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# US and Canada: An Era of Value-added Enterprise Risk Management (Appendix)

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# CONTENTS

- Section 1: Insurance Market and ERM Overview ..... 4**
  - 1.1 Market Size and Growth ..... 6
  - 1.2 History of Insurance ..... 9
  - 1.3 Enterprise Risk Management (ERM) Overview ..... 11
  - 1.4 Journey Toward an ERM Taxonomy ..... 14
  
- Section 2: Research on Insurance and ERM in the U.S. and Canada ..... 17**
  - 2.1 The North American CRO Council ..... 17
  - 2.2 Key Insurance Publications ..... 18
  - 2.3 Other ERM Publications ..... 22
  
- Section 3: Acknowledgments ..... 23**
  
- Section 4: List of Participating Practitioners Interviewed ..... 24**
  
- Section 5: Methodology ..... 26**
  
- Section 6: Glossary ..... 27**
  
- Section 7: Online Survey with Key ERM Items from Practitioners ..... 29**

## Section 1: Insurance Market and ERM Overview

Insurers in the U.S. and Canada are rapidly evolving. According to Standard and Poor’s (S&P),<sup>1</sup> conditions remain largely favorable for several stakeholders of the insurance sector, such as brokers, health insurance and cost-containment service providers, claims managers and warranty administrators (especially for the middle-market insurance brokers), because of the resilience demonstrated through 2020–2021, when stress in the sector due to the COVID-19 pandemic was at its peak.

Nonetheless, significant risks are looming, not the least of which are the heightened input-cost pressures and ongoing supply disruptions that get reflected into replacement costs within the scope of insurance claims, such as car repairs due to collisions and home repairs due to property insurance claims. With the inflation rate remaining higher and for longer periods than most economists expected, central banks are tightening monetary policy (for instance, the U.S. Federal Reserve increased interest rates by 75 basis points in June 2022). This is prompting investors to rapidly reprice the risks, raising financing costs for borrowers, particularly those at the lower end of the ratings scale.<sup>2</sup>

Insurers are responding to these quick changes and passing their impact on to policyholders by developing more customized products, reducing exposure to guarantee-based products, adjusting risk, updating contractual conditions and reviewing rates/premiums to reflect the increased cost, particularly of claim payments in the property and casualty (P&C) sector.

The emerging risks and their drivers give more scope for the enterprise risk management (ERM) function to adopt practices to assess, reduce and mitigate risks<sup>3</sup>. ERM is crucial to strengthen the insurance industry and deepen its penetration and could contribute to premium volume<sup>4</sup> (by developing operational efficiency and reduced underwriting times, i.e., accelerated underwriting) and lead to better decision making and resiliency in the U.S. and Canada.

### Key Business Issues around ERM Practices

- Risk minimization: Emerging risks (e.g., climate risk and environmental, social and corporate governance [ESG]) and their drivers could be seen as distractions from key business targets like sales and new business. However, these risks and drivers can be viewed as an opportunity to enhance the risk assessment and enterprise integration processes while introducing policy and procedural updates.
- Adoption: Although ERM policies and procedures are in place in most organizations, the extent of implementation varies. It is critical to conduct ERM literacy programs and review the framework for operational risk management to enhance the mechanisms for identifying and managing risks.

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<sup>1</sup> “North American Insurance Services 2022 Outlook: Strong Economic Conditions and Rate Environment Support Stability,” S&P Global Ratings, January 5, 2022, <https://www.spglobal.com/ratings/en/research/articles/220105-north-american-insurance-services-2022-outlook-strong-economic-conditions-and-rate-environment-support-stabi-12225082> (accessed on June 30, 2022).

<sup>2</sup> Ibid.

<sup>3</sup> A business continuous process, led by senior leadership, that extends the concept of risk management and includes: Identify risks across the entire enterprise; Assessing the impact of risks to the operations and mission; Developing and practicing response of mitigating plans; and monitoring the identifies risk and scan for emerging risks.

<sup>4</sup> Having the ERM framework in place may maintain or improve the insurer’s credit ratings, and improved ratings bring confidence to investors that could contribute to the insurer’s financial strength and thereby improve policy holder interaction and premium collection process.

- Collaboration: Traditionally, organizations managed risks in silos. Each business unit was treated as an isolated risk source. But ERM aims to treat risk in a holistic manner and manages and assesses risks from a multidimensional perspective, and so it benefits from diversification of talent. Hence, increasing collaboration and communication with other functional teams in the organization is important, particularly to enable innovation (for instance, accounting and investment).

To enhance value in the ERM function, practitioners should look beyond traditional risks, and at emerging risks and drivers such as strategic, cybersecurity, ESG and cultural risks. Insurers could also continue investing in cloud computing for liabilities, technology for cybersecurity defense, data processing and robust model risk management (MRM).

Table 1 presents a snapshot of key areas covered in detail in this report.

**Table 1:**

**KEY BUSINESS ISSUES AND SAMPLE OPPORTUNITIES FOR PRACTITIONERS FOR ERM VALUE-ADD**

Area	Key Business Issue	Sample Opportunities
<b>Innovation Environment</b>	<ul style="list-style-type: none"> <li>• Finding the right talent and skills</li> <li>• Rethinking insurance products for new cohorts of consumers (millennials and beyond)</li> <li>• Ambidexterity<sup>a</sup> limitations: inability to perform BAU operations and innovation simultaneously</li> </ul>	<ul style="list-style-type: none"> <li>• Promote learning and outline key skills required, such as cloud computing, AI/ML, data analytics and data warehousing</li> <li>• Form innovation work groups in the first line and meet monthly to create business ideas, solutions and recommendations</li> <li>• Enhance regulatory collaboration. For instance, in the U.S., the NAIC formed the Innovation and Technology Task Force to explore technological developments in the insurance sector.</li> </ul>
<b>Business Environment</b>	<ul style="list-style-type: none"> <li>• Achieving agile AI/ML adoption and data cybersecurity</li> <li>• Ethical use of AI/ML</li> <li>• Prevailing inflation scenario</li> <li>• Rapid business transformation and complex model change management workflow/process</li> </ul>	<ul style="list-style-type: none"> <li>• Prioritize data centralization and cloud-based solutions for model development. Conduct internal “hackathons,” invest in technology and conduct frequent cyberaudits.</li> <li>• Review and propose enhancements to key performance Indicators (KPIs) and include periodic impact in reporting (e.g., inflation in insurance-linked products or claims)</li> <li>• Streamline model change practices, triggered by new regulations (e.g., IFRS 17, PBR, LDTI),<sup>b</sup> simplify memos, update inventory systems, update model development documentation and so on</li> </ul>
<b>Regulatory Environment</b>	<ul style="list-style-type: none"> <li>• Increase regulatory focus on unfair discrimination in insurance pricing and marketing</li> <li>• Increase frequency and speed of rate filing</li> <li>• Adopt regulations at local entity level and identify differences between local (state/province) and federal regulations (in the U.S. the</li> </ul>	<ul style="list-style-type: none"> <li>• The adoption of AI/ML and predictive analytics is helping to develop models for a variety of business uses to deal with ratemaking and marketing</li> <li>• Provide recommendations on the way the insurer is performing in its own-risk-and-solvency-assessment report, submitted to the regulator</li> <li>• Voluntarily participate and present opinions on regulatory exposure drafts and anticipate implementation roadmap</li> <li>• Assess model risk arising from new regulations and meet enterprisewide expectations of MRM</li> </ul>

	<p>issue is more about divergence between states)</p>	<ul style="list-style-type: none"> <li>Review and increase experience study frequency and practices to improve identification of unexpected changes to rates such as mortality and claim severity due to rapidly changing medical cost.</li> </ul>
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<sup>a</sup> Refers to the Innovation Ambidexterity Theory and the approach of the organization to deal with business as usual (BAU) activities and innovation

<sup>b</sup> Refers to the International Financial Reporting Standard No. 17 (IFRS 17), principle-based reserving (PBR) and long duration targeted improvements (LDTIs).

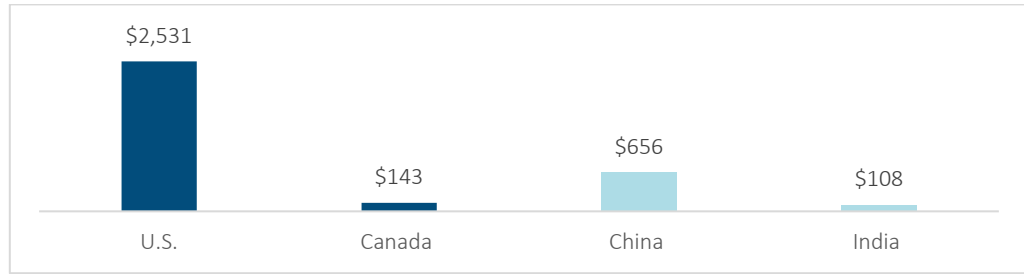
**Source:** Authors’ impressions based on practitioners’ opinions.

**1.1 MARKET SIZE AND GROWTH**

The U.S. and Canadian markets have been developing since the 1700s and have gradually increased in regulatory complexity, including federal, local (state/province) regulation and international reporting accounting standards (IFRS) that multinational insurers see today; for the U.S., generally accepted accounting principles (U.S. GAAP) are prevalent for domestic insurers. The regulated insurance environment has been instrumental in shaping the insurance industry in the region. The regulators of the states or provinces and territories laid emphasis on solvency and consumer protection, which includes oversight of pricing, availability of coverage and claims. The insurance industry has been through many paradigm shifts, from tremendous demographical changes to evolution of financial services and emergence of e-commerce. In 2020, in the U.S. total direct premiums written in the insurance industry were near USD 1.5 trillion, up 1.6% from 2019. Direct premiums written in P&C rose 2.3%,<sup>5</sup> and those in life/annuity<sup>6</sup> rose a marginal 1%.<sup>7</sup> Premium income as a percentage of U.S. gross domestic product (GDP), which shows the relative importance of the insurance industry in the domestic economy, was 12.5%, considerably higher than in markets such as Canada (8.7%), China (4.5%) and India (4.2%)<sup>8</sup> (Figure 1). The U.S. is ranked first in global premium volumes, and Canada is ranked ninth. Market penetration for the life insurance industry is relatively stable but has been trending downward over the past decade.<sup>9</sup> Insurance market key figures in the U.S. and Canada are represented in Figure 2.

<sup>5</sup> Direct premiums written before reinsurance transactions. Excludes state funds; includes accident and health insurance.  
<sup>6</sup> Includes premiums, annuity considerations (fees for annuity contracts), deposit-type funds and accident and health insurance.  
<sup>7</sup> “U.S. Insurance Industry: All Sector,” Insurance Information Institute, <https://www.iii.org/publications/insurance-handbook/economic-and-financial-data/us-insurance-industry-all-sectors> (accessed on June 30, 2022).  
<sup>8</sup> “Life and Non-Life Insurance Penetration by Country 2020,” Statista. April 11, 2022, <https://www.statista.com/> (accessed on June 2022)| “Covid Brings Life Insurance Penetration in India to Global Levels,” *The Economic Times*. January 31, 2022, <https://economictimes.indiatimes.com/> (accessed on June 30, 2022)| “Insurance Spending,” OECD, <https://data.oecd.org/> (accessed June on 30, 2022).  
<sup>9</sup> “Life Insurance Ownership,” Insurance Information Institute, <https://www.iii.org/> (accessed on June 30, 2022).

**Figure 1:**  
**INSURANCE PREMIUM VOLUME AND GLOBAL RANK BY SIZE OF SELECT COUNTRIES IN 2020 (USD BILLION)**



Global rank	1st	9th	2nd	11th
Insurance penetration <sup>a</sup>	12.5%	8.7%	4.5%	4.2%

<sup>a</sup> Insurance penetration expressed as ratio of total premiums to GDP.

**Source:** "World Insurance: The Recovery Gains Pace," in *Sigma*, no. 3, Swiss Re Institute, March 2021, <https://swissre.com/>; "Life and Non-life Insurance Penetration by Country 2020," Statista, April 11, 2022; Naveen Kumar, "COVID Brings Life Insurance Penetration in India to Global Levels," *Economic Times*, January 31, 2022, <https://economictimes.indiatimes.com.>

**Figure 2:**  
**U.S. AND CANADA INSURANCE MARKET IN KEY FIGURES**

U.S.	Canada
330+ million population	38+ million population
USD 834B+ direct written premiums in health insurance <sup>10</sup>	CAD 46B+ direct written premiums in health insurance <sup>11</sup>
USD 767B+ direct written premiums in life insurance <sup>12</sup>	CAD 45B+ direct written premiums in life insurance <sup>13</sup>
USD 725B+ direct written premiums in insurance on homes, cars and businesses <sup>14</sup>	CAD 56B+ direct written premiums for insurance on homes, cars and businesses
91%+ covered with private health insurance or received health care services under a federal program (such as Medicare or Medicaid) <sup>15</sup>	66%+ covered with private health insurance or received health care services under public program <sup>16</sup>
50%+ covered by some type of life insurance	59%+ covered by some type of life insurance
87%+ coverage of automobiles (including commercial vehicles), personal property, commercial property and liability	80%+ coverage of automobiles (including commercial vehicles), personal property, commercial property and liability <sup>17</sup>
0.7%+ coverage of pet insurance	2%+ coverage of pet insurance
18%+ GDP in health consumption expenditures	13%+ GDP in health consumption expenditures
Country-Specific Gaps	Country-Specific Gaps
8%+ have no health insurance	30%+ have no supplementary <sup>18</sup> health insurance
45%+ have no life insurance	40%+ have no life insurance
10%+ have no auto insurance <sup>19</sup>	15%+ have no auto insurance

**Source:** “Insurance Industry at a Glance,” Insurance Information Institute, <https://www.iii.org/publications/>; “Canadian Life & Health Insurance Facts,” Canadian Life & Health Insurance Association, 2021, <https://www.clhia.ca/>; “Facts + Statistics: Life Insurance,” Insurance Information Institute, <https://www.iii.org/>; “Canada Life Insurance: Key Trends and Opportunities to 2025,” Global Data, November 2021, <https://www.globaldata.com/>; “These Are the Top 25 P&C Insurance Companies in the US,” *Insurance Business*

<sup>10</sup> “Insurance Industry at a Glance,” Insurance Information Institute, <https://www.iii.org/publications/a-firm-foundation-how-insurance-supports-the-economy/introduction/insurance-industry-at-a-glance> (accessed on June 30, 2022).

<sup>11</sup> “Canadian Life and Health Insurance Fact,” Canadian Life & Health Insurance Association, 2021, [https://www.clhia.ca/web/CLHIA\\_LP4W\\_LND\\_Webstation.nsf/resources/Factbook\\_2/\\$file/2021+FACT+BOOK+EN.pdf](https://www.clhia.ca/web/CLHIA_LP4W_LND_Webstation.nsf/resources/Factbook_2/$file/2021+FACT+BOOK+EN.pdf) (accessed on June 30, 2022).

<sup>12</sup> “Facts + Statistics: Life Insurance,” Insurance Information Institute, <https://www.iii.org/fact-statistic/facts-statistics-life-insurance> (accessed on June 30, 2022).

<sup>13</sup> “Canada Life Insurance: Key Trends and Opportunities to 2025,” Global Data, November 2021, <https://www.globaldata.com/store/report/canada-life-insurance-market-analysis/> (accessed on June 30, 2022).

<sup>14</sup> Mark Rosanes, “These Are the Top 25 Property/Casualty Insurance Companies in the US,” *Insurance Business America*, September 20, 2021, <https://www.insurancebusinessmag.com/us/guides/these-are-the-top-25-property-casualty-insurance-companies-in-the-us-32630.aspx?Region=United+States> (accessed on June 30, 2022).

<sup>15</sup> “U.S. Health Care Coverage and Spending,” Congressional Research Service, April 2022, <https://sgp.fas.org/crs/misc/IF10830.pdf> (accessed on June 30, 2022).

<sup>16</sup> Charlie Clissitt, “Healthcare in Canada,” *MoveHub*, April 14, 2022, <https://www.movehub.com/uk/moving-abroad/canada/healthcare-for-expats/> (accessed on June 30, 2022).

<sup>17</sup> “Canada Property and Casualty Insurance Market—Growth, Trends, Covid-19 Impact, and Forecasts (2022–2027),” Mordor Intelligence, <https://www.mordorintelligence.com/industry-reports/property-casualty-insurance-market-in-canada> Car Insurance Statistics Canada | Finder Canada (accessed on June 30, 2022).

<sup>18</sup> Supplementary health insurance provides coverage for hospital and medical expenses not covered by public health plans, such as prescription medicines, vision care, dental care and mental health supports. Supplemental insurance can also provide income replacement for those unable to work due to disability.

<sup>19</sup> “Facts + Statistics: Uninsured Motorist,” Insurance Information Institute, <https://www.iii.org/fact-statistic/facts-statistics-uninsured-motorists> (accessed on June 30, 2022).



America, September 20, 2021, <https://www.insurancebusinessmag.com/>; “U.S. Health Care Coverage and Spending,” Congressional Research Service, April 2022, <https://sgp.fas.org/crs/misc/IF10830.pdf>; “Healthcare in Insurance,” *MoveHub*, April 14, 2022, <https://www.movehub.com/>; “Canada Property and Casualty Insurance Market—Growth, Trends, COVID-19 Impact, and Forecasts (2022–2027),” *Mordor Intelligence*, <https://www.mordorintelligence.com/>; “Facts + Statistics: Uninsured Motorist,” Insurance Information Institute, <https://www.iii.org/>.

**1.2 HISTORY OF INSURANCE**

The history of insurance in the U.S. and Canada goes back more than three centuries. As in many other regions, early insurance companies here, too, focused on pooling capital against large, infrequent losses, such as maritime shipment and fire.

As the countries grew and developed, so did the insurance industry, growing in size and sophistication. Insurers’ profitability has followed the path of the financial markets, growing in booms, and shrinking in busts. An abbreviated timeline is given in Table 2.

**Table 2:**  
**TIMELINE OF KEY EVENTS**

Timeline	Key Event
<b>1700s</b>	<ul style="list-style-type: none"> <li>The first domestic fire coverage in the U.S. and marine coverage insurance products were already in place before the Revolutionary War.</li> <li>The first mutual insurance company in the U.S., the Friendly Society, was founded in 1735 (it went out of business in 1740 after a massive fire destroyed much of Charleston, SC).<sup>20</sup></li> <li>In 1792, the Insurance Company of North America (INA), the oldest stock insurance company in the U.S., was founded. Its successor company, CIGNA, was acquired by Chubb in 1999.</li> </ul>
<b>1800s</b>	<ul style="list-style-type: none"> <li>In 1812, the Pennsylvania Company became the first life insurance company founded in the U.S.</li> <li>In 1846, the Canada Life Assurance Company, the first Canadian life insurance company, was founded.<sup>21</sup></li> <li>In 1871, the NAIC was created, instituting a nationwide standard-setting body for U.S. insurers.</li> <li>The passing of the first Canadian insurance law in 1868, the Dominion Insurance Act, prompted the establishment of major insurance companies (Mutual Life, Sun Life, Confederation Life and London Life) in the 1870s.<sup>22</sup></li> <li>Before the Civil War, the U.S. was an important market for insurers from the U.K. to cover the cotton trade. After the Civil War, many foreign insurers, including from Canada, Germany, Russia and Switzerland, were attracted to the growing U.S. market.</li> </ul>

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<sup>20</sup> “Brief History,” Insurance Information Institute, <https://www.iii.org/publications/insurance-handbook/brief-history> (accessed on June 30, 2022).

<sup>21</sup> “Our History,” Canada Life, <https://www.canadalife.com/about-us/who-we-are/company-history.html> (accessed on June 30, 2022).

<sup>22</sup> C. Haehling Von Lanzanauer, “Insurance,” *The Canadian Encyclopedia*, February 7, 2006, <https://www.thecanadianencyclopedia.ca/en/article/insurance> (accessed on June 30, 2022).

Timeline	Key Event
1900s	<ul style="list-style-type: none"> <li>The Industrial Revolution brought greater opportunities for innovation in insurance products and enhanced coverage.</li> <li>The San Francisco earthquake of 1906 caused USD 10 billion in damages and USD 4.9 billion in claims, which represented 47 years of profit for the entire U.S. insurance market.</li> <li>U.S. insurers began to successfully expand into European markets, a trend that was stopped by World War I.</li> </ul>
1920s	<ul style="list-style-type: none"> <li>Customer culture and mass marketing emerged, and insurance products to protect newly available products, such as automobiles, soon followed.</li> <li>The Stock Market Crash of 1929 impacted the entire U.S. and global economy, as well as insurers. During the Great Depression, life insurers fared better than others as they offered protection to families in a time of economic uncertainty.</li> <li>What is now known as Blue Cross Blue Shield was founded in 1933 as an organization that provided access to medical services at local Minnesota hospitals in exchange for fixed monthly fees.<sup>23</sup></li> </ul>
1950–1960s	<ul style="list-style-type: none"> <li>After World War II, the U.S. liberalized insurance markets, allowing insurers to diversify away from single-line underwriting.</li> <li>The postwar economic expansion and customer-driven markets provided a conducive environment for the U.S. insurance industry, driving developments in risk management and actuarial science.</li> <li>By 1965, the number of life insurance contracts in the U.S. was almost three times higher than in 1945.</li> </ul>
1970s	<ul style="list-style-type: none"> <li>The 1970s saw a breakdown of international monetary agreements reached in the immediate aftermath of World War II. The U.S. was entering an extended period of economic uncertainty marked by rising inflation and volatile exchange rates.</li> </ul>
1980s	<ul style="list-style-type: none"> <li>U.S. insurers competed aggressively in the 1970s and 1980s, offsetting unprofitable underwriting with high investment returns. By the mid-1980s, mounting losses pressured half of the previously existing reinsurers to leave the U.S. market.</li> <li>The worldwide trend toward financial de-regulation prompted changes in Canadian legislation governing investments and capital reserve requirements. The laws in force had been in place since 1899.</li> <li>In 1987, Canada created the Office of Superintendent of Financial Institutions (OSFI), a single federal regulatory agency responsible for the oversight of banks and insurers.</li> </ul>

<sup>23</sup> “Our Story,” BlueCross BlueShield Minnesota, <https://blog.bluecrossmn.com/future-of-health-care/born-from-the-great-depression-a-continued-promise-to-protect-the-sustainability-of-health-care-costs/> (accessed on June 30, 2022).

Timeline	Key Event
2000s	<ul style="list-style-type: none"> <li>In 2001, the September 11 terrorist attacks in the U.S. claimed the lives of more than 3,000 people, many of whom worked for insurance and other financial services firms. Insurers paid an estimated USD 23.8 billion, making 9/11 the costliest insured manmade disaster ever.</li> <li>In 2005, Hurricane Katrina became the most expensive natural disaster in U.S. history to date, with 1.7 million claims and USD 41.1 billion in losses to private insurers.<sup>24</sup></li> <li>Competition that followed previous deregulation led to just three insurers controlling 75% of the Canadian life insurance market by 2008.</li> <li>In 2008, the collapse of investment bank Lehman Brothers signaled the onset of the Global Financial Crisis. AIG, which had USD 1 trillion in assets in 2007, lost USD 99 billion in 2008 and was rescued by a USD 85 billion loan by the U.S. Federal Reserve.</li> </ul>
2010s	<ul style="list-style-type: none"> <li>Over this decade low interest rates in the financial markets pushed multiple insurance companies to redefine their products, for example, eliminating their guarantees in their insurance products.</li> </ul>
2020s	<ul style="list-style-type: none"> <li>The onset of the COVID-19 pandemic in 2020 and its continuance has caused widespread economic disruption, spikes in health care costs and life insurance claims, and surging inflation because of monetary policy intervention and economic change.</li> </ul>

Source: "A History of US Insurance," Swiss Re, <https://www.swissre.com/>; "A History of Insurance in Canada," Swiss Re, <https://www.swissre.com/>.

### 1.3 ENTERPRISE RISK MANAGEMENT (ERM) OVERVIEW

ERM is an orderly or prescribed conduct or pattern of behavior for an enterprise that requires full support and commitment of the enterprise's management, influences corporate decision making, and ultimately becomes part of the culture of that enterprise. It is particularly relevant to the insurance industry, acting as a strategic decision support framework for management. It improves decision making at all levels of the organization.

From an oversight perspective, ERM encompasses the culture, capabilities and practices that organizations integrate with strategy setting and apply when they carry out that strategy, with the purpose of managing risks in creating, preserving and realizing value. It requires more than taking an inventory of all the risks within the organization. It is a broader concept that includes practices that the management puts in place to actively manage those risks.

The essence of ERM charters, policies, risk appetite, frameworks, guidelines and practices has transcended the compliance goal and aims to bring operational efficiencies and create a more holistic vision of the enterprise. Insurers use ERM to reduce, mitigate and transfer risk.

The evolution of ERM<sup>25</sup> brings to fore business issues and opportunities. These stem from the realization that risk management of "single elements" has its flaws. The approach has changed because of the emergence of new and larger risks (man-made and/or natural catastrophes), the merger and acquisition of insurance and financial institutions, increased management accountability pressures, corporate governance and the prevailing environment around innovation, business and regulatory risks. These scenarios might have been mitigated had the firms possessed connected risk management systems and processes. Importantly, such an understanding of risks across a

<sup>24</sup> "Hurricane Katrina Fact File," Insurance Information Institute, March 2010, <https://www.iii.org/sites/default/files/docs/pdf/HurricaneKatrinaFactFile-0320101.pdf> (accessed on June 30, 2022).

<sup>25</sup> "Overview of Enterprise Risk Management," Canadian Actuarial Society, May 2003, [https://www.casact.org/sites/default/files/database/forum\\_03sforum\\_03sf099.pdf](https://www.casact.org/sites/default/files/database/forum_03sforum_03sf099.pdf) (accessed on June 30, 2022).

firm could also improve its credit rating, and by extension, reduce its cost of business, driving tangible business benefits. ERM combines the traditional risk management activities and take a holistic approach. It allows organizations to analyze the interconnectedness between different risks and the cumulative effects of the risks. From a multidimensional perspective, it also enables organizations to focus on the right risks and allocate resources accordingly.

In terms of scope, ERM could be used by insurers of any size. If an organization has a mission, strategy and objectives—and the need to make decisions that fully consider risk—then ERM is relevant. It can and should be used by all kinds of organizations, from small businesses to community-based social enterprises, government agencies and Fortune 500 companies.

Implementation and adoption of ERM is an ongoing process that requires involvement of senior management and all stakeholders of the enterprise, which include shareholders and debtholders, management and officers, employees, customers and the community within which the enterprise resides.

An ERM initiative needs to be a comprehensive and incremental process and cannot be an instantaneous one. Therefore, an organization must decide the scope of the ERM program by establishing clear targets, metrics and reporting requirements as the program develops. The most common risks categories overseen by ERM are the following (refer to Glossary for more details):

- Compliance
- Strategic
- Credit
- Insurance
- Investment<sup>26</sup>
- Competition
- Operational
- Regulatory
- Underwriting

In the U.S. and Canada, practitioners in the insurance industry continue to have a lively debate on how risks should be defined. For an ERM program to obtain corporate-wide buy-in and genuinely add value, it must be built around measurable risks, metrics, analysis and assessments that truly reflect the insurance company's risk culture. In other words, it must be in line with the strategy and operating model adopted by senior management and the Board of Directors. ERM is divided into three lines of defense: risk owners (first line), oversight (second line) and internal audit (third line).<sup>27</sup> The lines of defense are coordinated by the ERM committee chair, who is in direct contact with the company's board of directors in the day-to-day ownership and management over risks and controls.

Typically, the chief risk officer (CRO; ERM chair), along with the board of directors and compliance functions, participates in the process of defining the ERM charter, policies and risk appetite, frameworks and guidelines mentioned earlier. The charter is a foundational document that defines the key roles and responsibilities of the ERM

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<sup>26</sup> Also comprises financial market risk.

<sup>27</sup> Antonius Alijoyo, "Three Lines of Defense," Enterprise Risk Management Academy, <https://www2.erm-academy.org/publication/risk-management-article/three-lines-defense/> (accessed on June 30, 2022).

function, including segregation in the three lines of defense and the scope of each line. The policy has further details on the scope and overall decision-making process and approval requirements to deal with risks, effectively ensuring the risk appetite statement is monitored. The frameworks and guidelines operationalize the policy and include elements to ensure the three lines of defense perform their routine activities effectively. For instance, the first line owns the risk and typically is responsible for risk quantification (controls/testing) because it can add value to the entire organization through risk assessment and monitoring by leveraging its in-depth understanding of the sources of risks. In addition to the above mentioned ERM documents, additional policies may be put in place to achieve prudent oversight. For instance, the asset liability committee may have its own risk appetite and decision-making process. Further, the sustainability team may have its own guidelines (including limits) to deal with the financial impact and scenario analysis of climate change.

### **The First Line of Defense—Risk Owners**

The first line of defense comprises functions that own and manage risks and managers and staff who are responsible for identifying and managing risk. Collectively, they should have the necessary knowledge, skills, information and authority to operate the relevant risk control policies and procedures. This process requires an understanding of the company, its objectives, the environment in which it operates and the risks it faces. Key activities of risk owners include the following:

- Risk assessment: Handle risk assessment and identify emerging risks
- Policy adoption: Adopt and implement risk management policies that govern the roles and responsibilities of risk owners, especially in activities that lead to corporate growth. They are expected to be fully aware of the risk factors to be considered in every decision and action
- Internal controls: Implement effective internal control in business units and a monitoring process and maintain transparency in the internal control process.

### **The Second Line of Defense—Oversight**

The function provides policies, frameworks, tools, techniques and support to enable the first line of defense to manage risk and compliance, monitors effective risk and compliance management, and helps ensure consistency in definition and measurement of risk. Key activities of the oversight team include the following:

- Policy making: Handle development, monitoring and implementation of the company's overall risk management process
- Ongoing monitoring: Monitor and ensure that all business functions comply with risk management policies and standard operating procedures established by the company
- Reporting: Report to the department with the highest accountability on the company's complete exposure to risks

### **The Third Line of Defense—Internal Audit**

Internal audit drives the functions that provide independent assurance. Being outside the risk management processes of the first two lines of defense, its main role is to ensure that the first two lines are operating effectively and suggest improvements. It evaluates the effectiveness of governance, risk management and internal controls and reports to the organization's governing body and audit committee. It can also give assurance to sector regulators and external auditors that appropriate controls and processes are in place and are operating effectively. Key activities of internal audit include the following:

- Review and evaluate the design and implementation of risk management holistically

- Ensure the effectiveness of the first layer of defense and the second tier
- Rationalize and systematize risk assessment and governance reporting
- Provide assurance that risk management processes are adequate and appropriate

Here are a few examples of the best practices followed by insurers:

- *ERM charter.* An ERM charter, along with frameworks and documents such as policies, reporting, guidelines and procedures, helps practitioners navigate the intricacies of risk identification, measurement and mitigation. Putting these in place is crucial for ERM to work effectively.
- *ERM chair.* One of the best practices followed by large insurers lays down that the CRO should chair the ERM committee. Some small insurers may not have an ERM committee, but the chief actuary may be the de facto ERM chair, provided the legislation supports it.
- *ERM committee.* Hold monthly, quarterly or annual meetings to assess the risk universe, interact with stakeholders from each risk category, check controls and mitigants, and escalate issues, if required. ERM committees respond to any risk arising from tweaking of regulations or any other major events (such as the COVID-19 pandemic). A key activity of the ERM committee is to understand what the regulator requires and assess its impact on the insurer. To do that, ERM practitioners actively liaise with regulators to understand the requirement, give opinions, and assess impact, and work with their internal support functions to ensure proper risk controls and guidelines are adopted.
- *ERM lines of defense.* First-line practitioners have the budget to drive most of the business initiatives, be they business-as-usual (BAU) activities or innovation (business transformation). The second line works closely with risk owners in the first line to bring value by identifying efficiency opportunities, specifically around reporting. The third line looks beyond and analyzes interlinkages within the risk categories and their possible impact on policyholders. Together, the three lines create a collaboration matrix. Hence, it is not a one-way communication or workflow process.
- *ERM risk subcategories or risk taxonomy.* Periodic review is performed of risk identification and taxonomy to include emerging or evolving risks, such as pandemic, hyperinflation, cybersecurity, ESG, cultural and climate change.
- *ERM analytics.* Other key activities that ERM practitioners are focusing on include formulation and accessibility metrics, key performance indicators (KPIs), suggestions to improve reporting to enhance portability (e.g., centralization of key business data or portfolio-level data, such as assets, liabilities, new business and claims), and consistent use of data and reports across the organization.
- *ERM collaboration.* ERM practitioners in the three lines of defense—risk owners, oversight groups and internal auditors—are seeking ways to add value to their organizations. Those working at companies with more mature ERM functions in the U.S. and Canada do that by collaborating with other business units to better understand their top-of-mind risks, such as financial, nonfinancial and regulatory.

#### 1.4 JOURNEY TOWARD AN ERM TAXONOMY

The ERM taxonomy may be seen as an inventory common risk categories at the company level. The purpose of an ERM risk category taxonomy is to identify and mitigate risks through a collaborative process, and the risk management organization can seek the assistance of various departments for naming and defining the ERM taxonomy to foster a common risk category across the organization. A coherent taxonomy is an essential ingredient of effective ERM. It is not “nice to have,” but rather a compliance and regulatory requirement.

A defined ERM taxonomy also enables collaboration across functional areas in insurance, particularly in situations where a common risk affects apparently disjoint business units. For example, the recently created data science function at insurance companies is collaborating closely with model risk functions to better understand the scope of their algorithms and how potential bias issues may lead to discrimination risk when used in accelerated underwriting solutions. This type of interaction is used as an allied advantage to advocate the benefits of adopting ERM practices. Portions of the risk taxonomy are typically authored by varied business units, which collaborate to bring deep expertise to the terms and definitions. To reflect on learnings and changes in business strategy, these groups should be actively engaged to regularly update the taxonomy.

ERM risk taxonomy should help identify risks in critical end-to-end business processes. No one-size-fits-all approach to ERM taxonomy exists, but adoption can be facilitated through collaboration with business practitioners. A successful taxonomy codifies the risk language most frequently used and understood within an organization. Table 3 highlights an approach to define ERM taxonomy. This risk taxonomy forms the backbone of ERM and ensures consistency across different types of risk measurements. The authors have highlighted key risk factors practitioners have focus due to prevailing business and regulatory environment, but the reader could find each of these pertinent at any given time.

**Table 3:**  
**ERM RISK CATEGORIES AND KEY RISK FACTORS**

ERM Risk Categories	Key Risk Factors (Focus by Practitioners)		Risk Category Scope	Example: Adoption of ERM Policy or Framework	Example: Action to Mitigate Risk
Compliance	<b>U.S.:</b> Regulatory Political uncertainty	<b>Canada:</b> Corruption	Legal and financial penalties for failing to comply with internal and external regulations and legislations	Compliance teams are taking responsibility and collaborating with multiple business areas ranging from product development to financial reporting	Collect cross-functional inputs, leverage data, define responsibilities and reporting requirements for employees, and promote a risk and compliance culture
	<b>Commonality:</b> Data privacy protection Conflict of interest Conduct risk				
Strategic	<b>U.S.:</b> AI/ML adoption	<b>Canada:</b> Climate considerations	Risk to earnings arising out of adverse business decision, and not keeping up with customer needs and preferences	A risk-aware culture combined with proper controls and KPIs to monitor all business decisions. This should be followed with regular reporting and impact analysis	Economic capital and risk adjusted return on capital are a few metrics to track strategic risk. SWOT analysis, risk factor identification and scenario analysis could be used too.
	<b>Commonality:</b> Changing customer preferences Driving efficiency Maintaining profitability				
Credit	<b>U.S.:</b> Financial health	<b>Canada:</b> Size of the credit extension	A credit agency assigning a score as per credit quality that is used in assessing risk metrics	Proper disclosures to investors, providing provisions for key areas observed by credit agencies, such as quantitative and qualitative variables	Focus on improving financial metrics evaluated by credit agencies, enhancement of public disclosures and financial reports
	<b>Commonality:</b> Credit spread/Counterparty default Reputational Societal changes Sustainability agenda (net zero 2050)				
Insurance	<b>U.S.:</b> Business Strategic	<b>Canada:</b> Biometrics Longevity	Threat or peril that the insurance company has agreed to insure against in the policy wordings	Having sound underwriting and settlement policies, estimating loss distributions for insured events and including necessary exclusions	Risk assessment, business impact analysis, reviewing inflation cost or replacement cost, reinsurance or diversifying the risk exposure
	<b>Commonality:</b> Actuarial/mortality–longevity/premium Severe weather/climate events Portfolio concentration/morbidity/reserves				
Investment	<b>U.S.:</b> Interest rate	<b>Canada:</b> Horizon	The possibility that income earned on	Effectiveness of the Audit Committee and	Continuous monitoring of risk tolerance,

ERM Risk Categories	Key Risk Factors (Focus by Practitioners)		Risk Category Scope	Example: Adoption of ERM Policy or Framework	Example: Action to Mitigate Risk
	Concentration	Investment	assets might not be sufficient to fulfil future liabilities. Mainly risk arising from movement in stock prices, interest rates, exchange rates and commodity prices. Market risk factors are also related to investment risk.	the Board of Directors. Promoting investment teams to follow guidelines on asset class, liquidity considerations, portfolio allocation and asset-liability management. Maintaining risk within thresholds and performing sensitivity and scenario analysis to estimate loss.	diversify assets, hedge investments and update strategies based on market conditions. Ensuring risk metrics like VaR and expected shortfall stays within threshold.
Competition	U.S.: New competitors Increasing digital channels	Canada: Tight labor market	Identifying the risk that arises from entry of new players in the industry, changing consumer preference or reducing profitability.	Promoting a culture of constant development in the firm and continuously reinventing to stay relevant in the market.	Diversification, improving efficiency to increase profitability and maintaining product or service differentiations from the competitors.
	Commonality: Product relevance (consumer preference) Pricing strategies and profitability Social inflation				
Operational	U.S.: Cyber Model Technology Obsolescence	Canada: Climate Talent Cultural Process	Risk and losses arising from human errors, inadequate or faulty internal processes, system failures or external events.	Regulatory compliance violations, breach of contract, antitrust, market manipulation and unfair trade practices; new laws or regulatory requirements.	Loss data by the Operational Risk Consortium (ORIC) and recording of events, and choosing a path for controlling the specific risks and considerations by business activity.
	Commonality: Systems and use of alternate data External events Reputational Conduct risk Data privacy protection Conflict of interest				
Regulatory	U.S.: Ethical and bias concerns	Canada: New legislation	Laws and regulations that impose penalties or sanctions on a business for noncompliance	A comprehensive summary and analysis of recent enforcement, disciplinary rulings, fines, suspensions, notices and other actions initiated and imposed by regulating authorities against industry members.	Gap analysis, compliance policies and internal controls, compliance audits and checks. Collaborate with regulators by responding to consultation papers, formulating a proactive compliance policy.
	Commonality: Legal action Accounting reporting				
Underwriting	U.S.: Regulatory	Canada: Product relevance	Risk of uncontrollable factors or an inaccurate assessment of risks when writing an insurance policy.	Assess the risk of insuring a home, car or driver and individuals who are applying for life insurance policies.	Collect cross-functional inputs, leverage data and define responsibilities, continued revision of relevant policies.
	Commonality: Underwriting discrimination				

Source: "Enterprise Risk Management," NAIC, April 7, 2021, <https://www.manappuram.com/>; "The State of Enterprise Risk Management (ERM) in Canada: A Benchmarking Study," Chartered Professional Accountants, June 3, 2019, <https://www.cpacanada.ca/>.

Color key: Focus by practitioners in the U.S. | Focus by practitioners in Canada | Common focus



## Section 2: Research on Insurance and ERM in the U.S. and Canada

The U.S. and Canada have a long history of publications and organizations dedicated to support ERM practitioners with research, opinions and interactions with the government and public to help enhance risk culture awareness in the insurance industry. Multiple organizations in the U.S. and Canada handle or publish ERM publications:

- North American CRO Council
- American Academy of Actuaries (AAA)
- Canadian Institute of Actuaries (CIA)
- Casualty Actuarial Society (CAS)
- Global Association of Risk Professionals (GARP)
- Professional Risk Managers' International Association (PRMIA)
- Risk Management Society (RIMS)
- Society of Actuaries (SOA)

Other actuarial organizations may publish or comment at professional conferences about ERM; some of these organizations include the Conference of Consulting Actuaries and the American Society of Pension Professionals & Actuaries. Additional public and private associations or other organizations may also publish relevant content about the ERM for the insurance industry.

This section presents key details and a summary of key ERM literature for insurers.

### 2.1 THE NORTH AMERICAN CRO COUNCIL

The North American CRO Council was formed in November 2011 by a group of CROs from North American property and casualty and life insurers. The 30+ council members represent CROs of leading insurers based in the U.S. and Canada, who as a group aim to develop and promote leading practices in risk management throughout the insurance industry and provide thought leadership and direction on risk-based solvency and liquidity assessments.

As part of its mission, the council tracks global developments associated with the harmonization of regulatory capital requirements across jurisdictions. It also provides guidance to North American regulatory bodies on effective methods for evaluating risk management and solvency monitoring standards<sup>28</sup> and ERM. Key positioning highlights from the North American CRO Council's publications that pertain to ERM include the following:

- Resiliency and risk management: A holistic and strategic risk management framework to handle day-to-day practices that enable an organization to manage operational risks by enabling continuous delivery of services and minimizing the impact of potential risks to business objectives and enabling it to react and adapt quickly to events.<sup>29</sup> The publication identifies three risk categories for a resilient organization: Resilient business operations, a culture of preparedness and third-party resiliency. An organization should develop a formal methodology to identify and document critical business processes and process flows,

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<sup>28</sup> Denise Tessier, "Giving a Risk Management a Voice," *Property Casualty 360*, August 1, 2012, <https://www.propertycasualty360.com/2012/08/01/giving-risk-management-a-voice/?slreturn=20220515053858> (accessed on June 30, 2022).

<sup>29</sup> "Resiliency and Risk Management," December 2021, North American CRO Council, [https://cro council.org/file/3/CRO%20Council\\_Resiliency%20and%20Risk%20Management\\_Dec2021.pdf](https://cro council.org/file/3/CRO%20Council_Resiliency%20and%20Risk%20Management_Dec2021.pdf) (accessed on June 30, 2022).

third-party dependencies and information technology (IT) asset relationships. Although some business disruptions may be unavoidable, steps can be taken to reduce the risk of a prolonged impact through crisis management, business continuity planning, proactive IT development and scenario exercises considering cyber- and third-party risks. Based on the size and complexity of an organization, a resiliency program should be considered to provide holistic governance, monitoring and reporting of the various aspects of resiliency risks.

- Climate risk management: Chief risk officers are adopting emerging practices and guidance on how climate risk impacts the risk insurance companies.<sup>30</sup> According to the publications, insurers follow risk management practices to assess to what extent, if any, they could be financially impacted by climate change over both the short and long term. The impact of climate risk is transversal and may impact many areas of an insurer's business and risk profile and therefore will need to be managed across risk disciplines such as investment risk, insurance risk, operational risk and model risk. Some firms have conducted an exercise to look across the firm and catalog the potential risks associated with climate change. Based on this exercise, the firm can develop long-term strategies for addressing these risks, including developing action plans, and/or updating the policies and risk appetite statement, as appropriate. In most cases, existing reporting and governance infrastructures can and should serve as the vehicles for addressing climate risk, such as incorporating consideration of climate risks within the Own Risk and Solvency Assessment (ORSA) or within existing board committees and reporting processes.
- COVID-19 and ERM preparedness: The availability of data was a common theme among the insurers, which could enable rigorous analytics and flexible reporting. Insurers that managed well during the COVID-19 pandemic benefited from risk management infrastructure built over many years in the normal times.<sup>31</sup> These companies also benefited from corporate cultures that value risk management, along with strong ERM organizations that partner with the business and finance, actuarial and investment organizations to effectively measure, report and manage risk across the enterprise. An insurer's risk appetite framework should anchor risk and capital management processes, serving as an enterprise's lens for review of major transactions and strategic initiatives, as well as incremental changes in product risk and investment risk. These processes should be integrated so that risk management and finance have access to the same analyses and scenarios, leading to better decision making. In this way, capital and liquidity management are intricately linked to risk management.

## 2.2 KEY INSURANCE PUBLICATIONS

The *Insurance Journal* provides regional, national and international information related to the insurance industry. Key findings from their ongoing publications and articles include the following:

- ERM framework: Insurers with more complex risk profiles such as property and casualty insurers have the most opportunity to strengthen their ERM framework in the areas of emerging and strategic risk management. Insurances companies have been strengthening their ERM framework since the financial crisis as the crisis exposed the less effective risk management practices of many insurers. Insurers have

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<sup>30</sup> "Climate Risk Management in the Insurance Industry: Setting a Foundation," North American CRO Council, December 2020, [https://crocouncil.org/file/1/CRO%20Council\\_Climate%20Change%20Risk%20Management\\_Dec2020\\_Final.pdf](https://crocouncil.org/file/1/CRO%20Council_Climate%20Change%20Risk%20Management_Dec2020_Final.pdf) (accessed on June 30, 2022).

<sup>31</sup> "Value of Risk Management during a Crisis: Focus on Covid-19 Pandemic," North American CRO Council, December 2020, [https://crocouncil.org/file/2/CRO%20Council\\_Value%20of%20Risk%20Management%20During%20a%20Crisis\\_Jan2021\\_Final.pdf](https://crocouncil.org/file/2/CRO%20Council_Value%20of%20Risk%20Management%20During%20a%20Crisis_Jan2021_Final.pdf) (accessed on June 30, 2022).

improved their processes to better control the tail risk, and most insurers in the U.S., Canada and Bermuda region were assigned a strong or excellent risk management rating as they went through ERM level II reviews.<sup>32</sup>

- Reinsurance ERM focus: Reinsurers are focusing on a strong ERM framework relative to traditional insurers.<sup>33</sup> The S&P ratings agency explains that its assessments reflect that the reinsurance industry’s ERM practices are very favorable compared with those of primary players, aided by reinsurers’ strong investment in risk modeling and increased understanding of complex risks.
- Cyberrisk: “The State of Cyber Resilience,”<sup>34</sup> a survey in May 2022, found that nearly three-quarters of global cyberrisk decision makers recently surveyed said their company experienced at least one cyberattack in the past year, and just 3% rated their company’s cyber hygiene as excellent.<sup>35</sup> The leadership confidence in their organization’s core cyberrisk management capabilities—including the ability to assess cyberthreats, mitigate cyberattacks and respond to cyberattacks—is largely unchanged since the last survey in 2019, when 19.7% of respondents stated they were highly confident compared with 19% in 2022. The survey report concluded that insurance is playing a role in building resilience. Many respondents said insurance is an important part of the cyberrisk management strategy and it is worth the money. Moreover, countering cyberthreats needs to be an enterprise-wide goal aimed at building cyber resilience across the firm rather than singular investments in incident prevention or cyber defense.
- Cloud downtime: Ever since cloud solutions became preferred for businesses of any nature to house and process data,<sup>36</sup> a single hour of downtime from mission-critical, third-party IT service providers can cost small and medium-sized enterprises tens of thousands of dollars, and traditional insurance often does not cover these significant losses. However, insurers such as Parametrix Insurance have created monitoring systems that independently verify uptime and downtime for the cloud and generate sufficient data to model cloud outages.

The *Actuary Magazine* provides SOA members and candidates a global perspective across all areas of practice by publishing content and showcasing people and companies advancing actuaries as leaders and innovators.<sup>37</sup> ERM-related publications include the following:

- ERM and the role of the actuary: It defines how training of actuaries helps them in a risk management role, and how actuaries are being called upon to consider various sustainability issues, including climate risks and opportunities in ERM frameworks.<sup>38</sup>
- Future of ERM: As modeling continues to evolve, driven internally by the need for more accurate and timely risk information and by external stakeholder requirements for reporting on risks and capital,<sup>39</sup>

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<sup>32</sup> “S&P: No. Am, Bermuda Insurers Enhancing Enterprise Risk Management Efforts,” *Insurance Journal*, May 2011, <https://www.insurancejournal.com/news/international/2011/05/02/196878.htm> (accessed on June 30, 2022).

<sup>33</sup> “Reinsurers’ Strong Enterprise Risk Management Key to Success—And Survival: S&P,” *Insurance Journal*, August 22, 2016, <https://www.insurancejournal.com/news/international/2016/08/22/424019.htm> (accessed on June 30, 2022).

<sup>34</sup> Broker Marsh partnered with Microsoft Corp. for the survey.

<sup>35</sup> “Cyber-Hygiene Confidence Low but Insurance Is Making An Impact: Survey,” *Insurance Journal*, May 27, 2022, <https://www.insurancejournal.com/news/national/2022/05/27/669544.htm> (accessed on June 30, 2022).

<sup>36</sup> “How Cloud Downtime Insurance Became a Thing,” *Insurance Journal*, March 8, 2022, <https://www.insurancejournal.com/news/international/2022/03/08/657170.htm> (accessed on June 30, 2022).

<sup>37</sup> *The Actuary*, Society of Actuaries, <https://theactuarymagazine.org/> (accessed on June 30, 2022).

<sup>38</sup> Gavin R. Maistry, “The Role of Actuaries in ERM,” *The Actuary*, May 2021, <https://theactuarymagazine.org/the-role-of-actuaries-in-erm/> (accessed on June 30, 2022).

<sup>39</sup> Rich Lauria, “Riding the ERM Wave,” *The Actuary*, 2020, <https://theactuarymagazine.org/riding-the-erm-wave/> (accessed on June 30, 2022).

practitioners will continue to refine existing methodologies built on pro forma projections. Data analysis of risk events will become more formalized, providing regularly updated assumptions to ERM modelers. Advancements in machine learning (ML) and artificial intelligence (AI) may provide impetus to future models.

Additionally, the Joint Risk Management Section (JRMS) of the SOA, CAS and CIA conducts an online survey annually to track the thoughts of risk managers about emerging risks across time. At the start of 2022, JRMS published its 15th annual survey in November 2021. Key findings from the survey include the following:<sup>40</sup>

- Current risk: In the survey, 27% of respondents consider the pandemic/new diseases as the most significant current risk among other risk categories such as climate risk, financial volatility risk and cyberrisk. Although the score has fallen from 45% over the previous year, it is still considered the top current risk among insurers.
- Emerging risk: The rising trend of a high number of tropical storms, droughts, and wildfires in the U.S. and Canada region over the last two or three years has caused climate risk to become the top emerging risk among 26% of the respondents in the survey. It is followed by cyberrisk, pandemic/infectious disease risk, disruptive technology and financial volatility.

The Enterprise Risk Management Practice Committee of the CIA has prepared and published a practice resource document to aid actuaries, risk practitioners, risk managers, executives and board members who would like to gain a better understanding of risk appetite and incorporate a risk appetite framework into their ERM program.<sup>41</sup> The document addresses key concepts, principles and objectives of an effective risk appetite framework, which can help organizations strike the right balance between uncontrolled risk taking and excessive caution, enhancing risk awareness and communication across an organization. Key insights include the following:

- Objective of the risk appetite framework: An organization's goals in establishing a risk appetite framework include preserving capital adequacy, maintaining adequate liquidity, complying with regulatory requirements and/or improving risk awareness in business decisions, among others. It provides common language and comparable measures to understand risks and offers clearly defined operational boundaries to pursue business goals.
- Risk appetite statement: It is a concise statement used by many stakeholders to relate business objectives and strategy to acceptable levels of risk. It should address the most important risks faced by an organization such as insurance risk, investment risk and liquidity risk, and the organization should consider key factors to effectively communicate the risk appetite statement such as link with the business strategy and use of quantitative and qualitative measures.
- Risk capacity<sup>42</sup> and tolerance:<sup>43</sup> Risk capacity can be viewed as an absolute maximum ceiling for risk taking imposed by forces outside the organization. Externally imposed constraints may include capital requirements, liquidity requirements, third-party credit and claims-paying ability ratings and operational capabilities. The tolerance level sets the overall quantitative and/or qualitative boundaries for a material

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<sup>40</sup> "15th Annual Survey of Emerging Risk," Society of Actuaries, January 2022, <https://www.casact.org/sites/default/files/2022-01/15th-Emerging-Risks-Survey.pdf> (accessed on June 30, 2022).

<sup>41</sup> "Risk Appetite," Canadian Institute of Actuaries, November 2021, <https://www.cia-ica.ca/docs/default-source/2021/221124e.pdf> (accessed on June 30, 2022).

<sup>42</sup> Risk capacity represents the maximum level of risk an organization is able to support before breaching constraints determined by factors such as regulatory capital, liquidity needs and obligations to customers, shareholders and other stakeholders.

<sup>43</sup> Risk tolerances define the boundaries for the maximum amount of risk an organization is willing to accept.

category of risk. It is often expressed in the form of key metrics and targets and established after considering how much variability and risk taking an organization finds acceptable to pursue its business and strategic objectives.

- Risk measures and reporting: Risks that are material to the organization are to be quantified as much as possible. The importance of each risk measure may vary depending on the stakeholder group, as the diverse interests of stakeholders need to be considered.
- Risk governance: The risk appetite framework supports risk governance by providing the board of directors and senior management the information and tools necessary to understand and communicate the risks the organization is taking, risks that it should be taking and risks to be avoided in line with the organization's risk appetite and business strategy.

GARP also has some publications that provide general insight into the ERM. For instance, it discussed the development of an enterprise risk taxonomy for financial organizations and laid out a structure to identify, assess and manage risks consistently across critical business processes.<sup>44</sup> Moreover, other publications also expressed the ways to develop an integrated enterprise-wide risk management process, such as that leveraging ML can generate hundreds of regression-style equations within minutes, quickly linking a firm's business segments to macroeconomic and market environments. These equations immediately clarify which explanatory variables affect most of the business segment, integrating such dependencies at the enterprise level. They are, moreover, particularly helpful when risk managers find themselves in the uncharted territory of an unprecedented business environment.<sup>45</sup>

The Professional Risk Managers' International Association (PRMIA) is a nonprofit organization that focuses on the development and education of the risk management profession. Its membership provides a network of risk professionals working to set standards for the global risk profession. It publishes a quarterly newsletter and white papers from risk management professionals on any matter of professional interest to fellow practitioners. For instance, in its recently published newsletter, *Intelligent Risk*, in April 2022, an article discusses that climate change is increasingly being viewed by financial industry as a systemic risk, and the valuation of climate change risks (both physical and transition risks) represents a complex and multidimensional process for which there is currently no agreed-upon industry standard. In addition, it goes on to discuss how global financial regulators have also been intensifying their scrutiny of climate-related risk management such as the U.S. Securities and Exchange Commission (SEC), which in October 2021 signaled its intention to finalize climate change regulations this year, and the Bank of England's Prudential Regulation Authority, who called on institutions to embed climate change-related financial risks into existing governance and risk management frameworks.<sup>46</sup>

*Risk Management* is the premier publication of analysis, insight and news for the risk management community published by the Risk Management Society (RIMS). RIMS conducts many conferences around emerging risk in insurance industry and risk management practices by professionals across the world such as RE-VISION in Canada and RISKWORLD in the United States. In addition, RIMS recognizes and awards the practitioner or organization for better risk management practices. For instance, in November 2021, RIMS presented the Internal Revenue Service (IRS) with the 2021 Global Enterprise Risk Management Award of Distinction at the society's ERM Conference in New York City. It recognized the IRS's outstanding achievements that allow it to anticipate emerging risks and

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<sup>44</sup> "How to Develop an Enterprise Risk Taxonomy," GARP, July 16, 2021, <https://www.garp.org/risk-intelligence/culture-governance/how-to-develop-an-enterprise-risk-taxonomy> (accessed on June 30, 2022).

<sup>45</sup> "IERM: How to Build a True Risk Business Partnership," GARP, March 18, 2022, <https://www.garp.org/risk-intelligence/culture-governance/ierm-how-to-build-a-true-risk-business-partnership> (accessed on June 30, 2022).

<sup>46</sup> "Intelligent Risk," PRMIA, April 2022, [https://issuu.com/prmia/docs/intelligent\\_risk-apr\\_2022-issuu](https://issuu.com/prmia/docs/intelligent_risk-apr_2022-issuu) (accessed on June 30, 2022).

establish the appropriate culture, processes and structures to strengthen strategic decision-making.<sup>47</sup> Additionally, in 2021, recognizing the devastating economic impact caused by COVID-19, RIMS joined the Business Continuity Coalition to build a more stable insurance market in the U.S. that will support organizations as they navigate future pandemics and develop insurance solutions for them.<sup>48</sup>

### 2.3 OTHER ERM PUBLICATIONS

Each year, the ERM initiative at North Carolina State University, in partnership with the Association of International Certified Professional Accountants, conducts research<sup>49</sup> on the current state of risk oversight processes in large organizations (revenue greater than USD 1 billion), publicly traded companies, financial services entities and not-for-profit organizations. The respondents represent a broad range of industries. The four most common industries responding to this year’s survey were finance, insurance, and real estate (26%), not-for-profit (28%), manufacturing (12%) and services (12%). In April 2021, North Carolina State University published its 12th edition. The key highlights are as follows:

- Maturity of risk management practices: Although progress has been made, more than two-thirds of the organizations surveyed still do not have “complete” ERM processes in place. The research indicates that insurers continue to struggle to integrate their risk management and strategic planning efforts, and fewer than half of the respondents describe their organization’s approach to risk management as “mature” or “robust.”
- Ongoing risk monitoring: The growing use of data analytics may provide opportunities for management to strengthen their management “dashboards” to include more information that helps track potential risks on the horizon. The integration of risk information with discussion of the strategic plan is not happening extensively across most organizations, which suggests opportunities to enhance such integration with strategic planning information for most organizations.
- Risk environment: Organizations are facing pressures from several stakeholders to provide more risk information, and business leaders want to be better prepared when unexpected risk events emerge to avoid being surprised. The COVID-19 pandemic revealed this need (Table 3).
- Risk culture: Several impediments can be identified as to the embrace of ERM, with the most frequently cited obstacle reflecting a sentiment that organizations manage risks in other ways besides ERM. In addition, too many pressing needs and no request to change risk management approach were among the other impediments to ERM.

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<sup>47</sup> “RIMS ERM Conference 2021: IRS Receives Global Enterprise Risk Management Award of Distinction,” *Risk Management Monitor*, November 15, 2021, <http://www.riskmanagementmonitor.com/rims-erm-conference-2021-irs-receives-global-enterprise-risk-management-award-of-distinction/> (accessed on June 30, 2022).

<sup>48</sup> “RIMS Joins Business Continuity Coalition to Develop an Insurance Solution for Pandemics,” Risk Management Society, June 22, 2021, <https://www.rims.org/about-us/newsroom/rims-joins-business-continuity-coalition-to-develop-an-insurance-solution-for-pandemics> (accessed on June 30, 2022).

<sup>49</sup> “The State of Risk Oversight: An Overview of Enterprise Risk Management Practices—12th edition,” North Carolina State University’s Poole College of Management, May 4, 2021, <https://erm.ncsu.edu/az/erm/i/chan/library/2021-risk-oversight-report-erm-ncstate.pdf> (accessed on June 30, 2022).

## Section 3: Acknowledgments

The researchers' deepest gratitude goes to those without whose efforts this project could not have come to fruition: the Project Oversight Group (POG) and others for their diligent work in overseeing questionnaire development, analyzing and discussing respondent answers, and reviewing and editing this report for accuracy and relevance.

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## Section 4: List of Participating Practitioners Interviewed

The authors' deepest gratitude goes to those without whose efforts this project could not have come to fruition: the U.S. and Canada practitioners, both those interviewed (virtual face-to-face meetings) and those surveyed (respondents to an online survey). The former is a subset of the latter, who generously shared their wisdom, insights, advice, guidance and arm's-length review of this report before publication. Any opinions expressed may not reflect their opinions nor those of their employers. Any errors are the authors' alone. The following practitioners have agreed to disclose their names:

Mr. Robert B. Anderson

Mr. Joel Atkins

Mr. Debarshi Chatterjee

Ms. Dawn Elzinga

Mr. Jim Flinn

Mr. Alex Granovsky

Mr. Todd Hess

Ms. Linda Lankowski

Ms. Vy Le

Ms. Emily Li

Mr. John Di Meo

Mr. John Miller

Ms. Stefanie Porta

Ms. Pooja Rahman

Mr. Max Rudolph

Mr. John Wiklund

Mr. Jon Wu

Ms. Lisa Zwicker

Other practitioners preferred to remain anonymous. Practitioners surveyed (not interviewed virtually) are also anonymous.



Interviewees agreed to disclose the names of insurance companies associated with them at the time of the interview for this report:

Breach Insurance

CNA Insurance

Davies Insurance Services

Equitable Life of Canada

Economical

Farm Bureau Insurance of Michigan

Hannover Life Reassurance Company of America

Health New England

Intact

Pan-American Life Insurance Group

Protective Life Corporation

Rudolph Financial Consulting

Swiss Re

Trustmark Insurance

United Services Automobile Association

## Section 5: Methodology

This section includes details about the scope, objectives and procedures of the ERM study.

### Geographical Scope and Research Objective

The full ERM series covers China, India, the U.S. and Canada. This report focuses only on the U.S. and Canada.

The study's objective is to prepare a report with insights and actionable intelligence to help ERM professionals manage regulatory risks. It provides an overview of the ERM function in the insurance innovation, business and regulatory environments.

### Information Sources

Information and/or data for this project was derived from recent ERM literature, insights and suggestions from POG members, insurance practitioners' findings (surveyed and then sourced from face-to-face virtual interviews), historical research and documentation from actuarial sources, and CRISIL's insights. The secondary sources comprised regulations announced in the geography understudy, news and articles, academic papers and white papers.

### Procedures

- **Sample:** The methodology incorporates practitioners interviewed (over a virtual face-to-face session) and those surveyed (respondents to an online survey); the first are a subset of the latter. With the help of the SOA, CIA and CAS survey links were shared with 33,132 individuals involved with risk management. To be precise, the blast emails count for the SOA is 19,648, for CIA 12,908, and for CAS 576. A total of 163 individuals responded to the online survey, out of which only 93 entries were useful to analyze, as other entries were only partially completed and had missing values. The final number of face-to-face interviews conducted was 28.
- **Interview timeline:** Practitioners were interviewed during March–May 2022.
- **Reach:** Some practitioners were contacted directly via email and were invited to participate; others were introduced by the sponsors of the research project. Additionally, a microsite was set up on CRISIL's website to facilitate project information dissemination.
- **Interview process:** A measuring instrument (guide) was prepared with a set of interview questions designed to gather ERM information from practitioners.
- **Interview duration:** Practitioners were invited for a face-to-face interview lasting 30 to 45 minutes.
- **Interview support:** During the interviews, at least one interviewer was based in the practitioner's location and an experienced ERM actuary deployed the measuring instrument.
- **Practitioners' views:** Practitioners had a preview of the report so they could share their views.
- **Anonymity:** All responses were kept anonymous unless the practitioners gave permission to reveal their identity. The POG had access only to an anonymized version of the practitioners' responses; that is, the version excluded any reference that could help identify the participant or company.
- **Practitioners' profile:** The practitioners contacted were chief risk officers, chief financial officers, chief technology officers, compliance officers, heads of ERM, data protection officers, chief data science or AI/ML officers, and appointed actuaries who have extensive experience in the insurance and regulatory space.
- **Governance:** A periodic review was scheduled with the POG to seek guidance and advice to shape the research.

## Section 6: Glossary

- ALM: Asset liability management
- BAU: Business as usual
- CAD: Canadian dollar
- CCPA: California Consumer Privacy Act
- Compliance risk: It includes an organization's potential exposure to legal penalties, financial forfeiture and material loss, resulting from its failure to act in accordance with industry laws and regulations, internal policies or prescribed best practices. Compliance risk is also known as integrity risk.
- Credit risk: It includes the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations
- CX: Consumer experience
- Financial risk: It includes inflation risk, interest rate risk, reserve requirement, investment risk, use of complex assets and equity
- Fintechs: It is any business that uses technology to modify, enhance, or automate financial services for businesses or consumers.
- IFRS: International Financial Reporting Standards
- Insurance risk: It includes a threat or peril that the insurance company has agreed to insure against in the policy wordings
- Investment risk: It includes the risk that arises from movements in stock prices, interest rates, exchange rates and commodity prices. This also comprises the market risk factors used in the industry.
- KPIs: Key performance indicators
- KRIs: Key risk indicators
- LDTI: Long duration targeted improvement
- Nonfinancial risk: It includes climate change risk, risk from economic scenario generator, mortality and morbidity risk, and environmental, social and governance reporting
- Operational risk: It includes the risk of losses caused by flawed or failed processes, policies, systems or events that disrupt business operations
- ORSA: Own risk and solvency assessment
- PBR: Principle-based reserving
- Project Oversight Group (POG): POG is a team of SOA volunteers who diligently worked in overseeing questionnaire development, analyzing and discussing respondent answers, and reviewing and editing this report for accuracy and relevance
- Regulatory risk: It includes rate regulations, health insurance regulations, regulations for reinsurance, counterparty collateral requirement and reinsurance with nondomestic reinsurance as well as changing requirements from local regulators.
- SEC: Securities and Exchange Commission

- Smart contract: A smart contract is a digitally signed, computable agreement between two or more parties. A virtual third party, a software agent, can execute and enforce at least some of the terms of such agreements. Smart contracts are digital and written using programming code languages. This code establishes the rules and consequences, similar to a regular contract, and can be automatically executed by a distributed ledger system.
- TCDF: Task Force on Climate Risk Financial Disclosure
- Underwriting risk: It includes the risk of loss borne by an underwriter.
- USD: U.S. dollar
- VPN: Virtual private network

## Section 7: Online Survey with Key ERM Items from Practitioners

This section includes details on the scope, objectives, procedures and results/observations of the survey conducted in the U.S. and Canada.

### Geographical Scope and Survey Objective

The survey covers the U.S. and Canada.

The survey's objective was to gauge market perception about the innovation, business environment and regulatory environment prevalent in the insurance market and assess the willingness of industry practitioners to participate in a 30-to-45-minute interview.

### Survey Dissemination

The survey was circulated to the target audience via email blasts to the CIA, CAS and SOA members.

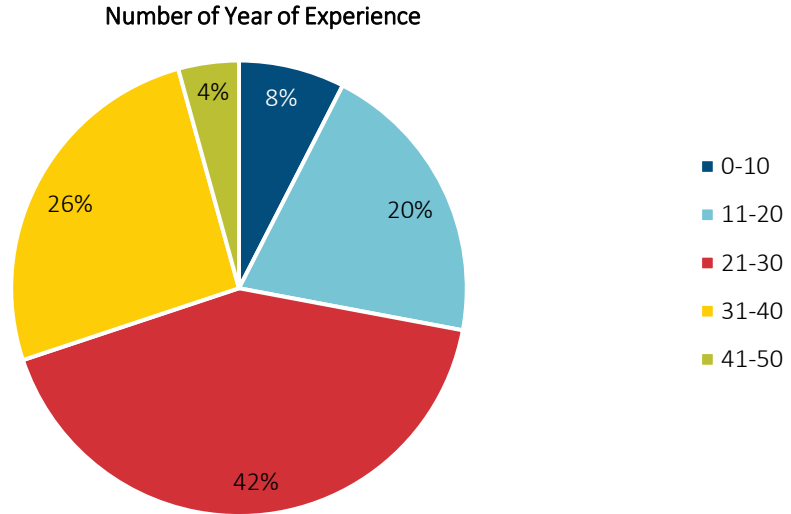
### Procedure

1. Audience: With the help of the SOA, CIA and CAS, survey links were shared with 33,000+ individuals as mentioned in Section 9
2. Respondents: 93 responses were collected and analyzed; the findings are included in the section below
3. Reach: Some individuals were contacted directly via email, and some were invited via our newsletter
4. Interview process: Participants who agreed to be interviewed were invited for a 45-minute face-to-face interaction to gain deep and extensive insights on the insurance environment in the U.S. and Canada
5. Practitioners' profiles: Chief risk officers, chief financial officers, chief technology officers, compliance officers, heads of ERM, data protection officers, chief data science or AI/ ML officers, appointed actuaries and independent consultants with extensive experience in the insurance and regulatory space were invited to participate in the survey
6. Governance: A periodic review was scheduled with the POG to seek guidance and advice to shape research

**Survey Questions and Results**

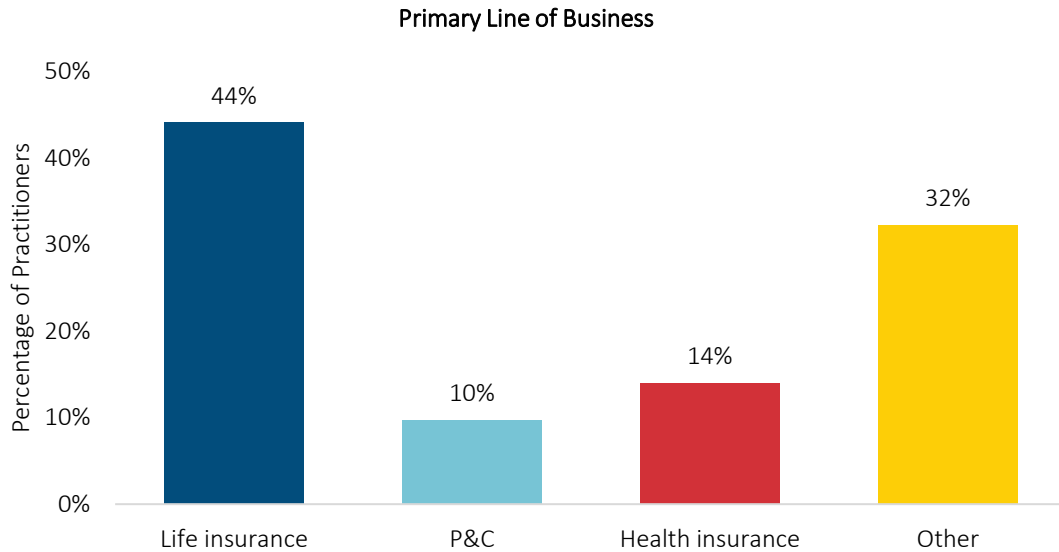
The following questions were asked in the survey:

**1. How many years have you been involved in the insurance industry?**



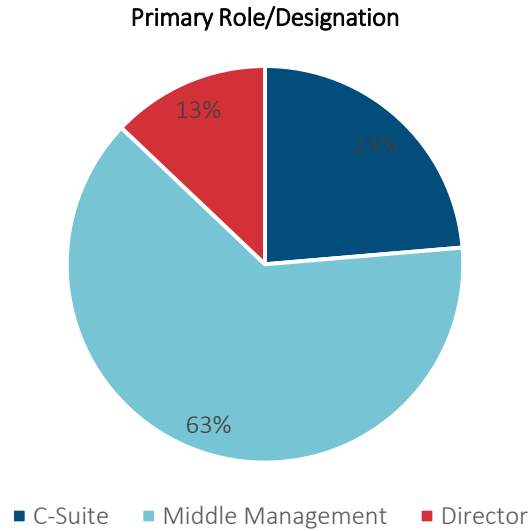
Of 93 respondents, 42% had 21 to 30 years of experience in the insurance industry and 26% had 31 to 40 years of experience, indicating that the survey results reflect the views of industry veterans, and their analysis will be highly insightful and vital for preparing this report.

**2. What primary line of business is your work related to?**



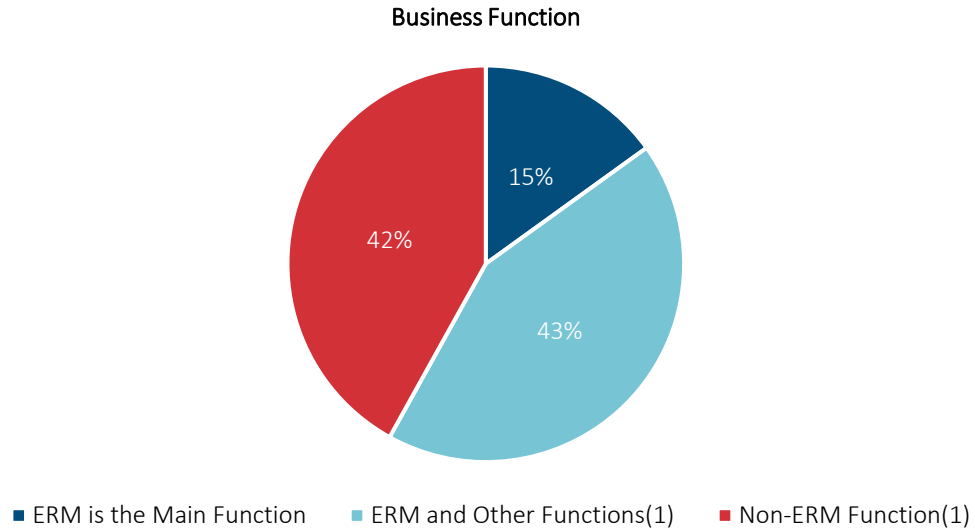
This graph shows that in the survey most participants (44%) work in life insurance, followed by 14% in health insurance and 10% in the property and casualty insurance line of business. The remaining 32% selected the category “Other” as their primary line of business, which includes independent consultants, reinsurance or regulators.

3. What is your primary role and/or designation?



When asked about their primary role/designation at their respective company, around 63% respondents said they are managers up to middle management (vice president, lead analyst, managers) or practitioners working as consultants, 24% are C-Suite (chief financial officer, chief risk officer or chief actuary), followed by director with 13%.

4. What is the business function that you support?



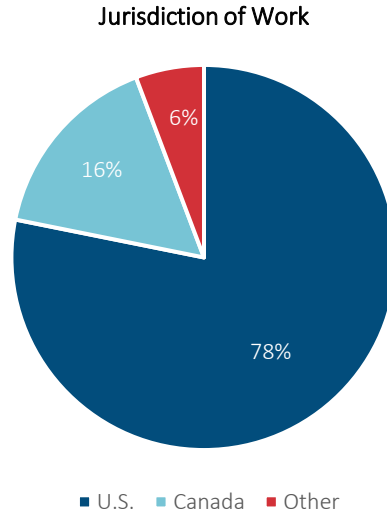
Although 15% respondents selected ERM as their main business function in which they are involved, 43% respondents have a business function in ERM along with other business functions as well.<sup>50</sup> The remaining

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<sup>50</sup> (1): Others and non-ERM include business functions such as actuarial function, corporate function, model risk management, investment and treasury.

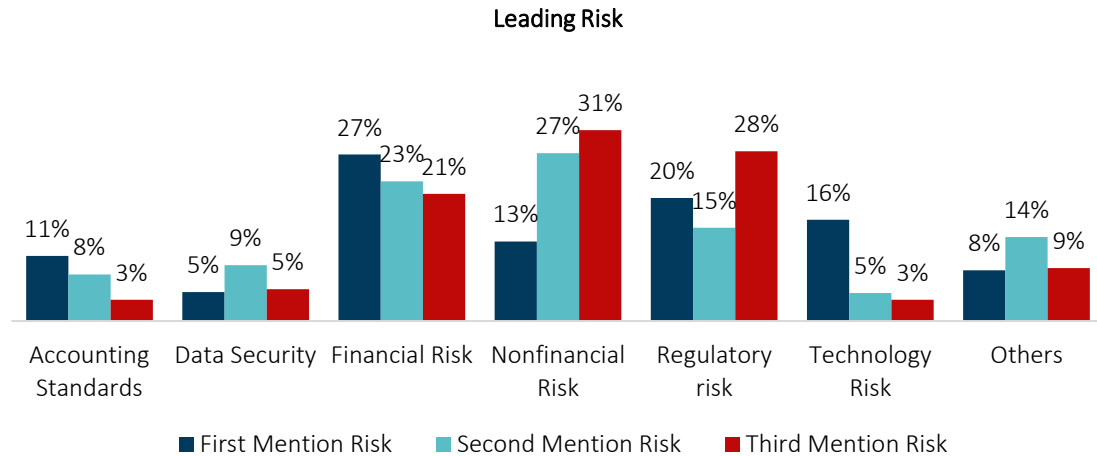
42% respondents have non-ERM business functions such as actuarial function (76%), corporate function (32%), model risk management (29%) and investment and treasury (15%).

5. Which jurisdiction does your work primarily relate to?



In the survey, 78% of participants reported that their work pertains to the U.S. jurisdiction, highly correlated with their location, followed by Canada, with 16% as their jurisdiction of work, as represented in the pie chart above. The remaining 6% also do work for Bermudas or Latin America.

6. In your view, what are the top three risks that will affect the insurance industry in the next 3–5 years?<sup>51</sup>

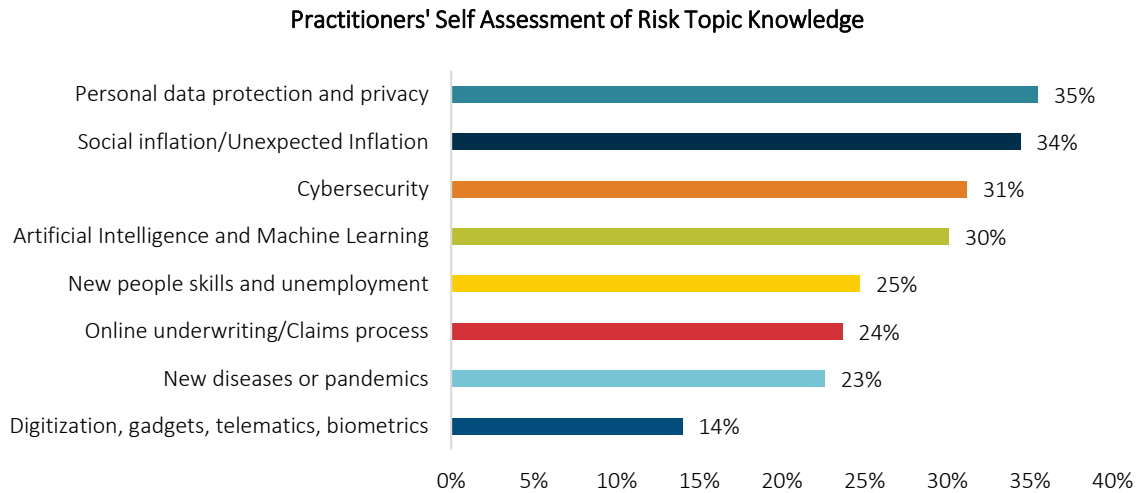


<sup>51</sup> Financial risk includes inflation risk, interest rate risk, reserve requirement, investment risk, use of complex assets and equity and liquidity risk. Nonfinancial risk includes climate change risk, risk from economic scenario generator, mortality and morbidity risk, and environment, social and governance reporting. Regulatory risk includes rate regulations, health insurance regulations, regulations for reinsurance, counterparty collateral requirement, reinsurance with nondomestic reinsurance as well as changing requirements from local regulators.



Around 27% of the survey respondents mentioned the first mention risk was the “financial risk” affecting their insurance business, the second mention risk was “nonfinancial risk” (27%) and the third mention risk was “regulatory risk” (28%). Apart from these primary risks, “technology risk” (16%), “accounting standards risk” (11%) and “data security” (5%) were among risks that the respondents believe would impact the insurance industry in the next three to five years. Additionally, in the “other” category, responses displayed concerns for new disease/pandemic, pricing, model, political and economic risks (Table 3).

**7. Do you have reasonable knowledge about any of the following topics pertaining to the insurance industry?**



In the survey, we also asked about their knowledge of the topics included in this report. About 35% of respondents were very comfortable talking about “personal data protection and data privacy,” followed by the “social inflation/unexpected inflation” with 34%, “cybersecurity” with 31%, and “artificial intelligence and machine learning” with 30% (see graph above). Additionally, respondents in the survey were relatively less aware about topics such as “new people skills and unemployment” (25%), “online underwriting/claim process” (24%), “new disease or pandemic” (23%), and “digitization, gadgets, telematics, biometrics” (14%).