

Skills and Knowledge Inventories (SKI) for Enterprise Risk Management Area of Practice

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*This resource document is to assist members practicing in enterprise risk management in gauging their Skills and Knowledge for this area of practice. The Skills and Knowledge Inventory (SKI) should not be construed as a definitive and complete description of all the competencies required for members practicing in this area **nor should it be construed or applied as constituting a minimum or a maximum requirement to qualify/disqualify or enable/disable an actuary for enterprise risk management. This SKI is also not intended to prevent the application of the Statutes, Bylaws, Rules of Professional Conduct and Standards of Practice which may be relevant to each particular case in which an actuary is acting in his/her professional capacity.***

The familiarity or adherence to the document is not a necessary condition to meet the CIA’s Continuing Professional Development (CPD) Qualification Standard. This document will not be used by the CIA (specifically, the Professional Conduct Board or the Disciplinary Tribunal) as a standard to discipline members.

Definition of Enterprise Risk Management

The process by which an organization in any industry identifies, assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing value to its stakeholders.

The letter in each box indicates the level of skills and knowledge of a Member working in a given role. The level may vary from that indicated depending on the specific requirements of any practitioner’s role. The letter codes are defined as follows:

Table I-a
Letter Codes

	Blank Box	No specific requirements identified for that subject.
A	Basic knowledge and general awareness	General awareness of the basic facts and also of the broad implications of the subject.
W	Wide knowledge	Deep understanding of the subject area and its implications, as well as its potential interaction with other subjects.
D	Detailed knowledge and experience	Ability to effectively apply the subject in practice, with detailed knowledge of the facts, and ability to adjust the approach based on circumstances, particularly for unusual situations.

Table I-b

Skills and Knowledge Subjects for Various Enterprise Risk Management Practitioner Categories

	A	B	C
Skills and Knowledge Subjects	Risk Oversight	Risk Management	Risk Quantification
1 Quantitative analysis	W	W	D
2 Fundamental risk management concepts	D	W	A
3 Financial markets and products	W	D	W
4 Valuation, capital, and risk models	A	D	D
5 Current-and-emerging-market issues	W	D	A
6 Data quality and process control	A	D	D

Table II

Additional Information Regarding Skills and Knowledge Subjects

Skills and Knowledge Specifics	
1	Quantitative analysis: Basic probability & statistics, regression and time series analysis, quantitative techniques for risk measurement (including Monte Carlo methods, volatility forecasting models, Value at risk (VaR), tail value at risk (TVaR)/conditional tail expectation, expected policyholder deficit), risk aggregation and diversification, risk-adjusted returns, sensitivity analysis.
2	Fundamental risk management concepts: ERM control cycle (including risk identification, risk evaluation, risk appetite, risk limits, early warning indicators, risk mitigation, risk monitoring and reporting), risk conduct, Board governance.
3	Financial markets and products: Corporate finance, accounting frameworks and standards, insurance and financial products (including life/health/wealth/property & casualty insurance), futures & forwards, equity options/swaps/other derivatives, commodities, currencies, corporate bonds & interest rates, basic understanding of arbitrage arguments and risk treatment programs (e.g., hedging, ALM, reinsurance, pooling mechanisms), industry rating agencies.
4	Valuation, capital, and risk models: Internal and external measures of security (e.g., capital adequacy assessment, solvency criteria), capital funding alternatives (including capital fungibility), capital composition, capital allocation, tools for capital relief, measuring cost of capital, model risk management, business planning, and stress testing.
5	Current-and-emerging-market issues: Jurisdiction and industry-specific laws and regulation, regulatory guidance, reports from professional organizations, competitive landscape.
6	Data quality and process control: Data sources, data characteristics (accuracy, completeness, relevance, consistency, reliability, limitations), process design control and effectiveness.

Table III

Additional Information Regarding ERM Practitioner Categories

A	ERM practitioner identifies, monitors, reports, and escalates risk issues to a board and/or senior management committee.
B	ERM practitioner shapes the risks of the business portfolio and determines risk mitigation tactics.
C	ERM practitioner equipped with highly technical skills enabling complex risk quantification to support decision making.

Since part of its role is to promote the application of actuarial science to ERM, the CIA maintains a [Resource Page](#) to provide ERM practitioners with suggested resources for Skills and Knowledge subjects. Members are reminded that they must decide whether the material presented in the Resource Page is relevant to his/her own development. In doing so, the member should consider that the material is meant to accommodate practitioners of various experience levels and with widely different development requirements. Since members are required to be familiar with the [Standards of Practice](#) applicable to the actuarial work they perform, the CIA-adopted SOPs are not specifically included in the Resource Page.

To assist in keeping the Resource Page current and relevant to CIA Members, we encourage practitioners to share with the Committee additional documents and references not included in the above list. Please send the information to resourcesERM@cia-ica.ca.