

State of InsurTech Report

Technology, Data and Automation in British Columbia's Insurance Industry

Insurance Council
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Glossary of Terms

FOR THIS REPORT

Terminology	Description
AIDA	The Artificial Intelligence and Data Act
AMF	Autorité des marchés financiers is mandated by the Government of Québec to regulate Québec's financial markets and assist consumers of financial products and services.
BCFSA	British Columbia Financial Services Authority regulates the financial services sector in British Columbia.
Captive salespeople	Individuals who sell products on behalf of one insurer or a direct writer (includes life, general and accident and sickness insurance).
Insurance broker (broker)	Individuals who sell products from multiple insurers, representing the client (includes life, general and accident and sickness insurance).
Managing general agent	An organization contracted to perform functions such as underwriting, binding, policy administration, claims, and distribution, on behalf of insurance companies.
Sales professional	An umbrella term used specifically in this report for any individual working in insurance sales or advisory, regardless of their employment or contract type.

TECHNOLOGY

Terminology	Description
Aggregator website	Aggregators or comparison websites compare prices and policies across the market.
Algorithm	Automated instructions used in underwriting to automate case-by-case risk assessment.
Application Programming Interface (API)	APIs integrate external data sets into an underwriter's underwriting engine.
Artificial intelligence	Programming capable of reasoning with structured and unstructured data to identify trends and self-improve.
Distributed ledger technology	Technology such as blockchain provides secure and transparent platforms for storing and sharing insurance-related data.
Geo analytics	The analysis of geographic data to assess location-based risks.
Image recognition	Used to analyze visual data, such as property images or social media posts.
Insurance technology	The innovative use of technology in insurance.

Terminology	Description
Machine learning	A subset of AI that can learn from structured data sets to improve algorithms and make insights over time.
Predictive analytics	A form of algorithm that forecasts future events based on historical data.
Social media analytics	Analyzing social media data to understand individual or overall customer data.
Telematics	Gathers real-time data from connected devices, such as vehicle information.
Wearable devices	Collecting data from wearable technologies, such as fitness trackers.

DATA TYPES

Terminology	Description
Big data	A combination of structured, semi-structured and unstructured data that organizations collect, analyze and mine for information and insights.
External data	Data sourced outside interactions between a customer, their broker and their insurer.
Open data	Digital information available with the technical and legal characteristics necessary for it to be freely used, reused, and redistributed by anyone, anytime and anywhere.
Structured data	Data that has a standardized format for efficient access by software and humans alike.
Third-party data	Information collected by companies that don't have a direct relationship with a consumer, often sourced through purchase or a contractual arrangement.
Unstructured data	Information with no predefined model. Unlike structured data, unstructured data lacks a consistent format and includes texts, images, videos and other mediums.

Executive Summary

BACKGROUND

The global insurance industry is changing. Evolving consumer buying patterns coupled with technological advances in every industry are driving opportunities and demands for new insurance products and services that are more accurate, more efficient, and better priced than what was historically achievable.[1] Insurance technology (InsurTech) is one of the ways the industry is responding to these shifts, enabling organizations to meet evolving consumer needs through automation and improvements to systems processing. However, while these advancements enhance efficiency and effectiveness across insurance distribution, underwriting and adjusting, they also introduce consumer risks that may not be captured in Canada's current regulatory frameworks.

In distribution, insurance can now be purchased online in minutes. No longer must online consumers answer complex quoting questions. Instead, distributors use technology such as APIs and algorithms to automatically gather and process information from external sources, removing quoting questions, saving time and providing instant verification of information gathered during the quoting process.[2] However, the absence of sales professionals may lead to consumers misunderstanding the insurance products they purchase, sometimes resulting in inadequate insurance coverage.[3]

Underwriting processes are becoming more automated, particularly for personal lines.[4] Many insurers are connected to enormous external data streams. They use artificially intelligent algorithms to analyze multiple diverse risk variables, drawing correlations between data sets that are too complex for human underwriters to identify on their own.[5] While this is creating efficiencies and improving the accuracy of pricing decisions, it can also lead to underwriting biases and unfair treatment of customers as machines make statistical decisions based on complex data interactions that have no probability and are too complex for human underwriters to understand or explain.

In claims adjusting, predictive analytics, image processing, algorithms and machine learning are streamlining information intake and improving claims processing speeds. However, there are global examples of algorithms and other technologies being used to mass-deny simple claims.[6]

InsurTech poses opportunities and risks to the modern insurance customer. To manage these risks, regulators must first be able to measure them. This requires a fulsome understanding of the scope and scale of InsurTech uptake in Canada, as well as a measurement of how exposed Canadians may be to the potential risks associated with InsurTech.

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1 Kaesler, Simon. Lorenz, Johannes-Tobias, "The Multi-Access Revolution in Insurance Sales"; McKinsey & Company, "How Top Trends Will Inform Insurance."
2 Insurance Council, "InsurTech Interviews."
3 Insurance Council, "Code of Conduct."
4 Dalen, Van Britton, Cusick, Kely. Ferris, Andy, "The Rise of the Exponential Underwriter"; Insurance Council, Léger, "InsurTech Survey."
5 Insurance Council, "InsurTech Interviews"; The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection and Innovation," 21.
6 Toronto City News, "Cigna Health Giant Accused of Improperly Rejecting Thousands of Patient Claims Using an Algorithm".

ABOUT THIS REPORT

This report identifies the scope and scale of InsurTech and automation in Canadian insurance distribution, underwriting and adjusting. The report examines what technologies and practices are being used (scope), the extent they are being used (scale) and the risks associated with them. This report aims to provide regulators with an evidence base for future work. The report aims to:

- Provide a quantifiable breakdown of the insurance distribution models used in Canada (sales channel usage and the percentage of sales per sales channel);
- Identify the extent sales professionals are involved in online insurance sales;
- Identify current InsurTech-related practices, automation levels and technologies in distribution, underwriting and adjusting;
- Identify and measure consumer risks associated with current technology levels and practices, and;
- Explore options that provide a starting point for future regulatory consideration.

To meet these objectives, the Insurance Council undertook a multi-staged research project that consisted of:

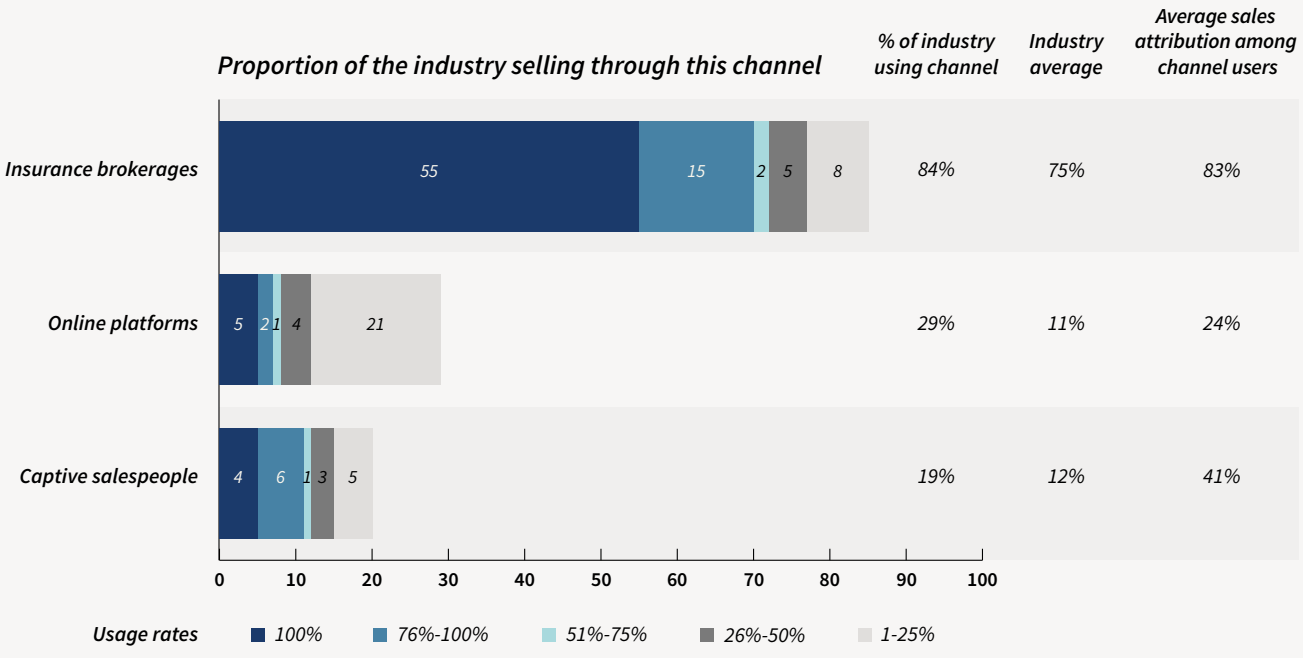
- **Industry survey**—598 responses from executives representing companies across Canada in insurance distribution, underwriting and/or adjusting;
- **Industry consultation**—interviews with 22 organizations, consisting of brokerages, managing general agents, insurers, direct writers, and industry associations; and
- **Online research**—literature reviews, reviews of other studies and a study into online insurance product availability.

FINDINGS

Humans lead insurance distribution channels

The report measured the extent that Canadian companies use insurance brokers, online distributors and captive salespeople to distribute their products.

Q) What percentage of your organization's sales would you attribute to the following channels?



Source: Insurance Council, Léger, "InsurTech Survey".

According to the survey, human involvement dominates automation in insurance distribution across every metric measured. In particular, brokers lead insurance distribution. That is:

- More companies distribute through brokers than both other channels combined;
- Almost all (92%) of policies sold are sold through brokers, and;
- Companies that use brokers are more likely to use brokers as their main channel, with fifty-five percent of companies that use brokers doing so for every sale (only 5% of companies that use online platforms do the same).

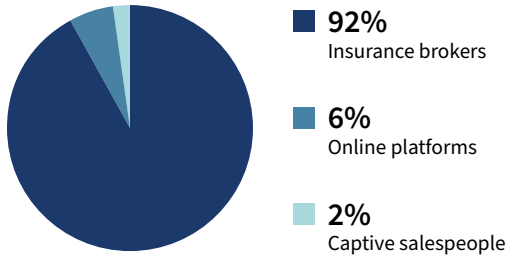
The average company in the industry attributes three quarters (75%) of their sales to brokers, compared to 11% for online and 12% for captive salespeople. When examining company behaviour, the average company using brokers attributed most (83%) of their sales to that channel, while the average company who used online platforms attributed 24% of their sales to their online channel. This means that more companies are using brokers more frequently to distribute insurance than any other channel, even amongst companies that use multiple channels.

Most policies are sold through sales professionals

As part of the industry survey, companies were asked about the number of policies they sold annually and the proportion of sales they attributed to each distribution channel. Results were aggregated across the industry.

The findings indicate that almost all (94%) policies are sold by human sales professionals while very few (6%) are sold online. While only half of survey respondents answered this question, the data strongly suggests that humans, and in particular brokers (accounting for 92% of policy sales), sell most insurance policies in Canada.

Portion of polices sold per channel



Source: Insurance Council, Léger, "InsurTech Survey".

Consumer behaviour

One of the reasons why online sales are low could be that Canadians are less likely to buy insurance online than other developed countries such as Australia, France, Germany, the United Kingdom and the United States, as well as less developed countries such as India and Indonesia.[7] While the multi-national study used here is from 2018, the Insurance Council's recent survey suggests that online channels in Canada have not grown more than broker channels in the past five years.

Technology uptake and automation is widespread, but not entrenched

According to the survey, technology and automation are widespread and used by most distributors, underwriters, and adjusters. However, technology and automation are not deeply entrenched in everyday practices. On occasions where technology is used, it is generally to support human-led activities, such as automating quote calculation during the sales process, or triaging claims for human review in adjusting. While there are some companies that mostly or completely automate their processes, especially in sales and underwriting, they are the exception, not the rule.

7 Facebook IQ, "Understanding the Journey of the Connected Insurance Consumer."

Sales processes are mostly human-led

Technology is rarely used to replace the primary role of sales professionals, which is to inform customers, quote and bind policies. Most of the industry (96%) have a sales professional speak with consumers before binding an insurance policy, even if the consumer completes the transaction online. Very few (4%) companies have straight-through processing with no agent involvement or callback.[8]

Information intake

In terms of information intake, most of the industry (83%) have sales professionals asking quoting questions. Seventeen percent of companies automate this process through online quoting questions, which, according to industry interviews, are often augmented with external data.[9]

Quote calculation

Most (81%) of the industry automates aspects of quote calculation, mostly through quoting calculators (64%) or through their fully automated online quoting platforms (17%).

Lead generation

According to the industry survey, Companies predominantly use human-led methods to generate leads. Phone calls, emails and storefronts are the main forms of *primary* lead generation; companies who use these methods do so for the majority of their leads. While the use of company websites, social media, chatbots and aggregators is present, industry is less likely to use them as their main form of lead generation.

Although the Insurance Council is unaware of any global studies in automation levels within insurance sales, evidence suggests that Canadian practices are more human-based compared to comparable developed countries (e.g., 6% of companies use aggregators in Canada, as opposed to 50% of all policies being sold through aggregators in Europe.[10]

Underwriting is mostly automated

Underwriting is the most automated part of Canada's insurance industry. Almost all (88%) underwriters automate underwriting to some degree.

The most common form of automation is basic rules-based algorithms, used by three-quarters of the industry (76%). These basic algorithms automate the case-by-case nature of risk assessment and are based on underwriting rules entirely set by people. In most instances, these algorithms are developed by software engineers in consultation with underwriters. They rely on proven causational risks where an increase in one variable has a proven link to a risk rating.

A further 13% of the industry use artificial intelligence in their underwriting, whereby their systems analyze large structured and unstructured data. These systems find correlations within data and assign statistical risks between data variables. However, findings sometimes lack provability. These systems also self-improve over time, sometimes without the involvement of their system developers.

Human review

The research measured how involved humans are in reviewing underwriting decisions. The majority of surveyed industry (64%) had humans reviewing the case-by-case outputs of underwriting decisions, while 36% do not.

Technology involved

Canadian underwriters are using a wide scope of technology and data to underwrite their policies. Technologies and data sources being used that are of regulatory interest include:

- **APIs**—used by 64% of underwriters to gather external data and link systems for underwriting;
- **Machine learning**—used by 23% of underwriters to analyze and learn from structured data;
- **Telematics**—used by 19% of underwriters to gather '"live" data from connected devices;

8 Insurance Council, Léger, "InsurTech Survey."
9 Insurance Council, "InsurTech Interviews."
10 Statistica, "Market Share of Insurance Aggregator Websites of Total Motor Insurance Direct Sales in Europe in 2017, by Country."

- **Artificial intelligence**—used by 13% of underwriters to reason and analyze vast data sources to identify correlational risks and self-improve;
- **Open data**—used by 46% of underwriters to incorporate freely accessible information, often scraped from open-source government databases, into their underwriting engines, and;
- **Social media data**—used by 15% of underwriters in things such as risk profiling.

Artificial intelligence and machine learning are of particular regulatory interest. These technologies allow systems to self-improve and make decisions without human involvement, often drawing on variables too complex for humans to understand or explain. They can identify patterns and relationships within data to find causational correlations between data variables. While this greatly increases individual underwriting accuracy and personalization, it can also lead to false and unprovable risk profiles and, in some cases, create discriminatory proxies and biases against particular groups.

A full list of technologies used in underwriting is available in the underwriting section of this report.

Technology and automation are low in adjusting

Automation and technology use in adjusting is low, but on a spectrum. Complex claims require more human review, while simple claims may have automation in triaging. Most companies (60%) said their adjusters are most likely to conduct claims assessments themselves with little to no automation or technological support. Only 4% said they fully automate their claims assessment in most cases.

Information intake

Most companies use manual information collection methods such as paper documentation (used by 86% of companies). However, technology is still being used. Sixty-four percent of companies said they use any form of technology for information intake, mostly through photo submissions, video submissions and claims management platforms. A further 30% use telematics information, while 22% review social media to collect information.

Information processing

Only 54% of adjusters surveyed said they use *any form* of technology to process information, with the most common forms being predictive analytics (31%) and algorithms (28%), often used to triage claims and fast-track simple claims.[11]

CONSUMER RISKS AND OPTIONS

This report identifies 13 consumer risks associated with InsurTech. The report ranks them on a severity scale of 1-9 based on their level of impact on consumers and the likelihood that a potential risk could occur.

Most of these risks, such as underwriting bias and poor consumer education, existed before the arrival of InsurTech or online insurance sales. However, InsurTech introduces new dimensions to these risks, particularly in the way they are introduced into insurance processes, with these new dimensions often not captured in traditional insurance-focused regulatory frameworks.

The most severe risks identified in this report are in underwriting. This is predominantly due to the higher uptake of technology and automation in underwriting compared to insurance distribution or adjusting. With each risk, the report proposes a principle regulators may wish to strive for, as well as an option for further consideration to implement this principle.

11 Paczolt, Michael, "Using Predictive Analytics and AI in Insurance Claims."

InsurTech consumer risks by severity

Activity affected	Risk type	Severity rating		
		Potential impact	Likelihood	
All	Information breaches	High (3)	Moderate (2)	High risk 6/9
Distribution	Out-of-province sales (unlicensed)	High (3)	Moderate (2)	
Underwriting	Discrimination, unfair practices and bias in underwriting decisions	High (3)	Moderate (2)	
Underwriting	Lack of underwriting transparency and explainability	High (3)	Moderate (2)	
Underwriting	Affordability issues in individualized underwriting	Moderate (2)	Moderate (2)	Moderate-high risk 4/9
Underwriting	Data inaccuracy	Moderate (2)	Moderate (2)	
Adjusting	Potential misuse of social media data	Moderate (2)	Moderate (2)	
Adjusting	Automated analytics in claims	Moderate (2)	Moderate (2)	
Distribution	The discrepancy in consumer protection standards between online and traditional sales channels	High (3)	Low (1)	Moderate risk 3/9
Distribution	Misrepresentation by aggregator websites	High (3)	Low (1)	
Distribution	Chatbot inaccuracy and liability	High (3)	Low (1)	
Distribution	Poor consumer education	High (3)	Low (1)	
Underwriting / adjusting	Telematics influencing behaviour and impacting information privacy	Moderate (2)	Low (1)	Low risk 2/9

1. Introduction

1.1 OVERVIEW

The global insurance industry is evolving. Global innovations in technology, changing climates and shifting consumer demands post the COVID-19 pandemic are transforming the way societies and industries operate, placing new demands on insurance products and distribution methods. The insurance industry is also experiencing its own specific shifts. Technological advances such as Application Programming Interfaces (APIs) and Artificial Intelligence (AI) are, among other technologies, allowing companies to access and analyze big data to automate and improve the accuracy and efficiency of their practices across insurance sales, underwriting and adjusting. This confluence of global change and new insurance-industry-specific capabilities is disrupting every part of the insurance value chain, spurring new practices with consumer benefits and risks that are not always encapsulated in current regulation, with many regulators around the world rushing to catch up.[12]

In sales, global consumers are demanding convenience in the form of online or multi-channel insurance distribution.[13] Insurance can be purchased online in minutes, opening up access to consumers in geographically distant areas as well as those who prefer to self-educate and shop online. However, the lack of sales professional involvement can lead to misunderstandings about product coverage or a lack of coverage when consumers provide incorrect information to quoting systems.

In underwriting, the integration of new data streams, APIs and AI is empowering insurers to make timely, automated, accurate and highly personalized risk assessments.[14] Technology is removing humans from underwriting workflows. AI-based algorithms are drawing correlational underwriting risks based on enormous data sets that are too complex for humans to understand. This creates efficiencies but also creates the potential for underwriting biases, unfair treatment and problems explaining individual pricing and underwriting decisions.

In adjusting, predictive analytics, algorithms and image processing are allowing machines to pre-screen cloud-based information that would otherwise be reviewed by adjusters, allowing firms to triage and fast-track the claims process. However, there is the risk of adjusting algorithms to mass-deny claims.

All of this is happening in Canada,[15] albeit at a slower rate than markets such as Europe, Asia, the United Kingdom and Australia.[16] According to the Insurance Council of British Columbia's (Insurance Council) research, Canada's insurance industry has widely adopted technology across most aspects of insurance distribution, underwriting and adjusting, but technology is not deeply entrenched in everyday practices. On average, most workflows are still led by humans, with technology used to support rather than replace human judgment. The discrepancy between Canada and other parts of the world is an opportunity for regulators to identify current

12 Waters, Paige. Macro, Stephanie. "Lock Lord Quick Study Artificial Intelligence Regulation in the Insurance Industry – 2023 a Year in Review."
13 Kaesler, Simon. Lorenz, Johannes-Tobias, "The Multi-Access Revolution in Insurance Sales."
14 Ibid.
15 Insurance Council, Léger, "InsurTech Survey."
16 Dietz, Miklos. Jeenah, Uzayr. Opeyemi, Otubela. Yue Seng, Emily. Zahid, Ammar "Springtime for Canada's Fintech Industry."

industry practices in Canada and look to other Insurance Technology (InsurTech) markets on how to fill consumer protection gaps before they become more prevalent in Canada. To do this, **regulators must understand current Canadian insurance industry practices, what technologies are being used to automate them and what consumer protection issues exist.** However, the current scale and scope of InsurTech in Canada is not known. To solve this problem, the Insurance Council set out to create an evidence base of current industry practices in Canada to inform future policy and regulatory considerations.

1.1.1 This report

The Insurance Council regulates and licenses life and general insurance agents, agencies, salespersons and adjusters in British Columbia. As part of its 2024-2026 Strategic Plan, the Insurance Council has a priority to "modernize regulatory oversight to keep pace with changes in the insurance marketplace and support industry transformation."

Currently, industry and regulators do not understand the full scale and scope of InsurTech in Canada, with many industry executives answering "not sure" when surveyed with questions regarding InsurTech.[17] The goal of this report is to provide regulators with a starting point for future work by identifying this scale and scope. Namely, what technology is being used in Canada, the extent it is being used and how it is changing and automating industry practices across insurance sales, underwriting and adjusting.

The objectives of this report are to:

- Provide a quantifiable breakdown of the insurance distribution models used in Canada (sales channel usage and the percentage of sales per channel);
- Identify the extent to which sales professionals are involved in online insurance sales;
- Identify current InsurTech-related practices, automation levels and technologies used in distribution, underwriting and adjusting;
- Identify the primary consumer protection gaps related to technology uptake and industry practices; and
- Explore options that provide a starting point for future regulatory consideration to better protect consumers against InsurTech-related consumer risks.

Methodology

The Insurance Council developed a multi-staged approach to this project to create an evidence base of InsurTech and process automation in Canadian insurance. The approach consisted of multiple primary and secondary research methods. Table 1 describes the methods used.

Report structure

This report contains five parts:

1. Sales channels used in Canada;
2. Process automation in insurance distribution;
3. Technology, data and automation in underwriting;
4. Technology, data and automation in adjusting, and;
5. Risks and options.

1.1.2 Brokers, captive salespeople and sales professionals

This report uses the terms insurance broker, captive salespeople, and sales professionals to differentiate between individuals who work in insurance sales. To ensure they are relevant across Canada, definitions are not linked to licence types used by the Insurance Council. These definitions are:

- **Insurance brokers (brokers)**—individuals who sell products from multiple insurers, regardless of product type.
- **Captive salespeople (salespeople/ salesperson)**—individuals who sell products on behalf of one insurer or a direct writer, regardless of product type.
- **Sales professionals**—an umbrella term for any individual working in insurance sales or advisory.

17 Insurance Council, Léger, "InsurTech Survey."

Table 1: Research methods

Research method used	Description	Sample size
Industry survey: The InsurTech survey (primary research)	• The Insurance Council procured Leger, a professional services firm, to conduct a survey of insurance businesses across Canada. The criteria for being included in the survey was that the business must have the authority to operate in BC (e.g., a broker agency or an authorized insurer). Many companies were based across Canada. • Executive-level participants completed the survey on behalf of their company. • 26 questions focused on what technologies are being used, and what the level of automation is, across insurance distribution, underwriting and adjusting. • The survey also asked participants for their total number of sales and their number of sales per channel, to enable an estimate of the proportion of sales per distribution channel in Canada. ***Limitations*** • **Double counting:** The survey asked participants for the proportion of policies sold per sales channel. There is room for some overlap in responses. For example, an insurer may distribute through a broker network. If that broker network also responded, the weighting towards broker-based sales would be higher. The survey mitigated this by asking additional questions about sales preferences, growth and practices. Every question returned similar proportions of human involvement vs. online sales platforms. While there is room for overlap, the results holistically strongly indicate a preference for brokers within the industry. • **Renewals included:** New sales and renewals were kept together in the analysis to assess the overall risk pools associated with human vs online sales (e.g., how many policies are in each pool) on the basis that a risk presented in a policy purchase (such as an incorrect policy) would be present in its renewal.	• 598 of 8,852 targeted companies completed the survey (7% response rate). This consisted of: – 577 insurance distributors – 71 underwriters – 33 adjusters. • Some companies worked across segments (distribution, underwriting and adjusting). • Results were classified and aggregated on an industry level—the Insurance Council did not see individual results.
Industry consultation (primary research)	The Insurance Council conducted industry interviews with insurers, brokerage firms, managing general agents and industry associations to identify what technology is being used, how technology is being used and any consumer protection issues.	22 organizations (8 insurers, 5 online brokers, 4 brokerages, 4 industry associations)
Customer point of view analysis (primary research)	Researchers input information into 21 online websites to see what could be purchased online with: • Straight through processing (payment online with no sales professional callback) • Sales professional involvement (payment online/over the phone with sales professional callback) • A quote and referral to another distribution channel.	21 online platforms: • 10 brokerage firms • 8 insurers • 3 aggregator (comparison) websites

Research method used	Description
Online research (secondary)	• Literature review of insurance technologies and industry practices across the globe and in Canada. • Review of global regulator practices. • Review of regulations applicable to BC.
Consumer protection issues	The Insurance Council developed a risk matrix (refer to section 6 of the report). Risks were rated based on their likeliness to occur, which was evaluated by quantitative information gained through the InsurTech survey, and by the risk severity, which was evaluated through interviews and online research.

1.2 WHAT IS INSURTECH?

InsurTech is not just about insurance. Nor is it just about technology. It is about the convergence of the two in every aspect of the business. Looking at the list of attendees for the 2023 InsurTech Connect events in North America and Asia—some of the largest InsurTech events in the world—it is clear that InsurTech is more than insurance-specific technology. InsurTech Connect Las Vegas saw well-established insurance companies attend alongside tech-driven software start-ups, technology giants such as Google, telematic companies and organizations offering support for anything from cloud computing and human resources to loyalty programs.[18]

1.2.1 Definition

This report adopts the United States National Association of Insurance Commissioners (NAIC) definition, which defines InsurTech as "the innovative use of technology in insurance."

The NAIC's definition, which is supported by law firms[19] and investment websites[20] is both newer and broader than traditional definitions from organizations such as the Organization for Economic Cooperation and Development, which in 2017 defined InsurTech as "new technologies with the potential to bring innovation to the insurance sector." Some of the most used technologies in Canada's industry—such as APIs—have existed since the 1960s but are only now gaining widespread uptake as they integrate with other technologies and data streams. Therefore, a newer and broader definition is applied to this report.

18 InsurTech Connect Vegas, "Attending Companies."
19 Norton Rose Fulbright, "Insurance Focus 2017."
20 Hargrave, "Overview of InsurTech and its Impact on the Insurance Industry."

2. Sales Channels Used in Canada

2.1 CHAPTER OVERVIEW

One of the core objectives of this report is to provide a quantifiable breakdown of the distribution models used in Canada. This chapter examines three distribution channels and the extent each channel is used by Canadian insurance distributors, both in terms of the number of companies using each channel as well as the proportion of policies sold in Canada per distribution channel. For this report, these channels are product agnostic (not defined by the line of insurance). They are:

- **Brokers**—individuals who sell products from multiple insurers, representing the client.
- **Online distribution**—policies sold through web-based or application-based platforms.
- **Captive salespeople**—individuals selling products for one insurer or direct writer.

2.1.1 Methodology

The InsurTech survey asked participants across Canada (with authority to operate in BC) which distribution channels they use, the number of sales they make, and the proportion of sales attributed to each distribution channel.

While only companies with authority to operate in BC were surveyed, many of these companies are present across Canada. Survey participants were asked to report their Canada-wide sales rather than their BC sales. While there may be nuances between provinces, results can be extrapolated across Canada.

Survey participants were asked about the total number of policies sold. Results include a mixture of new sales and renewals. New sales and renewals were kept together in the analysis to assess the overall risk pools associated with human vs online sales (e.g., how many policies are in each pool) on the basis that a risk presented in a policy purchase (such as an incorrect policy) would be present in its renewal. To identify trends, the survey asked questions regarding sales channel use for the past five years (section 2.3).

2.2 CURRENT DISTRIBUTION CHANNELS

Brokers dominate insurance distribution in Canada across all metrics, according to the InsurTech survey. More companies distribute through brokers (84%) than both online distribution and captive salespeople combined. By comparison, only 29% of the distributors surveyed use online platforms, and even fewer (19%) use captive salespeople.

Distributors are most loyal to broker channels

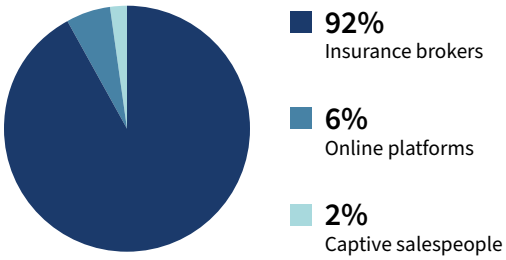
Companies that use brokers use them more often compared to companies that use other channels. For example, over half (55%) of companies that use brokers do so for every sale. Only 5% of companies that use online platforms do the same.

2.2.1 Policy sales per distribution channel

To calculate the number of policies sold per distribution channel, the survey asked participants for their total number of sales and their number of sales per channel. Each distributor's numbers were summed and then divided by the total number of policies sold in the market.

Given that the average company attributes 75% of their sales to brokers and only 11% to online sales, and companies that sell through brokers tend to be larger companies, it is unsurprising that brokers account for almost all (92%) policies sold by survey participants.

Figure 2: Proportion of policies sold per channel



2.2.2 Online platforms

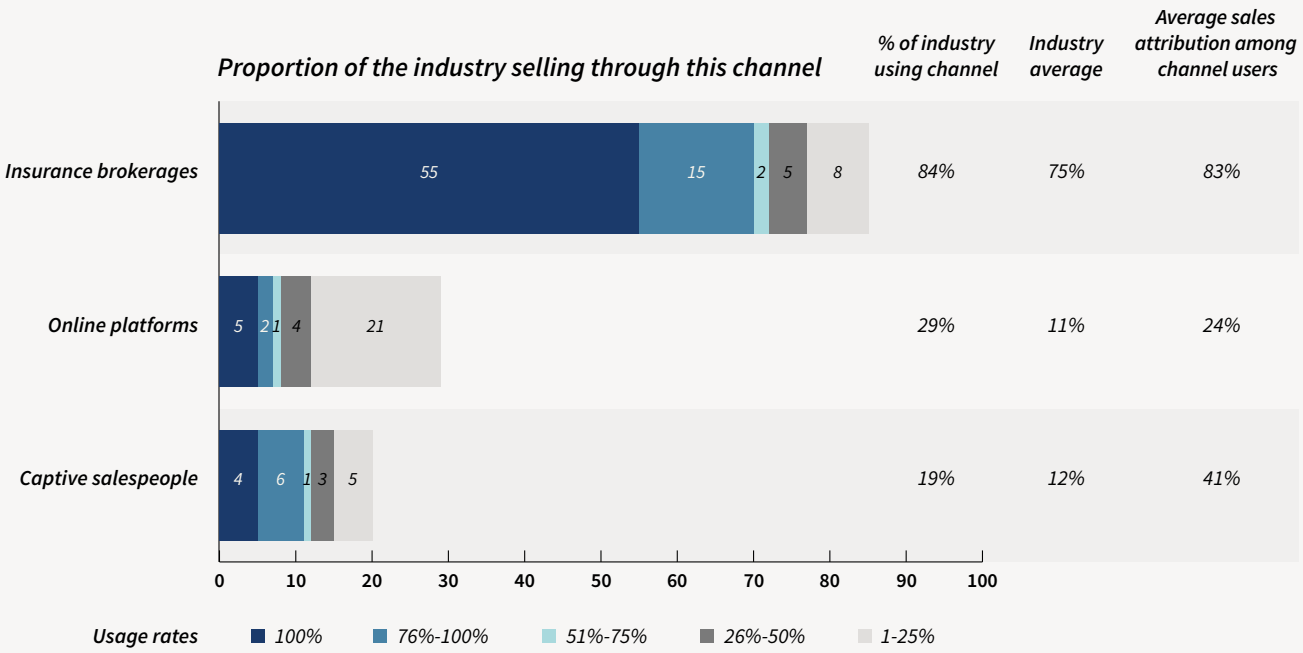
Online platforms appear to be a secondary sales strategy for many companies. They account for only 6% of all policy sales.[21] While a sizable portion (29%) of the industry sells insurance online, the average company that uses this channel attributes less than one-quarter (24%) of their policies to that channel, compared to 83% for brokers.

When asked about sales strategies during industry interviews, several companies saw their online platform as a lead generator for sales professionals to call back on. This is supported by the survey data, which found that approximately half of all companies use their website to generate leads.

A primary strategy for some organizations

Eight percent of companies use an online platform as their primary point of sale (defined as having more than half of their sales online). While small, this indicates a niche that embraces mostly digital distribution channels. As discussed in the next chapter, the portion of the industry that sells exclusively online correlates with the portion of the industry that fully automates their sales channels, indicating a higher rate of technology uptake for online-focused companies.

Figure 1: Canadian insurance sales channel usage



Q. What percentage of your organization's sales would you attribute to the following channels?

21 Insurance Council, Léger, "InsurTech Survey."

Automation is higher in general insurance

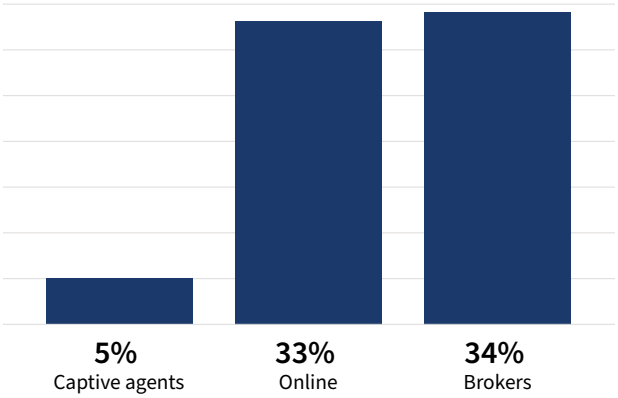
For the companies that limited their answers to life or general lines, there was a higher uptake of automation and online sales in general insurance when compared to life or accident and sickness distributors.

2.3 GROWTH RATE BY DISTRIBUTION CHANNELS

To gain insight into the future growth of distribution channels, the InsurTech survey asked participants how their sales have changed over the last five years.

The findings indicate that, while sales have increased across all channels, brokers have seen the most growth, slightly outpacing online platforms and greatly outpacing the use of captive salespeople. Broker channels grew at an even higher rate amongst larger agencies–which sell more policies–than sole proprietors, indicating an even higher growth rate for the number of policies sold through that channel.

Figure 3: Sales channel growth



Q. How has the percentage of your organization's sales changed over the past 5 years?

2.3.1. Discussion

To understand the Canadian insurance distribution landscape, the Insurance Council conducted three additional analyses beyond the survey:

1. Qualitative interviews, in which the Insurance Council interviewed executive-level staff at 22 insurance organizations.
2. Bottom-up analysis, where Insurance Council researchers created a fictitious customer shopping for insurance online. Researchers input the customer's information into 21 online websites to see what could be purchased online and to map the online shopping journey.
3. Online research, to better understand how Canada's insurance distribution landscape compares to the world.

Canada compared to the world

Canada is not seeing the same growth of online sales or decline in broker sales as other nations.[22] The five-year period measured in the survey encompasses the COVID-19 pandemic. During this time most of the developed world saw an uptake in online sales and a reduction in the use of broker channels.[23] In Canada, the data indicates the reverse has happened, whereby sales through insurance brokers are experiencing higher growth rates than through online platforms.

The rationale behind low online sales uptake extends beyond the insurance industry and is present elsewhere in Financial Technology.[24] However, within the industry, several factors may explain Canada's comparatively low uptake of online platforms and the preference for brokers.

Reason 1: Limited product availability

The research suggests that online products are not as widely available as those sold through broker channels, so customers wanting to purchase online may have fewer options.

22 Insurance Council, Léger, "InsurTech Survey"; Kaesler, Simon. Lorenz, Johannes-Tobias. "The Multi-Access Revolution in Insurance Sales."
23 Krishnakanthan, Krish. McElhaney, Doug. Milinkovich, Nick, "How Top Tech Trends Will Transform Insurance."
24 Dietz, Miklos. Jeenah, Uzayr. Opeyemi, Otubela. Yue Seng, Emily. Zahid, Ammar. "Springtime for Canada's Fintech Industry."

All three levels of analysis indicate that most companies (71%) do not distribute online, or if they do, it is seen as a lead generator rather than a primary point of sale.

From a consumer standpoint, only four of the 21 online platforms studied in the Insurance Council's analysis came with an offer to enter into a contract (i.e., to purchase a policy). In combination with the survey responses, this supports the notion that not many companies offer insurance online. Of those that do, only 4% offer a completely online experience with no agent involvement or callback.[25]

During interviews, some insurers gave the following reasons for not offering their products online:

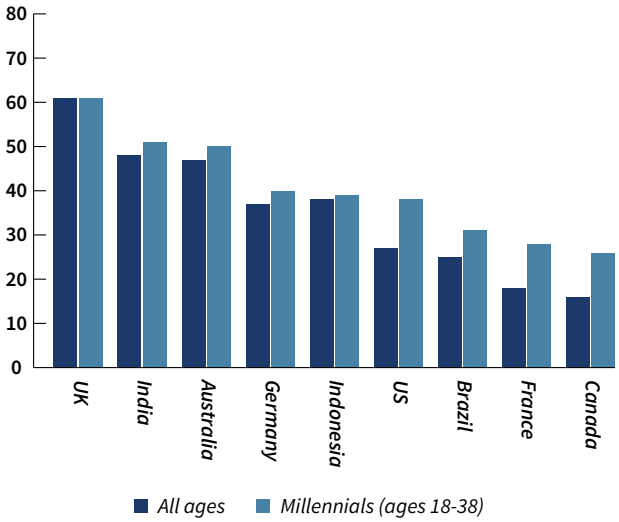
- **Cost over coverage**—Customers typically shop for the cheapest price, and the best policy may not be promoted if they do not speak to a sales professional.
- **Lack of education**—Customers see insurance as an obligation rather than a benefit, and do not do their research if they purchase online.
- **Incorrect quoting**—Customers can provide incorrect information into online quoting systems, potentially reducing their ability to seek compensation if a claim is made.
- **Sales channel cannibalization**—Some insurers indicate that if they move their sales to an online channel, they risk losing the loyalty of their brokers in favour of their competitors.

Life, Accident and Sickness Insurance

Due to the complex nature of life, accident and sickness insurance, there are fewer options when buying online. Consumers may be limited to guaranteed life insurance, where no medical questions are asked and no exam is needed, and simplified term life insurance, where only a few questions are asked during online applications.

Term life insurance (e.g., of higher amounts, often over $100,000) is less likely to be available online.[26]

Figure 4: % of consumers who purchased property insurance online by country.



Reason 2: Canadian buying preferences

Canadians are less likely to buy their insurance online, compared to other countries.[27]

Only 16% of Canadians surveyed in 2018 by Accenture purchased their property insurance online, compared to 60% in the United Kingdom (UK).

Accenture's survey also indicates that while Canadians might shop online, they are less likely to convert online shopping to online purchases than other countries. Of the four English-speaking countries surveyed by Accenture (UK, Australia, US and Canada), only Canada saw a drop off between online insurance shopping and online insurance purchases.

Reason 3: COVID-19 response

According to the InsurTech survey, insurance sales through broker channels grew more than online sales during the COVID-19 pandemic. By contrast, European countries saw a drastic increase in online distribution. For example, online sales increased by 30% in Spain in 2020 alone.[28]

One rationale that might explain the difference is that online infrastructure may not have been widespread

25 Insurance Council, Léger, "InsurTech Survey."
26 Sunlife, "Frequently Asked Questions."
27 Facebook IQ, "Understanding the Journey of the Connected Insurance Customer."
28 Kaesler, Simon. Leo, Matt. Varney, Shannon. Young, Kaitlyn ,"How Insurance Can Prepare for the Next Distribution Model."

in Canada at the time. While companies like TD Insurance launched their online platform as a direct response to COVID-19, it was already a full year into the pandemic when this happened.[29] Likewise, the Insurance Corporation of British Columbia pivoted to phone sales but did not support online distribution.[30] By contrast, the most common method for lead generation amongst organizations surveyed by the Insurance Council and Léger is phone calls, with 51% of companies calling customers to generate leads, and 25% doing so as their primary form of lead generation. By comparison, less than half (45%) of companies surveyed use their website to generate leads, and only 13% do so as their primary method.

On aggregate, the data suggests that while many developed countries pivoted to online infrastructure during COVID-19, many Canadian companies turned toward another socially-distant, but well-established, manual method: the phone call.

Reason 4: Consumers may be trained to purchase through a broker (public auto insurer provinces only)

Some companies interviewed by the Insurance Council indicated that Canadian consumers in provinces with public auto insurance may have been trained to purchase insurance through a broker.

Within the Canadian insurance landscape, auto insurance forms the largest sub-sector of general insurance.[31] Given that auto insurance in Canada is renewed on an annual basis, it is one of the most frequent interactions customers have with the insurance sector. In BC, auto insurance cannot be purchased online if it is a new policy or a policy with a change or dual ownership. During policy renewals, it is also common practice for the brokerage that sold the initial auto policy to proactively engage customers before renewing it to circumnavigate the online process altogether.

One of the potential explanations for Canadian consumers' preference for brokers is that, for at least the 20% of Canadians living in provinces with government-owned auto insurance,[32] consumers have little choice but to purchase their auto insurance through a broker. Industry interviews suggested that this may be training consumers on an annual basis to think of brokers when they think of insurance.

2.3.2 Factors impacting sales channel growth

Given broker growth rates increased more than online sales despite COVID-19 and social distancing requirements, brokers will likely remain a dominant part of Canadian insurance distribution for the foreseeable future. However, several factors could dampen the use of brokers and bolster online platforms.

Changing generational demands

Increasing online demand for all consumer goods and services is likely to continue as generational shifts affect the marketplace. Millennials and Generation Z are more likely than older generations to purchase goods or services online or through a hybrid model.[33] The spillover from other industries is already affecting insurance, whereby millennials are 63% more likely to purchase their property insurance online than the average consumer across all generations.[34] As generations filter through the insurance marketplace, consumer buying preferences are likely to shift towards online or hybrid models.

Emerging trends

Newer companies (i.e., those that have been in the insurance industry for less than 11 years) are more likely to focus on online sales, according to industry interviews. They are over four times more likely to generate their leads primarily through social media compared to older companies (those that have been in the industry for more than 20 years) and – according to industry interviews – are more likely to tap into online sales due to the lower operational

29 TD Insurance, "From Groceries to Smartphones, Consumers Shop for Everything Online and Have the Same Expectations for Insurance."
30 Insurance Corporation of BC, "ICBC Insurance Transactions Available by Phone During Covid-19 Outbreak."
31 Bush, Olivia, "Insurance Industry Statistics Canada."
32 Statistics Canada, "Population Estimates, Quarterly."
33 Statistica, "Shopping Methods by Age".
34 Facebook IQ, "Understanding the Journey of the Connected Insurance Customer."

costs. Online sales may grow in the future as these companies expand and as new market entrants appear, catering to younger audiences.

Aging workforce

Like many industries, insurance is being faced with an aging workforce. Many employees are nearing retirement age.[35] Millennials in North America do not see insurance as a viable career path, with only 4% indicating they would consider working in insurance.[36] As the workforce ages and the number of active sales professionals reduces, insurance distributors may have no choice but to look to digitalization for solutions.

2.3.3 Consumer protection risks for online insurance sales

The choice of sales channel alone is not where most consumer risks lie according to interviews. Rather, the risk is in *how* the sale occurs. The next chapter discusses this in detail.

Out-of-province sales

One risk that is more inherent in online sales is out-of-province sales by unlicensed entities or individuals. While undertaking the customer point of view analysis, after seeking an online quote, Insurance Council staff received callbacks from insurers authorized to do business in BC, but also from sales professionals outside the province who had no licence with the Insurance Council and were therefore not permitted to sell insurance in BC.

Risk: Out-of-province sales	
Risk rating: High (6)	**Severity: high (3)** Out-of-province sales professionals may not be aware of local risks or coverage options unique to the province. Errors and omissions insurance may not hold.
	Likelihood: moderate (2) Only 6% of policies are sold online. However, sales can occur over the phone, increasing the potential for an out of province sale.
	Current protections: *Financial Institutions Act* – sales professionals must be licensed in BC

2.4 MANAGING GENERAL AGENTS

The Insurance Council regulates all insurance distribution in BC, including through Managing General Agents (MGAs).

According to industry interviews, gig and share economy activities such as ride and property sharing are driving demand for more tailored products. This is creating new opportunities for MGAs, with MGA growth rates reaching 24% per annum in the US in 2022,[37] and some Canadian organizations predicting them to double within the next five years.[38] While not specific to InsurTech, these organizations will play an increasing part in the insurance landscape in the coming years.

35 RSM, "Skills Gap in Insurance the Industry's Aging Workforce is a Growing Concern."
36 Grzadkowska, "Report Reveals Truth About How Many Millennials Want to Work in Insurance."
37 Conning, "U.S. MGA Market Grows Swiftly, Exceeds $85 Billion in Premium in 2022."
38 Jason Contant, "Why Growth is the Name of the Game for Canadian MGAs."

3. Process Automation in Insurance Distribution

3.1 CHAPTER OVERVIEW

The previous chapter discussed the distribution channels used in Canada. This chapter explores automation in insurance sales customer education and lead generation.

3.2 AUTOMATION IN SALES PRACTICES

According to the InsurTech survey, automation is not deeply entrenched in Canadian insurance sales practices. Sales professionals are heavily involved in every aspect of the sales process, regardless of the sales channel used. However, while automation is not entrenched, it is widespread. Most (81%) of the industry automate some aspect of their sales process.

Globally, technology is revolutionizing sales. AI, big data and algorithms are reducing purchase times by leveraging external data to truncate quote flows, pre-filling information and enabling insurers to generate swift and accurate quotes tailored to individual circumstances.

3.2.1 Automation in quoting

Gathering information is the first step in the quoting process, and it is mostly led by people. The majority (83%) of the industry have sales professionals walk customers through quoting questions, while only 17% of the industry uses some form of automated information intake.

Quote calculation is the second step and the most automated part of the process, with most (81%) companies automating this through quoting tools and calculators.

The last stage of quoting is quote review. Most companies (96%) do this manually. Table 2 describes the level of human involvement vs. automation present within quote calculation.

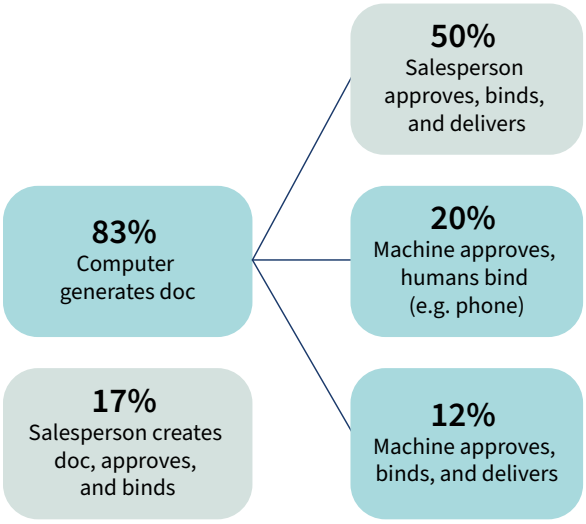
According to interviews, the lack of sales professional involvement in online quoting could cause customers to enter incorrect information into the quoting platform. This risk is discussed in section 3.4.3.

3.2.2 Policy issuance

Policy issuance is the final stage of establishing insurance coverage. It involves synthesizing the application with the underwriting evaluation to create a policy declaration and establish the policy and final insurance coverage.[39]

39 VRC Insurance Systems, "What is Policy Issuance in Insurance."

Figure 5: Policy issuance procedures



Most companies (83%) automate some aspect of policy issuance, often through their platform, which pulls the information into a policy format. From there, the process changes depending on the company. Half (50%) of the companies have a sales professional verify and approve the policy, and most have their sales professionals bind it with the customer (70%) instead of binding it purely through an online payment.

3.2.3 Consumer risk: Standards for online sales

British Columbia mandates that distribution strategies must result in a consistent level of consumer protection regardless of the distribution strategy. However, industry interviews suggest there is an opportunity to improve this consistency as most guidance was written with sales professionals in mind. Specifically, there is an opportunity to better define the level of protection as it relates to how risk could be introduced through differences in:

- The level of human involvement in the back-end process;
- Privacy, cyber risks/data breaches;
- Consumer awareness and education;
- The ability to speak with a person; and
- Product explainability.

Table 2: Automation levels in quoting

Automation level	Industry use	Information intake	Quote calculation	Quote review
No automation	19%	Sales professional asks quoting questions.	Sales professional compiles quotes with no automated tools.	Sales professional reviews quote with the customer.
Low automation	64%	Sales professional asks quoting questions.	Sales professional enters information into a quoting calculator.	Sales professional review quote with customers.
Moderate automation	13%	Customers enter information into the quoting system.	System automatically generates quotes.	Sales professional reviews quote with the customer.
High automation	3%	Customers enter information into the quoting system.	System automatically generates quotes.	Quote automatically bound upon online payment. Humans only engage if an underwriting rule is triggered.
Full automation	1%	Customers enter information into the quoting system.	System automatically generates quotes.	Quote automatically bound upon online payment. Humans are never involved.

Q. Which statement best describes automation in your sales practices?

☐ *Human-Led* ■ *Machine-Led*

When setting these standards, regulators may wish to consider that technology already exists to streamline workflows, improve accuracy and offer customers alternative purchasing pathways. While this technology is not deeply entrenched in Canadian practices, it is widely used. Regulators may wish to consider what would happen if the technology was more widely adopted and whether current and more tailored guidance and principles are needed.

Risk rating: Moderate (3)	Risk: Discrepancy in consumer protection standards
	Severity: High (3) Online consumers may not have the same protection standards as the consumers who work directly with licensees.
	Likelihood: Low (1) Only 6% of policies are sold online, and most companies selling online have a sales professional speak to a consumer before binding.
	Current protections: BCFSA Insurer Code of Market Conduct Insurance Council Code of Conduct

3.3 LEAD GENERATION

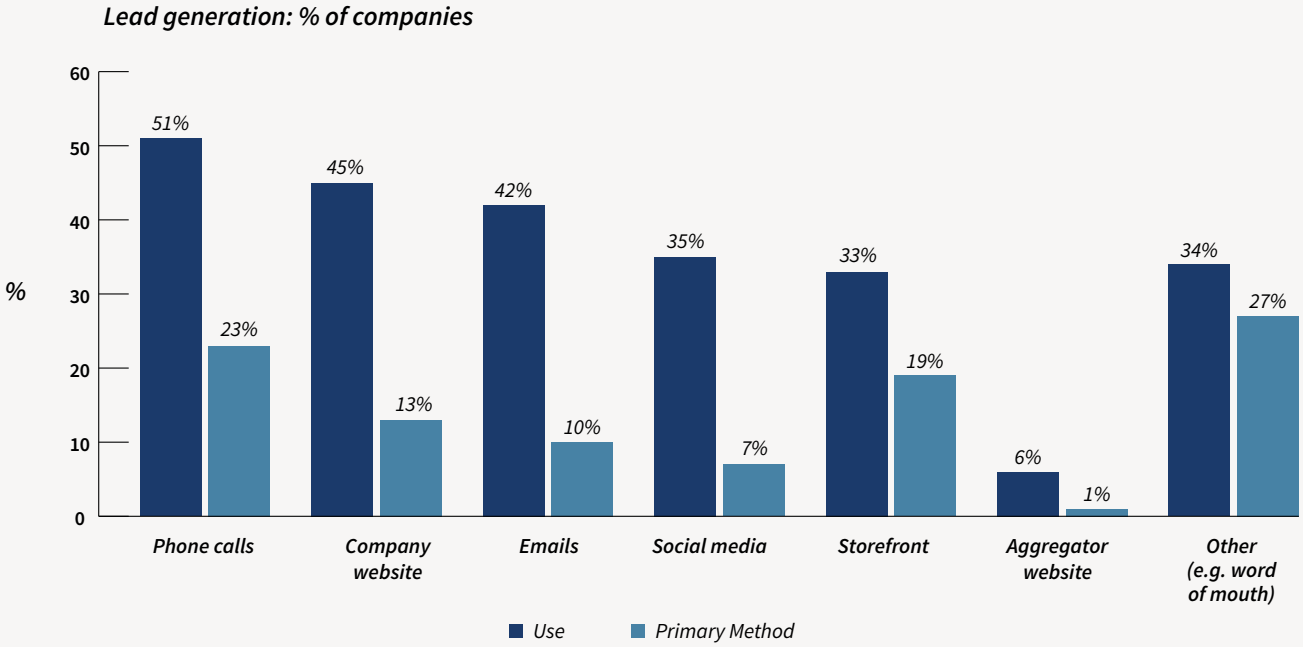
The InsurTech survey asked organizations which methods they use to generate leads and, out of those methods, which ones they use the most. The findings indicate that manual methods are the primary method of lead generation, with the choice to use internet-based forms correlating with the proportion of distributors who sell online.

Social media engagement is rising

Social media engagement has a direct correlation with company age. Newer companies (10 years and under) are more than three times as likely to use social media compared to companies older than 11 years, and four times more likely than companies over 20 years old.

Phone calls and storefronts play a large role in generating leads, both in terms of the number of companies that use them and the extent they use

Figure 6: Canadian insurance lead generation methods



Q. What percentage of your organization's sales would you attribute to the following channels?

them. Websites play a secondary role. Approximately half of all distributors use a company website to generate leads, but only 13% do so as their primary method, further supporting the finding that online sales are a secondary channel.

3.3.1 Aggregator websites (general insurance)

Canada's use of aggregator websites– which compare prices and policies across the market–is low compared to European nations. Only 6% of distributors surveyed generate leads through aggregators, with less than 1% using them as their main method. By comparison, even back in 2017, 50% of all insurance policies sold in European vehicle insurance were sold via an aggregator.[40] Several rationales might explain this discrepancy.

Customer behaviour

According to an Accenture survey, Canadians are as much as four times less likely to shop for insurance online than comparable countries such as France, Germany, Australia, the United Kingdom and the United States.[41] All online shopping methods, including aggregator websites, are therefore less used.

Company sales preferences

During industry interviews, the Insurance Council asked industry why the uptake of aggregators might be lower in Canada than in other countries. Some of the reasons companies gave include:

- **Incorrect quoting**—Aggregator websites often quoted the lowest possible quote based on limited information that was not reflective of the actual policy pricing.
- **Limited offerings**—A complete insurance package cannot be offered through aggregators because it appears expensive besides cheaper and less inclusive options.
- **Sales bias and misrepresentation**—Multiple companies stated aggregators were biased in their sales models, which rely on selling leads to an insurer or broker rather than selling policies to customers.

Consumer risk: Aggregators

According to industry interviews, aggregators sell leads to insurance distributors. Once their quotas have been met for the day, they will often stop offering that company's products in favour of other products they have not yet met their quota for. Customers shopping through an aggregator early in the morning are more likely to have better options than those doing so in the afternoon, according to industry interviews. Aggregators may therefore mislead customers by promoting policies based on their lead quotas, rather than on a customer's best interest. Customers in turn may end up purchasing an unfit policy based on what they think are limited options.

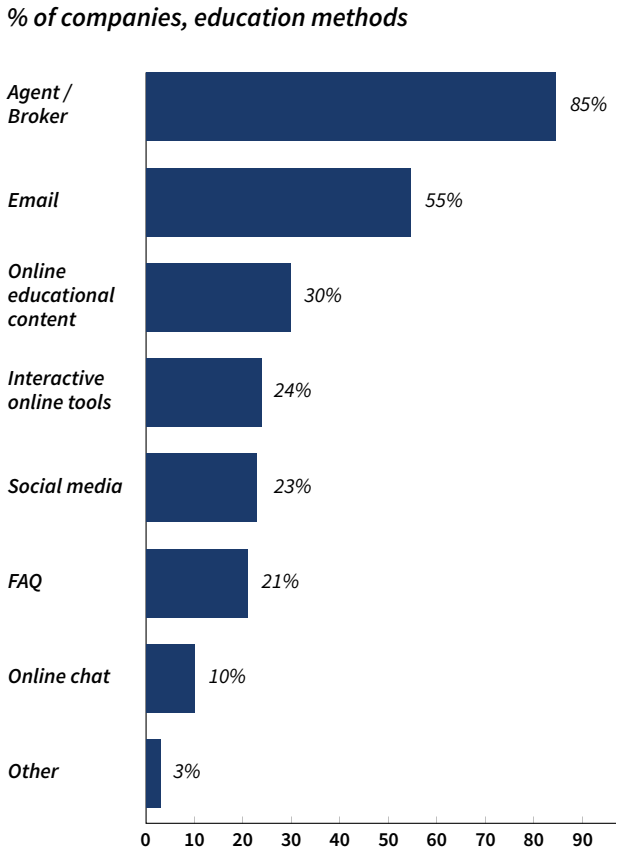
	Risk: Aggregators (general insurance)
Risk rating: Moderate (3)	**Severity: High (3)** Risk of policy purchases based on misleading assumptions of full market comparisons.
	Likelihood: Low (1) Only six percent of the industry uses aggregators, and only one percent uses them most of the time.
	Current protections: *Business Practices and Consumer Protection Act (BPCP), section 4 / Financial Institutions Act "Insurance Business" Definition*

3.4 CUSTOMER EDUCATION

The InsurTech Survey found that customer education methods correlate with distribution strategies. Eighty-five percent of the industry educates customers about products through their sales professionals, and 30% use online educational content. These are the same percentages of the industry that use brokers and online channels.

40 Statistica, "Market Share of Insurance Aggregator Websites of Total Motor Insurance Direct Sales in Europe in 2017, By Country."
41 Facebook IQ, "Understanding the Journey of the Connected Insurance Customer."

Figure 7: Canadian insurance customer education methods



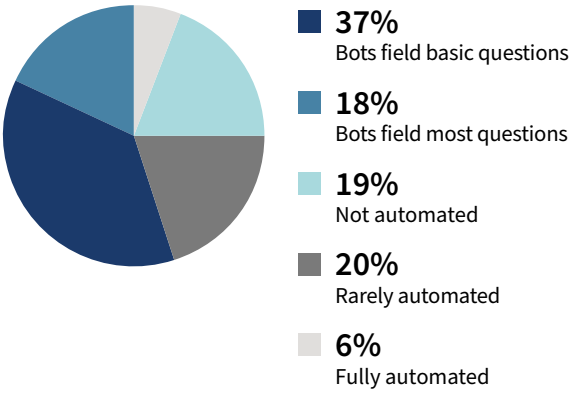
Q. Which of the following does your company use to educate consumers about the products you sell?

Newer distributors are much more likely (34%) to use social media than companies more than 11 years old (20%), indicating future growth potential.

3.4.1 Automated online chat

According to the survey, only one in ten companies have an online chat function. Of these, most companies partially automate their chat function, whereby bots field basic questions or questions after-hours before passing the questions to humans.

Figure 8: Chat bot automation



Q. What is the level of automation used in your chat function?

Automated chatbot uptake could grow in the coming years due to advances in Natural Language Processing (NLP) and generative AI.[42]

Incorrect advice

Generally, chatbots do not negatively impact consumers when used for basic support, such as answering questions regarding policy renewals.[43] However, chatbots can be problematic when they provide incorrect information to customers regarding products, coverage and conditions. While they offer powerful customer support tools, they can make mistakes, as seen in 2022 when Air Canada's chatbot promised a bereavement discount that incorrectly informed a customer's decision to purchase a flight.[44]

Risk profile: Automated chatbots

As chatbots become more capable of generating their answers through generative AI and NLP they will be capable of advising on more complex inquiries.[45]

This raises concerns about the importance of accuracy in chatbot information and the need for regulatory clarity around who is responsible when artificial intelligence provides incorrect information.

42 Shaji, Hovan and Gabrio, "A Review of ChatGPT AI's Impact on Several Business Sectors."
43 Gibson, Kevin, "Straight Talk about Chatbots: Minimizing Risks to Reap the Rewards."
44 Sookman, Barry B, "Moffat V. Air Canada: A Misrepresentation by an AI Chatbot."
45 Shaji, Hovan and Gabrio, "A Review of ChatGPT AI's Impact on Several Business Sectors."

Risk: Chatbot inaccuracy and liability	
Severity: Moderate (3)	**Severity: High (3)** As chatbots become more capable of fielding complex questions, misinformation could lead to consumers making sub-optimal decisions regarding their policy.
	Likelihood: Low (1) Only 10% of the industry uses chatbots. Of these, 39% are not automated, or rarely automated.
	Current protections: *Electronic Transactions Act* (2001) – however this Act does not discuss misinformation and liability when dealing with electronic agents.

3.4.2. Data sourcing

According to industry interviews and the InsurTech survey, one of the top three concerns facing insurance and technology integration is a customer's lack of understanding about the products they purchase.

In traditional insurance sales, licensed sales professionals educate customers about the products they sell and the importance of answering quoting questions correctly.[46] The onus is on the licensed sales professional to inform customers about the products and the importance of correctly answering quoting questions. The level of risk greatly depends on the competence of the sales professional, their knowledge of localized needs and the customer's knowledge about the item they wish to insure.

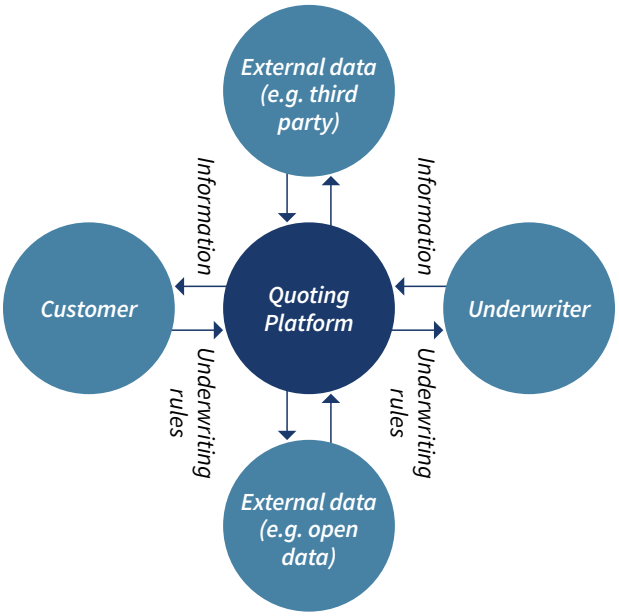
For online sales, the education method is more passive, and so the onus is partially on the customer to self-educate. The level of risk is heavily dependent on how effective an online distributor's platform is at educating customers and sourcing data from external sources to mitigate a customer's lack of knowledge through the quoting process.[47]

A method of consumer protection

Online-focused companies interviewed by the Insurance Council indicated they protect consumers by incorporating and verifying data through external sources. Instead of relying solely on quoting questions and customer-supplied information, many online-focused companies integrate their quoting platform through APIs to public and private data sources. For some companies interviewed, this involved using customer information to then gather upwards of an additional 150 external data points. More data means more verifiability in quoting information and more underwriting accuracy. Companies interviewed by the Insurance Council who use this method argued that this leads to more accurate quotes and increased consumer protection.

Another reason some companies seek external data is to streamline the customer experience by reducing the information customers must gather and fill. Several companies interviewed measured how long it took for customers to respond to specific questions. Often if it took too long (e.g., more than five seconds), they would either rephrase the question or seek an external data point to fill that information.

Figure 9: External data sourcing amongst online providers



46 Insurance Council, "InsurTech Interviews."
47 Ibid.

3.4.3 Education and product choice

Most companies interviewed by the Insurance Council warned of system gaming, in which a customer seeks the cheapest price regardless of how accurate the information they supply is or they purchase their policy with only cost as a consideration, unaware they may not be fully covered.

As discussed in this chapter, there are a variety of methods an online distributor can use to reduce this risk, from verifying information through external data to using chatbots and developing online content to educate consumers. A potential issue, however, is that BC currently has little regulatory guidance on the use of these methods or how to best protect consumers shopping online. The level of consumer risk therefore depends heavily on:

- Whether the company involves sales professionals in policy verification;
- Whether they seek external data to verify, the use of their chatbots, and;
- The overall quality of their platform.

In BC, licensed agencies that sell insurance online must offer the same level of consumer protection as agencies selling through more traditional methods. However, current guidance focuses more on traditional distribution channels than online insurance.[48] Online platforms, on the other hand, provide a level of consistency in their coding (i.e., they are not prone to human error), so there is an opportunity for regulators to set guidance on how to build best-practice consumer protection into online platforms.

Risk: Poor consumer education

Severity: Moderate (3)

Severity: High (3)
Consumers entering the wrong information into a quoting system, or selecting the wrong product coverage, due to a lack of education could result in a significant financial loss for the consumer if they are under-insured or not insured.

Likelihood: Low (1)
Only six percent of policies are sold online. In addition, many online companies have mitigation strategies, such as sourcing external data, to mitigate consumer's lack of understanding.

Current protections:
BCFSA Insurer Code of Conduct
Insurance Council Code of Conduct

3.5. TRENDS IN AUTOMATION

The InsurTech survey revealed there is no one-size-fits-all approach to automation within sales channels. At an industry-level sales professionals are still heavily involved in every part of the sales process. However, a small portion of the industry automates most activities, indicating the technology is already in Canada and could expand in the future.

3.5.1 Online-focused companies more automated than brokers

According to industry interviews, the more a company focuses their sales channel to be completely online, the more likely they are to automate its policy quoting, binding, verification, education and lead generation functions.

48 Insurance Council, "InsurTech Interviews"; Insurance Council, "Code of Conduct."

Five percent of companies sell exclusively online, according to the survey. Approximately five percent also fully automate their quoting practices. While correlation does not imply causation, industry interviews supported the data; all online-focused companies interviewed had significantly higher levels of automation and data integration than traditional brokerages.

Brokerages were the least likely to automate amongst the companies interviewed, with some senior executives stating their preference for placing brokers first, as well as difficulty upgrading legacy systems when compared to online-focused companies that started as digitalized distributors rather than transitioning that way. In general, the industry survey suggests that newer companies (less than 11 years old) are more likely to pursue more technologically advanced sales methods when compared to older or more well-established companies. Automation may continue to grow in the future as these companies expand and others enter the market.

3.5.2 Human involvement in online sales

A key objective of this report is to understand sales professional involvement in the back-end process for online sales. Three levels of agent involvement emerged throughout the research, the industry interviews and the survey.

Traditional full involvement

Traditional online sales are staffed by sales professionals on the backend. There is a human taking information from an application and reporting back to the client once they obtain a quote.[49]

This traditional model of online insurance still exists and is particularly prevalent in life and accident and sickness insurance compared to general insurance.[50] Out of the 21 companies studied in the customer point of view analysis, nine companies relied on call-back methods to provide a quote.

Hybrid human and machines

Some organizations interviewed indicated their system provides an automated quote to customers after they input their information into the quoting platform. However, for these companies, sales professionals always check and verify each policy before binding it, often speaking with the customer first. According to the InsurTech survey, 13% of the industry does this. This form of agent involvement is prevalent across all types of insurance.

Self-service

Five percent of online-only distributors have no agent involvement in the sales process.[51] As quoted by one interviewee, "the less (sales professional) involvement the better." For these companies, sales professionals are available to answer questions but otherwise do not engage with customers. This form of agent involvement is most prevalent in general insurance.

3.5.3 The future of sales professionals

Industry interviews suggest that while brokers remain a core part of distribution, their role is becoming more demanding as more complex products enter the market. Changes in the wider economy, such as property sharing, the gig economy, working from home and automation are just a few ways that society is shifting the way people work and live, all of which are affecting how and what consumers purchase when it comes to insurance.[52] According to some interviewees, the more complex a product is, the less likely it will be automated, and the more a broker will be relied on to provide tailored advice.

Digital and human integration

In terms of agent involvement, companies interviewed had a mixed view of what the future will look like. However, on aggregate, industry consultation indicates that business will likely move through, and stop at, one of the scenarios in Figure 10.

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49 Insurance Council, "InsurTech Interviews."
50 Insurance Council, Léger, "InsurTech Survey."
51 Insurance Council, Léger, "InsurTech Survey."
52 CRO Forum, "Imagine All the People: Demographics and Social Change from an Insurance Perspective," 26.

All interviewees, including those who sold exclusively online, indicate a continuing need for sales professionals in an advisory capacity. As one of the interviewees suggested, "it won't be an either-or for digital vs. people. It will be a mix of both."

Digital-first companies largely saw direct channels as the future of distribution (scenarios 2 and 3). For these companies, their sales professionals will eventually take on the role of product advisors but will interact with customers as little as possible as algorithms, data and pre-populated forms improve.

On the other end of the spectrum, brokerages largely saw their brokers being supported by digital platforms (scenario 1), such as quoting calculators and referrals through online customer inquiries.

By comparison, European companies (across all lines of business) are shifting towards scenario 2, where customers can shop online but purchase through any medium, with 84% of customers in Germany indicating a preference for this model.[53]

3.5.4 Information privacy

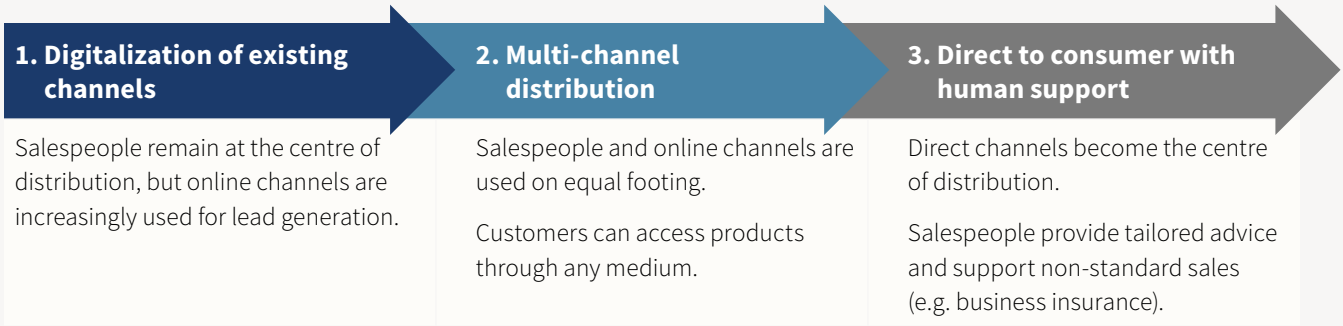
According to open-answer questions in the InsurTech survey, the protection of personal information and privacy was the biggest challenge the industry saw with the integration of technology and insurance. More data integrations mean more personalized customer profiles that could be used in privacy breaches.

The average data breach in Canada costs a company $7 million, with most of these costs being passed onto consumers.[54]

However, the risks associated with information privacy are not unique to online or technology-focused companies. Some online companies interviewed by the Insurance Council argued that less human involvement with customer information could reduce the risk of targeted data breaches.

Risk rating: High (6)	**Risk: Information privacy**
	Severity: High (3) A data breach could harm consumers through the loss of personal information or money.
	Likelihood: Unknown (2) Unknown – the InsurTech survey did not measure exposure to personal information breaches.
	Current protections: *Personal Information Protection Act*

Figure 10



53 Kaesler, Simon. Lorenz, Johannes-Tobias. "The Multi-Access Revolution in Insurance Sales."
54 IBM, "Cost of a Data Breach Report 2023."

4. Technology, Data and Automation in Underwriting

4.1. CHAPTER OVERVIEW

This chapter discusses how technology is changing Canadian underwriting through process automation, data integration and new insights gained from AI.

4.2. PROCESS AUTOMATION

According to the InsurTech survey, underwriting is the most automated part of Canada's insurance value chain. Almost all (88%) underwriters automate underwriting to some degree. The main technologies used to do this are APIs and algorithms. APIs transfer and translate data between different systems, while algorithms automate the manual steps of risk assessment through pre-programming.

The survey identified five automation levels in underwriting, ranging from no automation to full automation. The key differences between automation levels (2-5) are whether companies integrate external data into their system and whether their system incorporates AI.

4.2.1 Traditional underwriting

In traditional models, used by 12% of the industry, underwriters review documents such as financial and medical history to assess risks based on underwriting manuals. The process takes days, weeks, or months.[55]

4.2.2 Algorithmic underwriting

Within Canadian underwriting, most automation occurs through algorithms, which are used by 61% of the industry. In simple setups (two and three of the table below), software engineers and data scientists work with underwriters to create computerized step-by-step calculations that process a specific set of data points.

Globally, companies are using algorithms, AI and external data to reduce underwriting times to seconds. Technology and data are enabling highly-accurate pricing decisions, sometimes at the loss of underwriting transparency. Regulators in the EU and UK are working on how to regulate these new practices.

4.2.3 Artificial Intelligence in underwriting

AI (13%) and Machine Learning (ML)(23%) are revolutionizing the types of data used in underwriting and the way data is analyzed. For companies using these models, their algorithms are more capable of identifying patterns and relationships within data.[56] New insights allow more granularity in risk assessment. They also self-improve over time, adjusting the underwriter's algorithms, sometimes without instruction from the system developers.[57]

55 Sunlife, "What is Insurance Underwriting and How Does it Work?"
56 The Geneva Association, "Regulation in Artificial Intelligence in Insurance: Balancing Consumer Protection and Innovation."
57 Janiesch, Christian. Zschech, Patrick. Heinrich, Kai, "Machine Learning and Deep Learning," 686.

Artificial Intelligence aims to complete complex tasks with human-like reasoning. It relies on technologies such as neural networks, algorithms, deep learning, rules-based systems and language and image processing to factor large volumes of *unstructured data* into its risk assessment, often without human intervention.

Machine Learning is a subset of AI. Its goal is to analyze large volumes of *structured data* using statistical models to identify trends and produce a result, such as a risk analysis. ML makes insights from data without being explicitly programmed to do so and can self-improve.

Risk assessment: From causation to correlation

AI and ML are changing what information is considered when underwriting risks, as well as the way risk is assessed. These technologies allow risk assessment to go from causation to correlation. A causational relationship is when a change in one variable results in a change in the other. By contrast, a correlational relationship involves two or more variables with no proven link, but an increased *statistical* risk of something occurring.[58]

Traditional underwriting models rely on causational relationships to underwrite risks. By contrast, AI and ML-driven models excel in identifying correlations in large data sets too complex for humans to analyze.

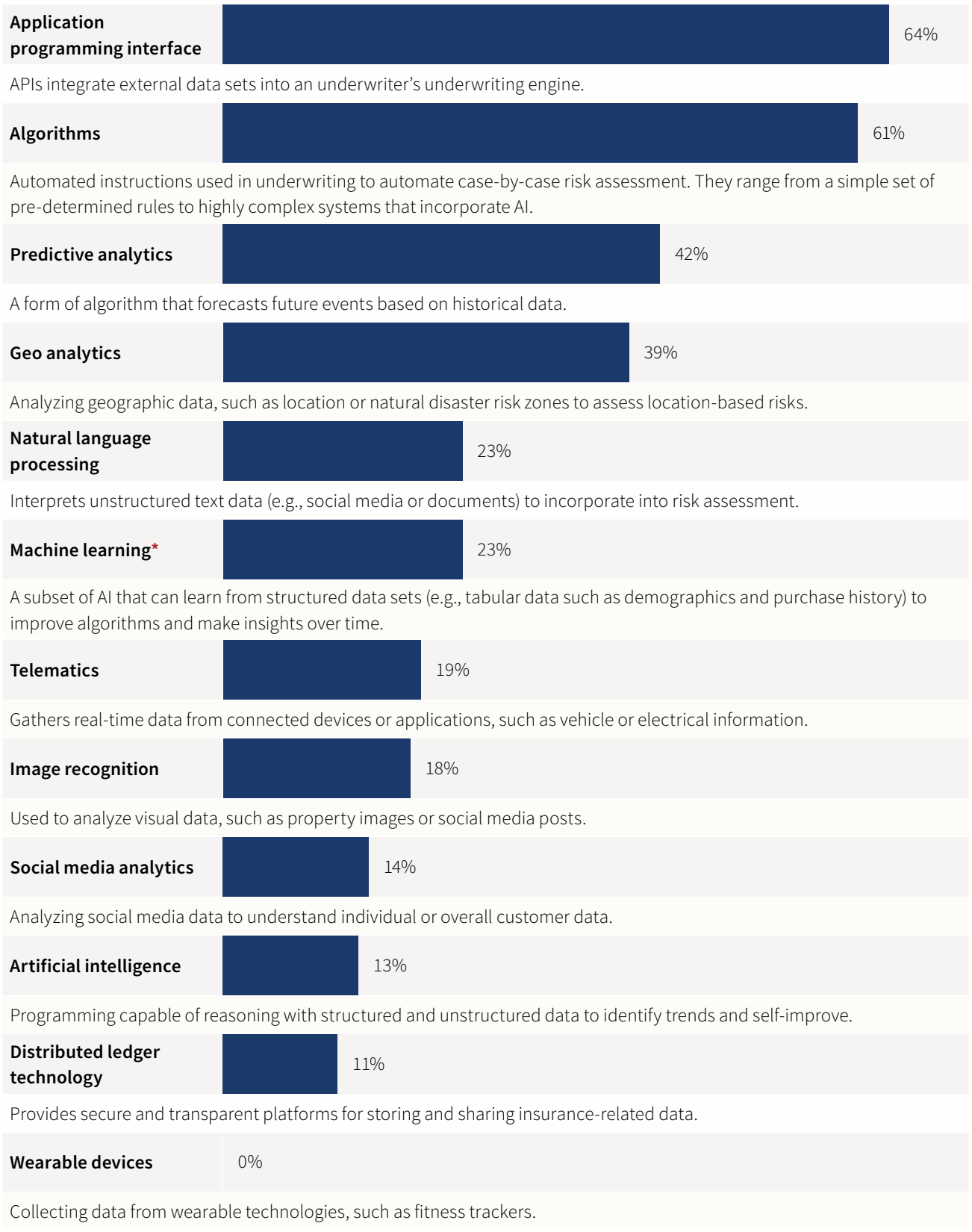
Table 3: Five levels of automation in Canadian underwriting

Automation level	Industry use	Practice	Process oversight
Traditional			
1 No automation (Human-led)	12%	Underwriters underwrite policies with no automated tools, using customer-supplied data.	Corporate underwriting manual.
Automated: Algorithmic			
2 Low automation (Hybrid)	52%	Basic rule-based algorithms perform the risk assessment, but people review the findings.	Developers design and tweak algorithms. Underwriters review findings.
3 Moderate	24%	Algorithms perform the risk assessment with no human review.	Developers design and tweak.
Automated: Artificial Intelligence			
4 High automation	11%	Complex algorithms use AI, such as machine learning, to analyze large data sets and identify risks. People are not involved.	Machine learning changes the algorithm based on insights it finds, *with* human oversight.
5 Full automation	1%		Machine learning changes the algorithm based on insights it finds *without* human oversight.

☐ *Human-Led* ■ *Machine-Led*

58 The Geneva Association, "Regulation in Artificial Intelligence in Insurance: Balancing Consumer Protection and Innovation."

Table 4: Technology used in underwriting



Q. Which of the following technologies does your organization use to underwrite insurance policies?

*23% of industry use machine learning. This is higher than the levels of machine learning reported by the industry in their process automation (12%), suggesting machine learning may be used to help develop algorithms, but may not be used for "live" risk analysis.

According to the InsurTech survey, this data ranges from open government data (46% of the industry use this) to social media data (15%) and third-party purchased data (51%). AI and ML consider all these variables and complex interactions within these multiple data sets in a way that is beyond what traditional underwriting is capable of.

More accuracy and opportunity (for some)

Both correlation and causation have benefits and drawbacks. Relying on the correlation of AI models with no checks and balances may lead to erroneous relationships and bias. On the other hand, ignoring these methods does not leverage the increased accuracy inherent in AI and ML models. While traditional underwriting models lack granularity and clump risks together in risk pools, advanced models can apply individual ratings; this allows lower pricing and previously uninsurable risks to be insured.[59]

4.2.4 Built on data

A key enabler of the insights of AI or ML-based models is large data sets.[60] In both traditional and less advanced algorithmic models, the risk assessment relies on basic information, such as a house's postal code, which might be used in combination with internal corporate data (used by 50% of underwriters) to assess area-wide historic risks of an event such as flooding or crime.

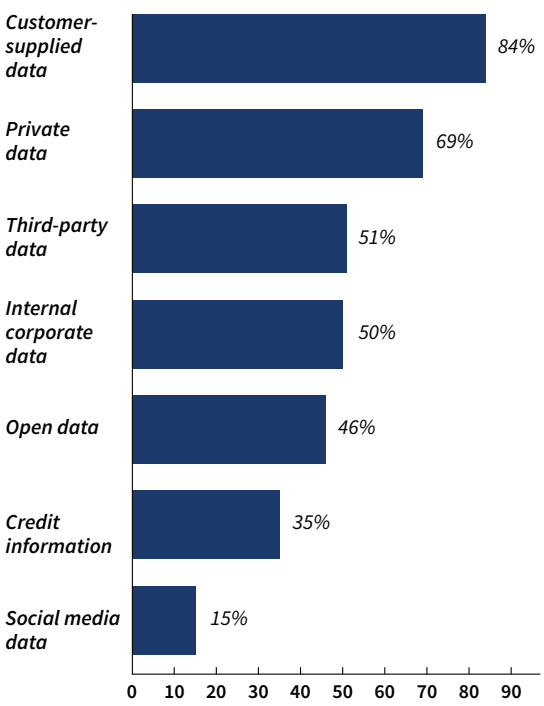
In more advanced underwriting systems, underwriters connect with external data sets through APIs to get a better understanding of a risk. Instead of relying on the internal claims history for a particular postal code, an underwriter might access open government databases to analyze factors such as flood mapping and individual building information to provide a more granular view of a property's—rather than an area's—risk profile.

Canadian data landscape

According to industry interviews, the underwriting industry is in a race to collect data. There is now more pressure than ever to offer competitive pricing, and larger data sets combined with AI and ML models allow underwriters to do this by developing more granular price points, offering underwriters a competitive cost advantage over competitors with fewer data integrations.

The most common data source identified in the InsurTech survey, apart from customer-supplied data, is private data. This data is secured with the customer's consent and includes things such as medical history. Following that, approximately half of all companies use third-party purchased data found in property management databases, and open government data, such as crime rates and geographic information.

Figure 11: Human involvement in insurance sales



59 Ibid.

60 Munich RE, "AI in Underwriting Will Grow but not Displace Human Experience".

Social media data

According to the InsurTech survey, 15% of the industry use social media data in underwriting. This data is often used to verify customer-supplied information. However, it can also be combined with AI (13%), NLP (23%) and image recognition (18%) to detect human behavioural patterns, sometimes with spurious conclusions that pose consumer risks.[61] For example, in 2016 a UK insurer launched a risk assessment that used a customer's social media activity to determine their personality profile. The AI found correlations between activities such as "liking" particular athletes, using exclamation marks and using superlatives such as "always" or "never" to imply overconfidence in driving habits.[62] These profiles were used to set premiums and deny applications.

Application Programming Interfaces

According to the InsurTech Survey, the most used form of technology in Canadian underwriting is APIs (64%). APIs serve as a digital bridge, enabling diverse applications and services to seamlessly communicate.[63] They translate information and data from one external system into a usable format for an insurer's underwriting system. They also enable broker management systems, third-party quoting platforms and insurer platforms to seamlessly communicate and pre-fill customer information to reduce quote times.[64]

4.3. CONSUMER RISKS

4.3.1 Bias and discrimination

While technology can increase underwriting accuracy, critics argue that AI and ML can introduce or exacerbate inequalities in underwriting. While AI isn't inherently biased, AI models trained on data with biases will amplify those biases in their outputs.[65] ML-based underwriting models may conclude, for example, that a particular group is a higher risk, but only because it has been trained on data from a particular geographic location or historical data where human biases affected an underwriter's decision. Similarly, AI may identify data trends that have unwanted correlations and cause indirect discrimination against protected characteristics, such as race or religion.[66] Because the correlations are proxies, it is difficult to identify when this occurs, meaning insurers may discriminate without realizing it. Bias will be incorporated as part of the Artificial Intelligence and Data Act (AIDA). AIDA's current definition includes unjustified and adverse differential impact based on any of the prohibited grounds for discrimination in the *Canadian Human Rights Act*.[67]

Risk Rating: High (6)	**Risk: Discrimination, unfair practices and bias**
	Severity: High (3) Bias and inaccuracies may cause unwanted discrimination where underwriting models find correlational links between characteristics unrelated to the insurance product.
	Likelihood: Moderate (2) 23% of the industry use ML, 13% use AI.
	Current protections: BC Human Rights Code and BCFSA Fair Treatment of Customers principles

61 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection with Innovation".
62 Norton Rose Fullbright, "Insurance Focus 2017", 4.
63 Goodwin, Michael, "What is API."
64 Insurance Council, Léger, "InsurTech Survey."
65 Manyika, Silberg and Presten, "What do We do with the Biases in AI?"
66 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection with Innovation."
67 Department of Innovation, Science and Economic Development Canada, "The Artificial Intelligence and Data Act Companion Document."

4.3.2 Unsupported risk profiles

While technologies such as AI and ML can increase efficiency and reduce the likelihood of human error—thereby improving customer protection—they can also lead to underwriters making erroneous links between individuals and their risks.

In traditional systems, rating factors can be subjected to a three-pronged test to see whether rating factors are a) necessary, b) appropriate and c) legitimate for the risk they are assessing.[68] However, classical actuarial methods do not always work when dealing with the multitude of data points, correlational relationships and combinations that AI and ML are capable of analyzing.

4.3.3 Transparency and explainability

Transparency and explainability are important in trusting an underwriting system.[69] They are especially important when a decision impacts a consumer, such as denying an insurance policy or paying a higher premium.[70]

Risk rating: High (6)	**Risk: Lack of transparency and explainability**
	Severity: High (3) AI models are considered black boxes due to their complexity. It is difficult to explain causation and the roles of variables, and therefore difficult to check fairness and biases.
	Likelihood: Moderate (2) 23% of the industry use ML, 13% use AI, and 12% have low levels of human oversight in their practices.
	Current protections: *Artificial Intelligence and Data Act* (not in force).

In more complex underwriting systems, humans may lose oversight and insight regarding their system's underwriting decisions.[71] This means when a customer asks for an explanation about pricing or why their insurance application was denied, the insurer or sales professional may not be able to provide a reason because their system drew on data variables not visible to them. This is known as a 'black box," where machines create or adjust underwriting models to gain insights without human intervention, meaning even the system designers cannot fully understand how variables are being combined to make predictions.[72] Multiple companies interviewed by the Insurance Council stated that no single person in their company knew how their products were underwritten.

The black box problem could have spillover effects into the legal system, where regulators and courts become concerned when groups with protected characteristics are being rejected or accepted at higher rates than the general population but are unable to understand why. However, it is important to note the trade-off between explainability and insight. The most complex AI models, such as neural networks, are highly accurate in the correlations they draw between a factor and increased statistical risks, but they are the least explainable.[73]

68 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection with Innovation."
69 Insurance Council, "InsurTech Interviews."
70 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection with Innovation."
71 Ibid.
72 Insurance Council, "InsurTech Interviews."
73 EIOPA, "Artificial Intelligence Governance Principles."

4.3.4 Affordability

Less advanced underwriting models are less able to draw upon and process data, leading to less nuanced risk assessments. Without granularity, risks are often pooled together, and individuals within that pool are assigned a risk rate or risk class.[74]

Technology and data allow for more detailed individual risk assessments. While this can reduce the premiums for some—such as a house on a hill in an otherwise flood-prone area—it can increase the risk for others,[75] leading to higher premiums for some or an inability to purchase insurance for high-risk individuals. Whether this is fair or not may be subjective, however, it does raise concerns about an inability for some individuals to be insured.

4.3.5 Data privacy and accuracy

The Canadian underwriting landscape is already subject to data protection regulations that govern the use of personal data, such as the *Personal Information Protection Act* (PIPA). However, these regulations may not necessarily govern how data is used in underwriting and the risk of proxy discrimination, bias, or erroneous risk correlation when non-protected data is amalgamated to create highly accurate customer profiles.

Some provinces have protections in place regarding the affordability of certain insurance products. For example, in BC, insurance rates in auto insurance are regulated by the BC Utilities Commission, while in Ontario insurance providers must submit their rates for approval with the Financial Services Regulatory Authority. However, more data points could mean more individualized risks and less risk pooling, which could be an issue if individualized risks draw from correlations. The issue would be exacerbated in less regulated products.

Risk: Affordability	
Risk rating: Moderate (4)	**Severity: Moderate (2)** Individuals may face higher premiums or under-insurance if individualized risk scoring detracts from their ability to obtain a pooled risk. **Likelihood: Moderate (2)** 23% of the industry use ML, 13% use AI. **Current protections:** Some provinces regulate affordability for certain products (such as auto).

Risk: Data privacy and accuracy	
Risk rating: Moderate (4)	**Severity: Moderate (2)** Poor data quality may lead to unintentional bias through ML training. Poor data choices may lead to false risk correlations. Both may unfairly increase premiums in underwriting. Non-protected data (e.g., not private) may be amalgamated to create a unique consumer profile which could impinge on the kinds of privacy that privacy regulation was established to protect. **Likelihood: Moderate (2)** Over 50% of the industry use one or more of the following: third-party data, internal corporate data, open data, and social media information. **Current protections:** PIPA and AIDA (AIDA not yet in force).

4.3.6 Telematics

Telematic technologies, used by 19% of the industry,[76] transmit long-distance computerized information. In modern insurance, telematics is commonly associated with auto insurance, but it can also be used in home insurance for things like water monitors to help prevent flooding.

74 American Academy of Actuaries, "Risk Pooling: How Health Insurance in the Individual Market Works."
75 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection and Innovation."
76 Insurance Council, Léger, "InsurTech Survey."

Telematics track key information that might affect an insured person's risk, such as vehicle location, speed and driver behaviour. In addition to being useful in understanding a person's risk, telematics is also useful in usage-based insurance such as ride-sharing, providing flexibility when setting premiums for high-risk categories or drivers, often with incentives for drivers to improve their behaviour to reduce premiums.

Influencing behaviour

When discussing telematics with auto insurers, companies indicated that, while useful in underwriting, telematics is most useful in influencing customer behaviour. While the changed behaviours—such as safer driving—are generally positive, there is an ethical question around the "big brother" nature of the technology and whether corporate surveillance should influence individual actions.

Data protection

Data sharing is a necessary function of the contractual relationship within telematic-based insurance policies. However, given that telematics collect personal information—sometimes including real-time location—the use of this data requires care, particularly if this data is disclosed to third parties, such as software developers.[77]

Risk rating: Low (2)	Risk: Influencing behaviour
	Severity: Low (1) Influencing consumer behaviour is unlikely to cause financial impacts or other losses not already captured by the data risk. Data breach issue is covered under the data privacy section.
	Likelihood: Moderate (2) 19% of underwriters use telematics.
	Current protections: Such information is personal to the individual driver and insurance companies must not breach PIPA.

4.3 MANAGING GENERAL AGENTS

MGAs, and in particular digital MGAs, have risen in the past several years due to more targeted demands for certain lines of insurance, including pet, auto, homeowners, and small-commercial insurance.[78] It is increasingly common for these digital MGAs to conduct a portion of the underwriting themselves as Managing General Underwriters[79] whereby the MGA has the authority to underwrite policies, either fully or with limited underwriting, often via software that is linked to an insurer's underwriting rules. As this trend continues, regulators may wish to consider how MGAs can be captured in regulations related to underwriting.

4.4 CANADIAN APPROACH TO REGULATION

In June 2022 the Government of Canada tabled the *Artificial Intelligence and Data Act* (AIDA) as part of *Bill C-27, the Digital Charter Implementation Act*, 2022. AIDA represents the first national step towards a regulatory system that will guide AI innovation and responsible adoption of AI technologies by Canadians and Canadian businesses.[80]

AIDA will build on existing consumer protection and human rights laws but with a particular focus on high-impact AI systems. What is included in these systems is not yet defined but is under consultation. Considerations include:

- Evidence of risk to health and safety or risks to human rights;
- The severity of potential harm;
- The scale of use;
- The nature of harms or adverse impacts;
- Imbalances of economic or social circumstances, and;
- The degree to which the risks are adequately regulated under another law.

77 Rogers, Nick, "Telematics as an Underwriting Tool."
78 Tumas, Grier. Dienstag, Reich, Andrew. Scally, Matthew. Zaharieva, Leda. "Insurance MGAs: Opportunities and Considerations for Investors."
79 Insurance Training Center, "What is a Managing General Agent?"
80 Department of Innovation, Science and Economic Development Canada, "The Artificial Intelligence and Data Act Companion Document."

4.3.1 About AIDA

AIDA will address a range of harms to individuals as well as adverse impacts due to systemic bias in AI systems in a commercial context. The proposed definition of harm includes economic loss, physical harm and psychological harm.

Under AIDA, biased output occurs when there is an unjustified and adverse differential impact based on any of the prohibited grounds for discrimination in the *Canadian Human Rights Act*. This includes the intentional or unintentional use of proxies. AIDA would require appropriate measures put in place to identify, assess and mitigate the risk of harm and bias output with a high-impact AI system.

4.3.2 What this means for insurance

AIDA will govern high-impact AI systems, which are not yet defined. Following Royal Assent of Bill C-27, the Government of Canada will conduct a consultation to inform the implementation of AIDA and its regulations. This is expected to include:

- The types of systems that should be considered as high-impact;
- The types of standards and certifications that should be considered in ensuring that AI systems meet Canadian expectations;
- Priorities in the development and enforcement of regulations, and;
- The establishment of an advisory committee.

AIDA will not come into force until at least 2025. Regulators wishing to have insurance or other financial products considered as high-impact systems may wish to partake in this process.

4.4 GLOBAL APPROACHES

Underwriters operating in BC are subject to legislation and regulations such as the BC Human Rights Code, *Financial Institutions Act*, *Insurance Act* and the BCFSA Insurer Code of Market Conduct.

There are other international regulatory frameworks specific to AI, ML and data that regulators may wish to explore. Some of these, such as those in the EU and the United States, are being considered by the Government of Canada in the development of AIDA regulations.[81] These range from mandates for transparency in data usage and processing in the EU, and UK to enabling people to contest automated decision-making with EU's article 22 of the General Data Protection Regulation.[82] To provide a starting point, an overview of approaches in the US, Europe and Asia (specifically China) is included in Table 5.

81 Department of Innovation, Science and Economic Development Canada, "The Artificial Intelligence and Date Act Companion Document."
82 Bayamlioglu, "The Right to Contest Automated Decisions Under the General Data Protection Regulation: Beyond the So-Called Right to explanation."

Table 5: Global approach to AI and data protection

Aspect	Regulation	Description
Bias, discrimination and fairness	Racial Equality Directive Equality Act Several state-level statues	Prohibits discrimination based on ethnic origin
	Gender Directive Equality Act Several state-level initiatives	Prohibits gender discrimination
	GDPR Art.5 UK GDPR Art. 13-21 California Consumer Privacy Act	Ensures lawful, fair and transparent use and processing of personal data
	IDD Art. 20 NAIC Unfair Trade Practices Act	Requires insurance products to meet consumer demands and needs
Transparency and data governance	IDD Art. 20	Requires insurers to provide customers with objective product information
	GDPR Art. 5 13, 14	Mandates openness and transparency in data usage and processing
	GDPR Art. 5 Gramm-Leach Bliley Act, Fair Credit Reporting Act, CCPA	Outlines principles related to data processing, including data adequacy, relevance and accuracy
	GPDR Art. 30 UK GDPR Art. 35	Requires maintaining records of processing activities
Human oversight	GDPR Art. 22	Provides a right to object to automated decision-making
	NIS Directive 2 Art 41	Requires an effective system of governance for sound and prudent management and business

(The Geneva Institute)

5. Technology, Data and Automation in Adjusting

5.1 OVERVIEW

This chapter discusses the role of technology in Canadian insurance adjusting; specifically, the level of process automation, the data sources used to adjust claims as well as the technologies used to collect and process claims information.

5.2 PROCESS AUTOMATION

5.2.1 Information intake and damage assessment

The InsurTech survey[83] asked participants how often they automate their claims processes, and to what extent. The findings suggest companies are far more likely to use technology to collect claims-related information than they are to use technology to

Table 6

Practice	Industry use	
	At all	Use most or all of the time
Claims are reviewed manually with little to no technological support in collecting or assessing information.	75%	60%
Claims are reviewed manually with digital support in data entry and documentation.	81%	50%
Claims are reviewed manually with analytical support, such as image recognition in damage assessment.	64%	29%
Technology reviews claims, employing analytics (such as AI) to support damage assessment. However, the process is supported and verified by humans wherever needed.	44%	11%
Claims assessment is fully automated, utilizing advanced analytics and automated information intake.	16%	4%

☐ *Human-Led* ■ *Machine-Led*

Q. Recognizing that processes may differ depending on the type of claim, how often does your organization use the following approaches to adjust claims?

83 Only 33 adjusting firms completed the survey. Results are an indication only.

assess that information. Claims assessment is on a spectrum. More complex claims often require more human review. Most companies said their adjusters conduct claims assessments themselves with little to no technological support. Only 4% of companies said they fully automate their processes for most of their claims assessments.

Globally, claims lag behind other practices in terms of technology uptake. However, some companies are using advanced algorithms to handle initial claims triaging and routing. Technologies such as Internet of Things sensors, drone technology and other data collection methods are replacing more traditional manual methods of information collection.

Evaluating policy coverage

Once the damage is assessed, most companies (69%) often or always rely on adjusters to review policies, determine whether the claim is covered and assess the extent of coverage. Very few companies (10%) completely automate this process.

5.3 TECHNOLOGY UPTAKE

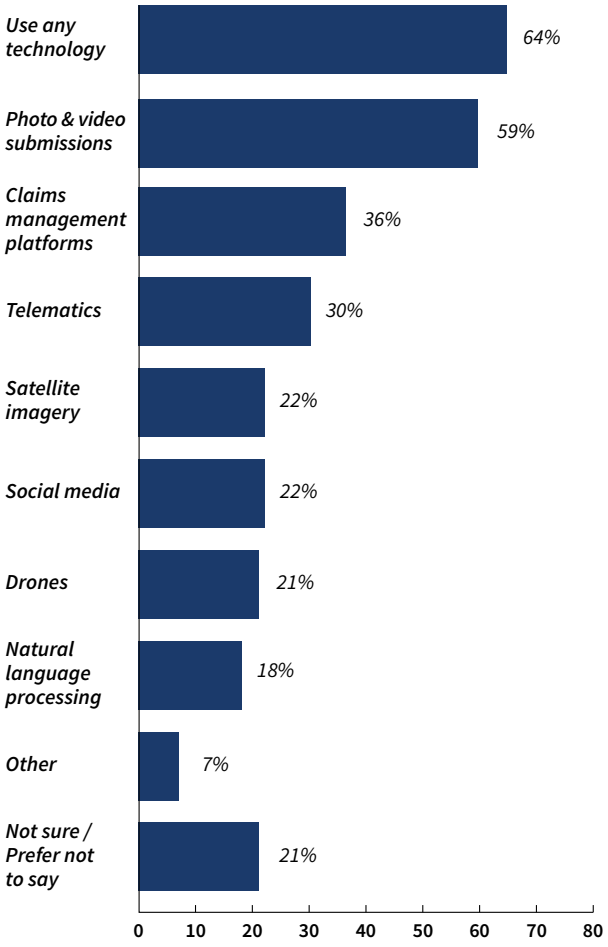
To understand what technologies are being used to support information intake and claims assessment, the InsurTech survey asked participants questions regarding their technology use in these areas.

5.3.1 Technology used for information intake

According to the InsurTech survey, adjusting firms are much more likely to use manual information collection methods such as paper documentation (86% of companies do this), on-site inspections (82%), and multi-channel phone/email communication (86%) than they are to use any form of technology (64%). In addition, most technology is used to facilitate customer-supplied information, such as photo and video submissions (59%) and self-service claims management platforms (36%), rather than in claims analysis.

Figure 12: Information collection methods used by adjusters

Percentage of companies using tech-based information collection



Social media

Social media is a powerful tool for fraud prevention. Almost one-quarter (22%) of adjusters surveyed use social media. However, social media could result in incorrect assumptions if customers unintentionally admit fault, make statements or post photos that could be seen as contradictory without being so, such as saying they are "sorry" or they're "okay" after an accident or posting old photos.[84] While there is case

84 Charbonnet Law Firm, "The Impact of Social Media on Your Insurance Claim."

law around the use of social media in claims (such as *Isacov v Schwartzberg, 2018 ONSC 5933* and *Welygan v Willms, 2013 BCSC 219*), the findings focus on how fraud prevention trumps the private nature of social media rather than ethical improvements. There is an opportunity to clarify how adjusters can ethically access social media information.

Risk rating: Moderate (4)	Risk: Social media data
	Severity: Moderate (2) The risk of social media incorrectly building a case against a claim is difficult to judge given there are no guidelines in place to review. Hence a conservative "moderate" impact has been applied.
	Likelihood: Moderate (2) 22% of the industry use social media data.
	Current protections: *Protection of Personal Information and Privacy Act.*

Telematics

Telematics, used by 30% of adjusting firms surveyed, allows insurance companies to measure driving behaviour in the underwriting process. They can also be used to detect crashes and speed up the claims process. The risks associated with this technology are discussed in the underwriting section of this report.

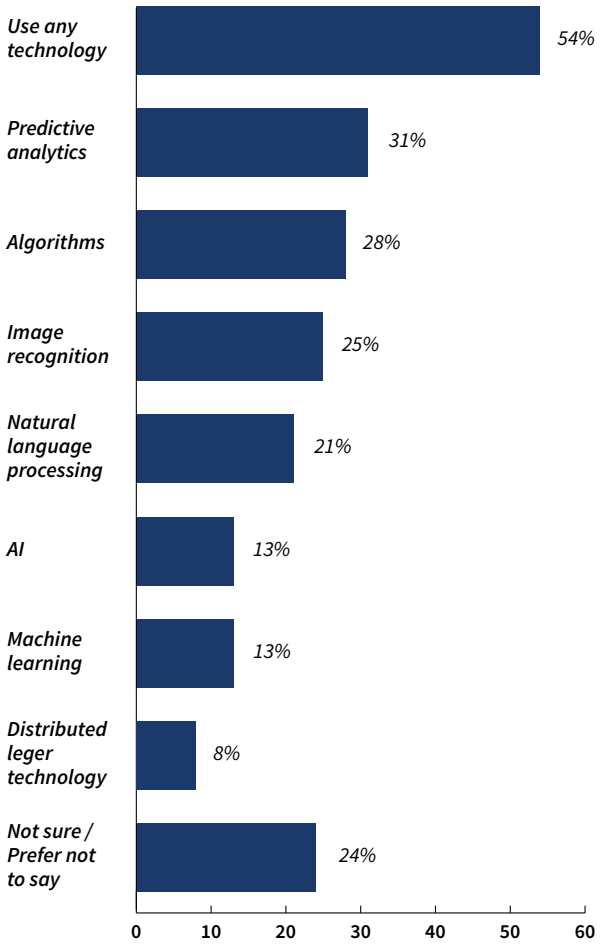
5.3.2 Technology used in claims assessment

According to the InsurTech survey, approximately half (54%) of adjusters use some form of technology when assessing claims.

Compared to underwriting (87%), technology use by adjusters is low, with 24% saying they are not sure or prefer not to answer this question, suggesting a low awareness about the role of technology in claims.

Figure 13: Information processing methods used by adjusters

Percentage of companies using tech-based information processing



Automated analytics

Analytical technologies, such as predictive analytics (31%) and algorithms (28%), are the most used technologies in assessing claims, with a smaller portion (13%) using AI-based analytical techniques. Despite this, usage rates are much lower than the rates seen in underwriting (61% for algorithms).

These technologies not only support claims assessment but also support adjusters to triage claims by prioritizing high-cost claims early in the process and fast-tracking low-cost claims for settlement. However, there have been international cases of automated assessment incorrectly mass-denying customers. In 2023, a lawsuit was filed against a US-based life insurance company for using an algorithm to identify whether claims met certain requirements. The algorithm spent 1.2 seconds reviewing each claim and denied more than 300,000 claims per month.[85]

Risk: Automated analytics in claims

Risk rating: Moderate (4)

Severity: Moderate (2)
Potential for consumers to be denied due to improper automated review.

Likelihood: Moderate (2)
60% of respondents involved in adjusting use fully or mostly automated claims assessment methods, but only 15% of adjusters do so for all or most cases. 13% use AI.

Current protections:
Nil.

85 Toronto City News, "Cigna Health Giant Accused of Improperly Rejecting Thousands of Patient Claims Using an Algorithm."

6. Consumer Risks and Options

6.1 OVERVIEW

The purpose of this report is to identify the scale and scope of InsurTech across distribution, underwriting and adjusting. This section consolidates and ranks the consumer protection issues identified in parts one to four of this report. The intention of ranking these risks is to provide regulators with an evidence-based starting point for future work and to give regulators something to aim for when considering their next steps. As such, this section proposes options regulators may wish to consider for further exploration.

All risks identified in this section are present across all forms of personal lines insurance, but distribution-related risks may be most prevalent in general insurance. As discussed in part one of this report, consumers wishing to purchase life or accident and sickness insurance online are more limited, leading more consumers to shop for these products through traditional channels.

6.1.1 Methodology

To understand the consumer risks associated with InsurTech uptake in Canada, the Insurance Council:

- Conducted industry interviews to gather information on the technology used in Canada and its impacts on consumer protection.
- Conducted the InsurTech survey to collect quantitative data on the adoption of technology and automation in the industry.
- Conducted online research to evaluate the impact of InsurTech and automated practices on consumer risks.

The project uses a two-axis risk matrix (see Figure 14) due to its ability to rank risks against their potential impact and their frequency, allowing an overall risk rating that accounts for both.

The report ranked risks as low, medium or high impact (as measured through consultation and research) and low, medium or high likelihood (as measured through the quantitative survey). The project multiplied the impact and likelihood to find the overall risk rating of a particular scenario.

Risk impact

Risk impact in this report is defined as the potential for a risk to cause financial loss or other harm to a consumer. The report establishes criteria for low, medium and high impact as follows:

- **Low Impact (1):** Unlikely to cause financial loss or other harm but may lead to general consumer dissatisfaction.
- **Moderate impact (2):** Potential to lead to some degree of financial loss, misrepresentation, inconvenience or other harm, including at the time of purchase or claim.
- **High Impact (3):** Potential to lead to a moderate or greater degree of financial loss, misrepresentation, inconvenience or other harm including at the time of purchase or claim.

Risk likelihood

The InsurTech survey identified the frequency of technology uptake in the industry. These technologies present potential risks to consumers. However, not every instance of a technology being used creates its associated risks. Therefore, risk

likelihood in this analysis is defined as the *possibility* of a *potential* risk occurring, represented as low, moderate or high.

- **Low likelihood (1):** Rare and infrequent, this risk could only occur less than 10% of the time, or the technology/practice is used by less than 10% of the industry.
- **Moderate likelihood (2):** Technology or practice could occur between 11% and 50% of the time or is used by 11% to 50% of the industry.
- **High likelihood (3):** Technology or practice could occur more than 50% of the time or is used by more than 50% of the industry.

Risk rating: Impact x likelihood

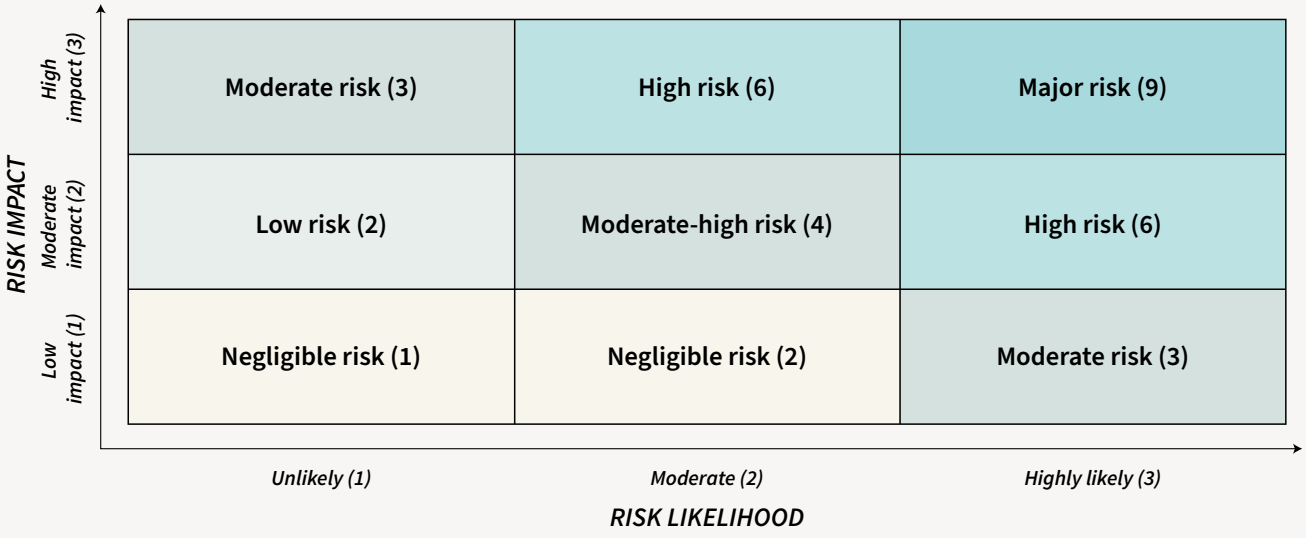
To find the risk rating of a particular event, practice or technology, the project multiplied the impact of the risk by its likelihood. For example, a high impact risk (3) multiplied by a moderate likelihood (2) would equate to an overall risk rating of high (6).

6.2 CONSUMER RISKS AND OPTIONS

This report identifies 13 consumer risks associated with InsurTech. It is essential to note that many of these consumer risks such as bias, poor consumer education and information privacy issues are also present in traditional insurance models, and conversely, sometimes machines can make fairer decisions than humans as they follow strict rules.[86] However, InsurTech introduces new dimensions to these risks that, unlike traditional insurance risks, may not be addressed within current regulatory frameworks.

The most significant consumer risks identified in this report are in underwriting. This is due to the higher adoption rates of technology and automation in underwriting compared to other segments of the industry. The increased adoption of technology amplifies the likelihood of InsurTech-related risks. For instance, 36% of underwriters have moderately to fully automated underwriting processes, compared to only 17% of moderately to fully automated sales channels for insurance distributors. Consequently,

Figure 14: Risk matrix: impact x likelihood



86 Andres, Higuera Garcia, "What if Machines Made Fairer Decisions than Humans?" 1.

risks associated with automation are more likely to manifest within underwriting.

6.2.1 Option areas

A key objective of this report is to establish an evidence base to inform future work, rather than prescribe specific actions. The report outlines key consumer risks associated with InsurTech and proposes principles to strive for when considering future regulatory initiatives. Each principle is accompanied by additional areas for future exploration.

Principles

The rapidly evolving nature of technology makes regulating InsurTech a complex and shifting task. However, there are consumer protection gaps specific to technology that merit regulatory consideration. To navigate this evolving landscape while fostering innovation, regulators should consider how consumer protection issues can be safeguarded irrespective of technological developments. The principles in this report were identified through an examination of the principles and purpose behind laws and regulations in other countries. They serve as a foundation for future deliberation on how BC regulators can adapt to technological change.

Areas for future consideration

In addition to the proposed principles, this report identifies specific areas for further exploration that align with the principles. Industry interviews highlighted the need for increased guidance and clarity to instill confidence in expanding online business operations without fear of unforeseen regulatory changes. It is important to note that these are not recommendations. Rather, regulators wishing to explore risk mitigation can consider how these areas can be applied or changed to meet the unique characteristics of their operating environment.

Table 7: Consumer risks and options

Activity affected	Risk and description	Risk impact	Risk likelihood	Principles to strive for	Options for further exploration
All	Information breaches	**High (3)** A data breach could harm consumers through the loss of personal information or money.	**Unknown (2)** The InsurTech survey did not measure exposure to personal information breaches.	**Principle 1: Data protection** Consumers have the right to expect that their provider and any third parties will respect their privacy and data to the best of their ability.	**Collaborate with provincial insurance regulators** to explore whether there are consistent levels of protection across Canada.
Distribution	Out-of-province sales (unlicensed)	**High (3)** Out-of-province sales professionals may not be aware of local risks or coverage options unique to the province. Errors and omissions insurance may not hold.	**Moderate (2)** Only 6% of policies are sold online. However, sales can occur over the phone, increasing the potential for an out-of-province sale.	**Principle 2: Provincial relevant knowledge** Consumers can expect that sales professionals are knowledgeable about the products they sell as they relate to the province the consumer resides in.	**Consider collaborating** with provincial regulators to understand how to non-punitively mitigate risks associated with interprovincial sales.
Underwriting	Discrimination, unfair practices and bias	**High (3)** Bias, errors or inaccuracies may lead to unwanted correlations or discrimination where sophisticated underwriting models find correlational links between characteristics or lifestyle factors not directly linked to the insurance product.	**Moderate (2)** 23% of the industry use ML, and 13% use AI.	**Principle 3: Suitable oversight** Consumers can expect underwriters to have systems in place for detecting and preventing unwanted correlations in underwriting models.	**Consider guidance or requirements** for underwriters on detecting and preventing unwanted correlations in AI models.
				Principle 4: Respecting consumer privacy Consumers can expect that underwriters only collect data about characteristics, events or habits directly related to the nature of the financial product they are purchasing.	**Consider guidance or requirements** on the type of data that should not be used by AI models.[87]
				Principle 5: Equitable accessibility No practice should impact consumers' best interests collectively or individually, such as creating barriers to entry because of a particular technology.	**Consider whether / how** consumers can have equal access to insurance products and services regardless of the technology being used to underwrite.
				Principle 6: Consumer autonomy Consumers should be informed and have equal freedom of choice irrespective of the technologies used to underwrite policies.	**Consider whether / how** reasonably priced options can be made available for consumers who do not wish to have an automated decision made about them.
				Principle 7: Justifiability When two consumers or groups are treated differently, the difference should be based on product-appropriate and justifiable criteria.	**Consider guidance** on including checks and balances in automated underwriting systems so that consumers are protected from paying higher rates or being denied based on proxy biases and/or discrimination.
				Principle 8: Respecting a consumer's right to choose Technology should not be used to alter the consumer's behaviour, even if the behaviour is considered positive.	**Consider guidance or requirements** to disclose or obtain consent before using any technology that could influence consumer behaviour.
Underwriting	Lack of transparency and explainability	**High (3)** AI models can become black boxes due to their complexity. It is difficult to explain causation and the roles of variables, and therefore difficult to check fairness and biases.	**Moderate (2)** 23% of the industry use ML, 13% use AI, and 12% have low levels of human oversight in their practices.	**Principle 9: Transparency** Consumers should be able to seek information about what factors will be considered in their underwriting decisions before product purchase.	**Consider guidance or requirements** that limit the type of information used to profile consumers.
				Principle 10: Explainability Consumers should have the opportunity to request clear explanations about the process and reasoning behind any decision that negatively impacts them.	**Consider guidance** on explainability for underwriting decisions or best practice suggestions for AI oversight committees. **Consider participating in consultation** to have financial products included in AIDA's definition of high-impact AI systems

High risk 6/9

87 The Geneva Association, "Regulation of Artificial Intelligence in Insurance: Balancing Consumer Protection with Innovation."

Activity affected	Risk and description	Risk impact	Risk likelihood	Principles to strive for	Options for further exploration	
Underwriting	Affordability	**Moderate (2)** Individuals may face higher premiums or under-insurance if individualized risk scoring detracts from their ability to obtain a pooled risk.	**Moderate (2)** 23% of the industry use ML, and 13% use AI. Most of the industry are using large volumes of external data.	**Principle 11: Consumer best interest** No practice or technology choice should impact consumers' best interests, collectively or individually.	**Consider guidance and policies** that deal with higher individual premiums when risk pools are reduced (due to individualized risk assessment).	Moderate-high risk 4/9
Underwriting	Data privacy and accuracy	**Moderate (2)** Poor data quality may lead to unintentional bias through ML training. Poor data choices may lead to false or inaccurate risk correlations. Both may unfairly increase premiums in underwriting. Non-protected data (e.g., not private) may be amalgamated to create a unique consumer profile which could impinge on the kinds of privacy that privacy regulation was established to protect.	**Moderate (2)** Over 50% of the industry use one or more of the following: third-party data, internal corporate data, open data, social media information.	**Principle 12: Related and appropriate risk links** Underwriters should only draw correlational risk linkages that are related to the nature of the financial product or service being offered.	**Consider guidance** around correlational data linkages and how these should only be made about characteristics, events or habits that are related to the nature of the financial product or service offered (AMF).	
Adjusting	Social media data	**Moderate (2)** The risk of social media incorrectly building a case against a claim is difficult to judge given there are no guidelines in place to review. Hence a conservative "moderate" impact has been applied.	**Moderate (2)** 22% of the industry use social media data.	**Principle 13: Ethical use of social media** Claimants can expect that any use of their social media activity in claims reviews follows an ethical framework that is transparent to regulators and the consumer.	**Consider options** around improving transparency or consistency regarding collecting and using social media claims information (e.g., social media policies).	
Adjusting	Automated analytics in claims	**Moderate (2)** Potential for consumers to be denied due to improper automated review.	**Moderate (2)** 60% of adjusters use fully or mostly automated claims assessment methods at all, but only 15% of adjusters do so for all or most cases. 13% use AI.	**Principle 14: Transparency** Consumers impacted by a claims decision should have the right to ask how their claim was processed.	**Consider transparency** guidance for claims adjusting.	
Distribution	Discrepancy in consumer protection standards	**High (3)** Online consumers may not have the same protection standards as the consumers who work directly with licensees.	**Low (1)** Only 6% of policies are sold online, and most companies selling online have a sales professional speak to a consumer before binding.	**Principle 15: Consistent levels of consumer protection** Consumers should expect consistent levels of consumer protection regardless of what distribution channel is used (this is already in place).	**Consider defining** what consistent levels of consumer protection means (what characteristics should be protected) and how it applies across insurance-related products and services. **Consider if clearer guidance** is needed regarding sales professional involvement for online sales.	Moderate risk 3/9
Distribution	Aggregator Websites	**High (3)** Risk of policy purchases based on misleading assumptions of full market comparisons.	**Low (1)** Only 6% of industry uses aggregators, and only one percent use them most of the time.	**Principle 16: Aggregator transparency** Consumers should be able to know if they are being offered an aggregator's full range of products or limited options.	**Consider applying fair representation and advertising principles** (under the BPCP Act) to encourage transparency for consumers about the range of products promoted by aggregators.	

Activity affected	Risk and description	Risk impact	Risk likelihood	Principles to strive for	Options for further exploration	
Underwriting	Chatbot inaccuracy and liability	**High (3)** As chatbots become more capable of fielding complex questions, misinformation could lead to consumers making sub-optimal decisions regarding their policy.	**Low (1)** Only 10% of the industry uses chatbots. Of these, 39% are not automated, or rarely automated.	**Principle 17: The right to competent communication channels** When consumers interact with an automated system, they should be able to get help at any stage of the process from a competent person.	**Consider guidance** on the use of chatbots in insurance sales (and adjusting).	Moderate risk 3/9
Distribution	Poor Consumer Education	**High (3)** Consumers entering the wrong information into a quoting system, or selecting the wrong product coverage, due to a lack of education could result in a significant financial loss for the consumer if they are under-insured or not insured.	**Low (1)** Only six percent of policies are sold online. In addition, many online companies have mitigation strategies, such as sourcing external data, to mitigate consumer's lack of understanding.	**Principle 17: (as above)**	**Consider information disclosure standards** regarding information types and format standards that must be provided to consumers to help them make a decision.	
Underwriting	Telematics	**Low (1)** Influencing consumer behaviour is unlikely to cause financial impacts or other loss not already captured by the data risk. Data breach issue is covered under the data privacy section.	**Moderate (2)** 19% of underwriters use telematics.	**Principle 18: Respecting a consumer's right to choose** Technology should not be used to alter the consumer's behaviour, even if the behaviour is considered positive.	Consider guidance on disclosure and consent before using any technology that could influence consumer behaviour.	Low risk 2/9

Table 7: Consumer risks and options

Activity affected	Risk and description	Risk impact	Risk likelihood	Principles to strive for	Options for further exploration
All	Information breaches	**High (3)** A data breach could harm consumers through the loss of personal information or money.	**Unknown (2)** The InsurTech survey did not measure exposure to personal information breaches.	**Principle 1: Data protection** Consumers have the right to expect that their provider and any third parties will respect their privacy and data to the best of their ability.	**Collaborate with provincial insurance regulators** to explore whether there are consistent levels of protection across Canada.
Distribution	Out-of-province sales (unlicensed)	**High (3)** Out-of-province sales professionals may not be aware of local risks or coverage options unique to the province. Errors and omissions insurance may not hold.	**Moderate (2)** Only 6% of policies are sold online. However, sales can occur over the phone, increasing the potential for an out-of-province sale.	**Principle 2: Provincial relevant knowledge** Consumers can expect that sales professionals are knowledgeable about the products they sell as they relate to the province the consumer resides in.	**Consider collaborating** with provincial regulators to understand how to non-punitively mitigate risks associated with interprovincial sales.
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