of mortgage pools. The tool was developed to meet the particular interests of investors and institutions that issue mortgage-backed securities.

By joining multiple data sources, analytics and a variety of tools, MIDAA's objective is to allow participants in the mortgage finance industry to make better decisions by accessing additional and better data. Making use of housing finance data allows CMHC to provide the opportunity to establish consistent and expandable data architecture and structure within our ecosystem. Data standards can enable us to provide more data, in both scope and granularity, thus increasing access to publicly available quality statistics on the state and trends of the Canadian mortgage market.

CMHC's Data Exchange is a suite of applications and analytical tools, each targeting a specific housing market participant and addresses their decisions and information needs.

The path to the initiation of a mortgage data standard in Canada

Given the results of our research and the potential of the system of standards, not only to solve some of the current frictions in the system, but also to enable the transition to the future, we are looking into the options to initiate such system in Canada. To achieve this, there are known challenges and opportunities, notably in how to leverage existing mortgage data standards to accelerate developing the Canadian version, and in how to establish a governance structure that provides clear rules of engagement for this coordination effort by all industry participants.

Developing the standard

One of the key challenges in the initiation of a data standard in Canada will be to develop all the supporting materials in an effective and comprehensive manner. Data standards would typically provide a range of documents including the following:

- Plain language data dictionaries
- Machine-readable data dictionaries (XML, JSON, UML, etc.)
- Business process-specific user guides
- Training and education materials

These materials would cover, eventually, the entire mortgage industry spectrum. MISMO has 32 communities of practice that cover business areas such as servicing, origination, property valuation and emerging technologies. LIXI has 18 standards that cover aspects such as settlements, title insurance, credit applications and valuations. The discussion on Canadian mortgage industry operational inefficiencies in the operational efficiency section provides an idea of which areas Canada could target first for data standards.

The development of these standards can be greatly accelerated in Canada by leveraging documentation and models found in existing mortgage industry data standards. To assess the adequacy of the MISMO model for the needs of the Canadian industry, CMHC commissioned a study evaluating the alignment of the MISMO model with CMHC's data models and a selection of other firms. The study found that the Canadian mortgage industry data aligns well with the MISMO model, but there are some concepts that are not in the MISMO model. However, these missing terms are not inconsistent with the structure of the MISMO model and could be added. Therefore, Canada could benefit from using the MISMO model. CMHC continues to explore ways to facilitate an easy development process for data standards in Canada.

The development of these standards can be greatly accelerated in Canada by leveraging documentation and models found in existing mortgage industry data standards.

Governance model: defining rules of engagement that work for all for an effective collaboration

The second key challenge in creating an industry-wide data standard will be to establish an effective governance framework. This framework would outline roles, responsibilities and processes that structure the creation and maintenance of data standards. It must appropriately and reliably gain input from all industry participants. While data standards can be developed without this framework at the initiation of a system of standards within an industry, it typically becomes rapidly vital to have an overarching framework and processes to maintain and scale the standards to an industry-wide tool.

CMHC has begun to outline the key considerations that need to happen by comparing existing models, including from MISMO, LIXI, FIBO, other standards in the finance industry and from standards organizations outside the finance industry. Considerations include legal questions (ownership, privacy, etc.), the development process, the approval process, the personnel appointment process, resource management, etc. Key to this research is understanding the potential to house this coordination function within an existing organization and to understand mortgage industry participants' views on the questions.

To facilitate this process, following the release of this report, CMHC will hold a series of conversations with mortgage industry participants to determine how a governance model can be established that functions best for the unique makeup of the Canadian mortgage industry.

Conclusion

In pursuit of our ambitious housing affordability goal, we are seeking solutions that contribute to fostering an efficient mortgage finance system. This report demonstrates that data standards have the potential to provide the Canadian mortgage industry with a number of substantial benefits that lead to improved financial stability and to efficiency gains across the mortgage lending process by:

- providing the foundation for sector-wide innovations in the mortgage market that allow for easier and faster adaptation to new technologies;
- reducing operating costs associated with and caused by inefficient data exchanges;
- providing lenders with additional cost-competitive funding options by increasing investors' confidence in the securitization market; and
- allowing businesses, regulators and policy makers to base decisions on enhanced analytics that provide comprehensive insights.

The research has also found that, while there are costs to transition to data standards, the operational benefits alone could be sufficient to offset the costs within a five-year time frame for all firms, including those with complex legacy IT systems. We also found that firms usually conduct a phased transition to data standards that focuses on the most beneficial business areas.

Indeed, from the experience we have observed in the U.S., there are different paths to the adoption of data standards that can mitigate the transition costs:

- Firms typically performed transitions to data standards along with other technology investments that are justified by business needs so the costs are, therefore, blended with other expenses that would occur regardless of the data standards transition.
- Data standards provide a reference for any technology transformation to start with, which can sometimes save time and effort.
- Even without modifying systems, data standards can generate gains as a single reference to map against, which makes all data exchanges more aligned.
- Firms that already use modern technologies are able to adopt with minimal efforts.

Taken all together, there are benefits that can be generated in the short term by solving existing frictions in the mortgage system, providing cost savings and improving decision making. The data standards' value becomes much greater when looking into the future, where technological changes will be ongoing and necessary. These benefits are both at the institution level providing tools for firms to focus on their core business and service, and at the system level providing tools for regulators, investors and other decision makers to evaluate the full picture with more clarity. For CMHC, these benefits are one of the conditions to achieving our aspiration to see everyone in Canada having access to a home they can afford and that meets their needs.