THE COMPETENCIES OF CANADIAN SUPPLY CHAIN PROFESSIONALS

First Edition 2020
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 Supply Chain Dynamics</td>
<td>27</td>
</tr>
<tr>
<td>4.1 Geo-Political Environment</td>
<td>27</td>
</tr>
<tr>
<td>4.2 Negotiations and Conflict Resolution</td>
<td>28</td>
</tr>
<tr>
<td>4.3 Project Management</td>
<td>28</td>
</tr>
<tr>
<td>4.4 Relationship Management</td>
<td>29</td>
</tr>
<tr>
<td>4.5 Risk Management</td>
<td>29</td>
</tr>
<tr>
<td>4.6 Structure and Change Management</td>
<td>30</td>
</tr>
<tr>
<td>5.0 Systems Technology Deployment</td>
<td>31</td>
</tr>
<tr>
<td>5.1 Systems Technology Deployment</td>
<td>31</td>
</tr>
<tr>
<td>5.2 Technology Innovation</td>
<td>32</td>
</tr>
<tr>
<td>5.3 Intellectual Property Risk</td>
<td>33</td>
</tr>
<tr>
<td>TECHNICAL COMPETENCIES</td>
<td>34</td>
</tr>
<tr>
<td>3.0 Transportation and Distribution</td>
<td>45</td>
</tr>
<tr>
<td>3.1 Fleet Management</td>
<td>45</td>
</tr>
<tr>
<td>3.2 Reverse Logistics Management</td>
<td>46</td>
</tr>
<tr>
<td>3.3 Transport Operational Management</td>
<td>47</td>
</tr>
<tr>
<td>3.4 Import and Export Requirements</td>
<td>48</td>
</tr>
<tr>
<td>4.0 Warehousing and Facilities Management</td>
<td>49</td>
</tr>
<tr>
<td>4.1 Facility Locations</td>
<td>49</td>
</tr>
<tr>
<td>4.2 Facility Design and Layout</td>
<td>49</td>
</tr>
<tr>
<td>4.3 Facilities Operations Management</td>
<td>50</td>
</tr>
<tr>
<td>4.4 Inventory Management and Optimization</td>
<td>50</td>
</tr>
<tr>
<td>4.5 Materials Management</td>
<td>51</td>
</tr>
<tr>
<td>5.0 Public Sector Procurement</td>
<td>52</td>
</tr>
<tr>
<td>5.1 Public Sector Procurement Essentials</td>
<td>52</td>
</tr>
<tr>
<td>5.2 Competitive Bidding in the Public Sector</td>
<td>52</td>
</tr>
<tr>
<td>5.3 Contract Management</td>
<td>53</td>
</tr>
<tr>
<td>RESOURCES</td>
<td>54</td>
</tr>
</tbody>
</table>
In 2019, Supply Chain Canada brought together a group of global “thought leaders” to present at the Supply Chain Management Professional (SCMP) In-Residence Week held in Calgary in May and at the National Conference, celebrated its 100th anniversary, in Montreal in June.

Below is a list of presenters whose insights and expertise have contributed to the Competency Framework.

Yossiri Adulyasak, PhD (Montreal)  
Canada Research Chair in Supply Chain Analytics  
HEC Montréal

Gerardo Amaya (Toronto)  
Executive Digital Advisor  
Microsoft

Jaydeep Balakrishnan, PhD (Calgary)  
Professor and Director  
Canadian Centre for Advanced Supply Chain Management and Logistics

Ramesh Chikkala, MBA, MS (Bentonville)  
Senior Vice President, International Supply Chain  
Walmart Stores Inc.

Gina Chung (Chicago)  
Head of Innovation Americas and Trend Research  
DHL

Rob Handfield, PhD (Raleigh)  
Executive Director  
Supply Chain Resource Cooperative

Karen Henrikso, (Toronto)  
Advisory Services, Supply Chain  
KPMG Canada

Marc Lanero (Calgary)  
Managing Partner, CPO and Vice-President, Procurement, Contracts and Supply-Chain  
I4C Global

Seung Hwan (Mark) Lee, PhD (Toronto)  
Associate Professor  
Ted Rogers School of Retail Management, Ryerson University

Arnold Liwanag, MSc (Montreal)  
Chief Technology Advisor, Ivado Labs  
Senior Advisor, SCALE AI

Susan Lund (Washington)  
Partner  
McKinsey and Company and McKinsey Global Institute

Vineeta Maguire, M.Sc., P. Eng. (Calgary)  
Vice President, Supply Chain  
Encana Corporation

Serge Massicotte, MPhil (San Francisco)  
CEO  
Ivado Labs

Arthur Mesher (Waterloo)  
Advisor, Office of the CEO  
SCALE AI

Janice Noronha (Montreal)  
Sustainability and Climate Change  
PwC Canada

Kate Vitasek (Seattle)  
Faculty, Executive Education  
University of Tennessee
## List of Focus Group Participants

The Province of Alberta is working in partnership with the Government of Canada to provide employment support programs and services. Through the Labour Market Partnerships Program, Alberta supported the hosting of a series of focus group sessions with 50 supply chain professionals and academics across Alberta’s supply chain community.

Below is the list of senior representatives from nine key economic sectors (aerospace and defence, agribusiness, energy, finance, manufacturing, mining and natural resources, pharmaceuticals, retail, services, etc.).

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Company/Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinmi Adeoye-Esene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osman Alp, PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrie Banks, SCMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brad Beerling, CCLP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Danny Bigioni</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kyle Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noorin Chatur-Mohammad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colin Chen, CPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heather Dewald, CPHR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brian Dumsday, P.Eng, P. Log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rickard Enstroem, PhD, CMgr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clement Esene, CBE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haideh Farahmand, PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mark Fiala</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brian Fleming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chris Fletcher, CCLP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jefferson Gardner, CBE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larin Guenther</td>
<td></td>
<td></td>
</tr>
<tr>
<td>David Hill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dwayne Huber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeffrey Jansens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deborah Jarvie, PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheryl Knight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chris Koskowich</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michael Leung, MBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nicole Leusink, CCDP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miranda Mackenzie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beth MacDonald</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ryan Miller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharon Ohashi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angie Panczak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monique Petit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karla Prych, MBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lisa Rochman, CPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rudy Schmidke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hossein Shahandeh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sue Skilton, SCMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joong Son, PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Janice Thomas, PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greg Tocheniuk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tatiana Wagner, SCMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xiaojia (Sunny) Wang</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Competency Framework Review Panel

Members of the Competency Framework Review Panel represent top supply chain decision makers who committed their time to review the draft Competency Framework document and who added value through their insights and expertise.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Company/Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam Abdelmalek (Hartford)</td>
<td>Chief Transformation and Supply Chain Officer</td>
<td>Bombardier</td>
</tr>
<tr>
<td>Chris Beringer (Calgary)</td>
<td>Assistant General Manager</td>
<td>World Wide Customs</td>
</tr>
<tr>
<td>Pierre Courtemanche (Quebec City)</td>
<td></td>
<td>Founder of Geo Traceability Ltd. Optel Group</td>
</tr>
<tr>
<td>Janice Davis (New Baltimore, MI)</td>
<td></td>
<td>Retired Executive Vice President, Business Transformation and Chief Supply Chain Officer</td>
</tr>
<tr>
<td>Patrick Dittli (Dusseldorf)</td>
<td>Chief Operating Officer</td>
<td>Office Depot Europe</td>
</tr>
<tr>
<td>Douglas Harrison (Toronto)</td>
<td>Corporate Director and Chair of the Board</td>
<td>Canadian Commercial Corporation</td>
</tr>
<tr>
<td>Leslie Nicholson (Toronto)</td>
<td>Senior Vice President, Supply Chain Operations</td>
<td>Nestlé Canada</td>
</tr>
<tr>
<td>Daniel Stanton (Charlotte)</td>
<td>Author</td>
<td>Supply Chain Management for Dummies</td>
</tr>
<tr>
<td>Kristie Syndikus (Toronto)</td>
<td>Vice President, Procurement</td>
<td>Maple Leaf Foods</td>
</tr>
<tr>
<td>Hans Thalbauer (San Francisco)</td>
<td>Senior Vice President SAP</td>
<td></td>
</tr>
<tr>
<td>Mark Thomas (Toronto)</td>
<td>Program Director Supply Chain</td>
<td>Schulich Executive Education Centre</td>
</tr>
<tr>
<td>Mark Topping, SCMP, CCLP (St. Albert)</td>
<td></td>
<td>Director, Procurement</td>
</tr>
<tr>
<td>David White (Winnipeg)</td>
<td>Executive Vice President, Supply Management</td>
<td>New Flyer Industries</td>
</tr>
<tr>
<td>Sam Abdelmalek (Hartford)</td>
<td>Chief Transformation and Supply Chain Officer</td>
<td>Bombardier</td>
</tr>
<tr>
<td>Chris Beringer (Calgary)</td>
<td>Assistant General Manager</td>
<td>World Wide Customs</td>
</tr>
<tr>
<td>Pierre Courtemanche (Quebec City)</td>
<td></td>
<td>Founder of Geo Traceability Ltd. Optel Group</td>
</tr>
<tr>
<td>Janice Davis (New Baltimore, MI)</td>
<td></td>
<td>Retired Executive Vice President, Business Transformation and Chief Supply Chain Officer</td>
</tr>
<tr>
<td>Patrick Dittli (Dusseldorf)</td>
<td>Chief Operating Officer</td>
<td>Office Depot Europe</td>
</tr>
<tr>
<td>Douglas Harrison (Toronto)</td>
<td>Corporate Director and Chair of the Board</td>
<td>Canadian Commercial Corporation</td>
</tr>
<tr>
<td>Leslie Nicholson (Toronto)</td>
<td>Senior Vice President, Supply Chain Operations</td>
<td>Nestlé Canada</td>
</tr>
<tr>
<td>Daniel Stanton (Charlotte)</td>
<td>Author</td>
<td>Supply Chain Management for Dummies</td>
</tr>
<tr>
<td>Kristie Syndikus (Toronto)</td>
<td>Vice President, Procurement</td>
<td>Maple Leaf Foods</td>
</tr>
<tr>
<td>Hans Thalbauer (San Francisco)</td>
<td>Senior Vice President SAP</td>
<td></td>
</tr>
<tr>
<td>Mark Thomas (Toronto)</td>
<td>Program Director Supply Chain</td>
<td>Schulich Executive Education Centre</td>
</tr>
<tr>
<td>Mark Topping, SCMP, CCLP (St. Albert)</td>
<td></td>
<td>Director, Procurement</td>
</tr>
<tr>
<td>David White (Winnipeg)</td>
<td>Executive Vice President, Supply Management</td>
<td>New Flyer Industries</td>
</tr>
</tbody>
</table>
MESSAGE FROM THE PRESIDENT & CEO OF SUPPLY CHAIN CANADA

Developed by Supply Chain Canada with the input of experienced supply chain professionals and global thought leaders, this first edition of The Competencies of Canadian Supply Chain Professionals® offers Canadian supply chain practitioners, employers, academic institutions, and policy makers a comprehensive guide to the competencies of one of our country’s most economically vital professions.

With its publication, we have elevated supply chain as a profession and, for the first time in Canada, documented the many and complex competencies needed for end-to-end supply chain success.

It is our hope that this document will become a ubiquitous and guiding force in Canada, used by students and individual practitioners to guide their studies and professional development; by employers to guide the hiring and development of their supply chain teams and the training investments they will support; by academic institutions to guide their program and course development; and by governments and policy makers to guide sound decision-making to support this key employment sector. And it will help us to continually develop and offer relevant and forward-looking programs to support our Supply Chain Canada members throughout their careers.

We were delighted to work with so many exceptional people on this publication and hope it will be a valuable reference for the supply chain community for years to come.

Yours truly,

CHRISTIAN ALAN BUHAGIAR
President and CEO, Supply Chain Canada
Everything we do, whether it involves a service on which we rely or a product that we use, is the result of an efficient supply chain working behind the scenes to drive our economy and better our lives. The strategic importance and impact on the global marketplace in this emerging digital age highlights the need for new skill sets and competencies to augment existing expertise to ensure that our supply chains have both the reliability and agility to adapt to a brave new world.

Recognizing this need, Supply Chain Canada brought together a group of global “thought leaders” to develop a set of end-to-end Canadian supply chain competencies as a principal deliverable of our overall strategic plan.

The process for developing and finalizing these competencies began in May in Calgary during our In-Residence Week, concluding in Montreal this past June at the National Conference celebrating our 100th year. Together with critical input and direction from our Senior Executive Review Panel, we have leveraged the insights from the industry thought leaders to ensure that we are positioning supply chain professionals for success in a rapidly changing economic, technological and societal landscape.

Collectively, the competencies matrix, which will be “a first” for Canada, will not only build on and therefore strengthen the existing foundation of knowledge and expertise, it will also introduce new skill sets that will form the basis for the continuing growth of supply chain management as a recognized profession.

EXECUTIVE SUMMARY

“It is critical that Supply Chain Professionals continuously invest in their skills and knowledge in order to have a broad perspective and contribute in driving business value.”

Lani Lindsay
Vice President, Supply Chain – Replenishment & Global Imports
Wal-Mart Canada
THE APPROACH

The process of learning and gaining expertise is not sequential but situational driven in large part by the demands of a changing world. As a result, the approach we take to not only augment existing knowledge but also provide new competencies to align with real-world conditions and requirements must reflect the fact that not everyone is starting from the same position regarding their learning path.

That said, there has to be a “symmetry” within a curriculum that accommodates these different entry points to facilitate the process and ensure that all roads lead to Rome – being supply chain excellence. Specifically, and like the important pieces of a puzzle, each competency must fit together to ultimately provide a clear and concise picture of an optimal supply chain capability and practice.

The categories described in the above-referenced matrix reflect three areas of professional competency: foundational, core and technical.

As you review the competencies within each category, you will likely realize that you may already have different competencies in multiple categories. For example, you may have creative thinking and innovation and business acumen in the foundational category. You may also have a supply chain strategy and design as core competencies. In this scenario, and from a technical standpoint, you would more than likely want to focus on procurement strategy and execution. In other words, using creative thinking and business acumen, you can design a viable supply chain strategy. Adding procurement strategy and execution will enable you to bring your vision to fruition. This example is one possible learning path and demonstrates the symmetry or complementary nature of the various competencies spanning the three categories.

Conversely, someone may already have a strong warehousing and facilities management competency. Given the Amazonization of the supply chain and its impact on distribution, there will likely be a need to gain expertise in systems technology deployment in the core category as many organizations consider new technology centering on Robotics and Artificial Intelligence.

“This portfolio of the competencies required to work in the end-to-end supply chain is an outstanding resource for professionals, providing an extensive look at the cross-functional skills they need to succeed in their careers.”

Stephen Cherlet
Chair
National Board, Supply Chain Canada

In either of these two scenarios, it is important to remember that the competency matrix is not hierarchical but situational. Having this high degree of flexibility means that supply chain management professionals can tailor their knowledge acquisition plan to target specific and time-relevant competency requirements as opposed to following a traditional sequential curriculum.

Through this progressive approach, organizations gain a competitive advantage as the competencies of their supply chain professionals will be in actionable alignment with their strategic vision and objectives.
THE BENEFITS

As a result of this historic undertaking, we believe that this document – which is "Designed by Supply Chain Professionals for Supply Chain Professionals" will be enormously valuable to employers and professionals alike. It will also augment curriculum planning for universities and colleges and in the process, enable our association to grow the SCMP™ designation, strengthen continuing education while further elevating the profession across the country.

Specifically, from an employer standpoint, it will assure the level of competency of a prospective hire by establishing a clearly defined measurable standard reflecting the changing skill sets that will deliver greater performance and value in the emerging digital world.

For the supply chain professional, it will chart a comprehensive knowledge acquisition roadmap to ensure that their professional competencies will continuously align with the demands of a dynamically evolving marketplace, creating new and exciting career opportunities.

In partnership with higher education institutions, and with the ongoing commitment to professional excellence, the directional insights for furthering the effectiveness and impact of the supply chain profession will add greater value and relevancy to existing curriculums thereby fulfilling what we believe is a critical role in the future of our industry.

Finally, and beyond strengthening the SCMP™ designation and serving the best interests of our current membership, by providing a clear outline for personal development and career advancement we believe that what we have created will ultimately attract new and vibrant talent to our industry and profession.
INTRODUCTION

A supply chain is a complex system made up of people, processes and technologies that is engineered and managed to deliver value to a customer. Supply chain management (SCM) covers all aspects of product motion from the supplier’s supplier to the customer’s customer, and everything from production and product development to the information systems needed to direct these undertakings toward sustainability and the creation of a more circular economy.

Since the release of the Supply Chain Management Professional (SCMP®) Program Overview in 2016, there has been considerable change and increased complexity for supply chain practitioners to navigate when developing and executing SCM, and for learning institutions that are focused on developing the competencies of their learners. The release of this report reflects a maturing of supply chain management as a profession and will guide the continued evolution of SCM professionals in honing their knowledge and skills to ensure global competitiveness across the Canadian economy.

REVIEW PROCESS

To help build the knowledge, skills and abilities of people and organizations functioning across the end-to-end SCM spectrum, Supply Chain Canada undertook the development of this Competency Framework. This framework is a library of business-centric skills, covering the entire range of competencies in the SCM profession. A user of the framework can select the competencies for a specific need or context and, as such, it contains standards for many occupations (supply chain manager, category manager, compliance specialists, customs brokers, freight forwarders, logistics professional, procurement specialist, etc.) across most economic sectors (aerospace and defence, agribusiness, energy, finance, manufacturing, mining and natural resources, pharmaceuticals, retail, services, etc.).

The framework was created using a social research model that included primary and secondary data sources. An extensive environment scan and literature review of reports published over the past five years established the secondary research benchmarks. A core tenet of the primary research methodology was the extensive consultation with representatives from the supply chain ecosystem (senior supply chain professionals, academics, global thought leaders, those with specific subject matter expertise). Engagement details can be found in the acknowledgments section above. Senior staff and board members from each Provincial/Territorial Institute were also engaged in the validation process.
FRAMEWORK STRUCTURE

Competencies are “the set of characteristics of an individual that are observable, measurable and predictive of superior performance in a given role. They define how people get their jobs done” (Gartner, 2018).

Each organization will have a set of factors that determine how the business can be successful in a dynamic supply chain ecosystem. The competency categories described in this framework are divided into three key areas: foundational, core and technical. There are 14 foundational competency categories that all supply chain management professionals across the Canadian supply chain are expected to demonstrate. There are five core competency categories that allow SCM professionals to think and plan for the future of the organization; these skills are critically important for mapping a business plan that can adapt to change (environmental, political, structural and technological). Finally, there are five technical competency categories.

The Competency Framework was designed by business, for business, and are focused on business priorities. Competencies are forward-looking and aim to prepare people for the practice of SCM in the future. They are not simply a statement of current practice or the embodiment of how people function today.

BENEFITS OF A COMPETENCY FRAMEWORK

Many successful organizations view competencies as a cornerstone for talent management and have categorized competency frameworks as an essential step in organizational success. Competencies allow organizations to align their talent management practices with their vision, mission and organizational goals. Other benefits include the ability to:

• Recruit the right resources through a cost-effective, consistent, fair and open process.
• Deploy and maintain the right talent in the right jobs.
• Assess performance against a well-defined set of behaviours, skills and knowledge.
• Retain the right people by developing them in the right way and linking competence to organizational performance.
• Standardize assessment, feedback and communication regarding performance to facilitate a common culture.
• Reward the right people appropriately through measurable competencies linked to personal/organizational performance.
• Manage workforce and succession planning in an objective manner.

For academic institutions, a competency framework allows the organization to benchmark its curriculum against recognized supply chain management standards.
Foundational competencies are sets of intellectual, personal, social and emotional proficiencies that all SCM professionals benefit from developing in order to engage in deep learning and life-long learning. These competencies are not new or unfamiliar to most supply chain management professionals: they are essentially what the best practitioners employ in order to achieve consistently high performance. Effective SCM professionals demonstrate agility across the technical competencies.

There are 14 foundational competencies that all successful SCM professionals across the Canadian supply chain community demonstrate.

“Foundational competencies is the entry ticket to play in the Supply Chain Arena.”

Patrick Dittli
Chief Operating Officer
Office Depot Europe
1. **ADAPTABILITY**
   SCM professionals demonstrate the openness and ability to rapidly and flexibly apply routine knowledge to novel circumstances. SCM professionals are able to work effectively with new information and technologies, evolving business models and fluctuating economic and geo-political environments.

2. **BUSINESS ACUMEN**
   SCM professionals must demonstrate awareness of internal and external dynamics and an acute perception of the dimensions of business issues. They are able to conduct research and identify, collect and analyze information about the national and international markets, global economies, political environment, technology trends and business operation issues to make informed decisions that are clearly linked to the organization’s strategy and goals for optimal performance. SCM professionals are then able to see the “whole” picture (understand how decisions impact the entire organization versus a single business unit; understand the company strategy and how supply chain strategy plays into that; and recognize legal and risk elements) before recommending or executing a course of action.

3. **COLLABORATION AND SYNERGY**
   SCM professionals must demonstrate the ability to work with others toward a shared goal, actively collaborating, sharing responsibility and rewards, and contributing to the capability of the team. SCM professionals with this skill empathize and create an atmosphere of respect, helpfulness and cooperation. They can draw others into active commitment to the team’s effort. They build spirit, positive relationships and a pride of identity on the team. This competency holds the key to collaboration of any kind.

4. **COMMUNICATIONS (BOTH WRITTEN AND ORAL)**
   SCM professionals communicate effectively through listening, understanding, speaking, writing with clarity, and effectively applying the art of influence and negotiation. SCM professionals must be able to clearly communicate complex matters to internal and external audiences, at any employee level in any organization, and to the public. Today’s professionals demonstrate the ability to clearly and concisely communicate corporate strategy and how SCM links, supports and helps achieve this strategy while mobilizing key stakeholders and teams through effective communication skills.

5. **CREATIVE THINKING AND INNOVATION**
   SCM professionals discover new opportunities and problem-solving solutions by looking beyond current practices and using innovative thinking; they seek opportunities to “futureproof” the supply chain. Creative thinking applications include knowing when a new approach is required; importing and adapting a solution from outside the current work environment; or creating a new solution. SCM professionals have a solutions-focused mindset.

6. **CUSTOMER CENTRICITY**
   SCM professionals continuously develop a variety of effective ways to deal with service challenges. They utilize various methods for information sharing and information gathering to enhance the customer experience. Where necessary, SCM professionals recommend modifications to a process or processes in order to enhance service.

7. **DECISIVENESS**
   SCM professionals draw on strong analytical and critical-thinking skills and their capacity for innovative and integrative thought, as well as their ability to both connect and dissect “parts” and “wholes,” identify and manage priorities, adopt a broad view to arrive at a recommended solution. SCM professionals demonstrate the capacity to confidently make decisions within the scope of their responsibility.
Digital Dexterity is the ability and desire to exploit existing and emerging technologies for better business outcomes. SCM professionals demonstrate fluency in cognitive ability and social practice needed to leverage and manipulate media, information and technology in unique and highly innovative ways. This includes the ability to communicate and collaborate across virtual and physical environments and mobilize social media and other networks in order to extract insights that are actionable.

SCM professionals need to treat all individuals fairly and respectfully; work effectively with others, regardless of their background, position or status; ensure that opportunities are equally available to all; and respect different values and viewpoints. Researching and leveraging the target market’s culture is critical to developing and maintaining successful performance-driven business relationships. SCM professionals must recognize, appreciate and adapt to the norms of doing business with a variety of cultures if they are to be successful.

SCM professionals guide business transformation and growth. They embrace the concept that leaders act, influence and create momentum in search of future growth. They embrace diversity of thought, appreciate differences and see and seize previously unseen opportunities. To lead business transformation, SCM professionals learn how to transform themselves to define the future growth of their organizations.

Today’s SCM professionals must have the ability to clearly and concisely communicate corporate strategy and how SCM links, supports and helps achieve this strategy. They must develop competence in goal setting, planning and organization, collaboration, process management, empathy, flexibility, responding to feedback and conflict management. SCM professionals have the ability to work within, develop and lead their own teams.

SCM professionals focus on desired results and business outcomes. They set and achieve challenges and goals; clearly define mutual expectations of self and others; and take appropriate proactive actions to ensure obligations are met. SCM professionals define performance standards in terms of doing what is appropriate and doing it well.

SCM professionals draw on their ability to act with honesty, integrity, credibility, self-confidence and independence, while coping with ambiguity, conflicts of interest and the need to protect the public interest. SCM professionals do more than adhere to the rules of professional conduct; they demonstrate ethical behaviour that exemplifies and enhances the reputation of the profession.

SCM professionals maintain an approach to analyzing how organization systems (internal/external ecosystems, technology, end-to-end processes, etc.) interact and influence each other. They understand how the supply chain can add to the value chain of the organization; how continuous improvement processes can be leveraged to benefit the entire organization versus a single business unit; and how key stakeholders and teams can be mobilized through effective communication skills.
Core competencies allow SCM professionals to think and plan for the future of the organization. A SCM professional thinks strategically about the range of market, business and/or technological issues likely to impact the organization’s ability to fulfill its role. These skills are critically important for mapping a business plan that reflects the organization’s strengths and weaknesses, represents its key stakeholders and aligns with the vision and longer-term direction of the business while enabling the organization or unit to adapt to change (environmental, political, structural and technological). SCM professionals focus on bringing customer centricity to all functional/business units of the organization.

The following five core competency categories represent the framework used to group the knowledge and skills required for credential-worthy performance that supply chain management professionals across the Canadian supply chain community are expected to demonstrate.

Core Competencies:

- **Supply Chain Strategy**
- **Supply Chain Design**
- **Supply Chain Analytics**
- **Supply Chain Dynamics**
- **Systems Technology Deployment**
SUPPLY CHAIN STRATEGY

SCM professionals demonstrate the ability to understand the current marketplace environment, conduct a gap analysis and roadmap and create an end state vision that involves the integration of different elements of supply chain to form an integrated coherent supply chain that can deliver the required business results. SCM professionals examine the economic environment and, where appropriate, introduce new business models. In today’s changing marketplace, they focus on customer centricity and growth and profitability, instead of efficiency and cost only.

SUPPLY CHAIN DESIGN

SCM professionals develop business rules, policies, procedures and controls during the design, implementation and maintenance of supply chain strategies and processes. The objective is to ensure adherence to business rules at all times with the purpose of achieving consistent operational activities, mitigating supply chain risks and ensuring that the required contingencies are in place. Supply chain design is created to match the organization’s strategic position and required service levels.

SUPPLY CHAIN ANALYTICS

SCM professionals use a variety of techniques (statistics, predictive modelling and machine learning) to find meaningful patterns and knowledge in order, shipment and transactional and sensor data. An important goal of supply chain analytics is to improve forecasting and efficiency and be more responsive to customer needs as well as optimize cost and capital aligned to the strategy.

SUPPLY CHAIN DYNAMICS

SCM professionals must understand the dynamics and risks within the supply chain community, both large and small. Supply chains are complex systems involving multiple organizations with different goals and objectives. Additionally, there are external forces and trends that can impact (positively or negatively) a supply chain’s efficiency and effectiveness. Supply chains are subject to a wide number of potential disruptions – from both within and outside the supply chain.

SYSTEMS TECHNOLOGY DEPLOYMENT

SCM professionals assume a leadership role in the process of selecting and implementing different types of systems technology to enable outbound supply chain processes and operations for the purpose of performance improvement. This will include the benchmarking of improvement opportunities; understanding the different types of system technologies available; how to assess the functionality of different technologies; integrating these system technologies into technology architecture; and the formulation of an implementation plan to ensure the successful implementation of such system technologies. The protection of intellectual property and cyber security fall within the scope of this competency.
COMPETENCY CATEGORY OVERVIEWS

Each of the five competency categories is accompanied by a summary of the skill requirements of an SCM professional within the category. Below is a detailed overview of the knowledge and skill areas and subskills identified.

1.0 SUPPLY CHAIN STRATEGY

1.1 Situational Analysis Assessment

**Definition:** Review an existing or develop a new supply chain strategy that involves the integration of different elements of supply chain, such as demand strategy, demand fulfillment, sourcing strategy and supply chain planning, to form an integrated coherent supply chain that can deliver the required business results. Alignment with business strategy and other functional strategies such as marketing and manufacturing is also required.

1.1.1 Understand the importance of supply chain strategy as a mechanism to achieve integration across the different functions
1.1.2 Understand the different end-to-end workflow processes of supply chain management
1.1.3 Understand why it is important that the business strategy and supply chain strategy should be integrated
1.1.4 Perform basic analysis of the elements of supply chain strategy such as outbound strategy and sub-strategies
1.1.5 Apply basic analysis techniques to benchmark improvement opportunities
1.1.6 Consider new business strategies, including software as a service
1.1.7 Align strategies across macro-processes such as network strategy, facility design and layout, customer demand fulfillment and transportation operations
1.1.8 Develop basic implementation plans for relevant elements of the supply chain strategies
1.1.9 Identify legal, ethical and human resource factors that may impact decisions and delivery of the strategy
1.1.10 Align supply chain planning with key performance objectives
1.1.11 Develop improvement plans for the optimal management of end-to-end processes of the supply chain through digitization and automated workflows
1.1.12 Share business intelligence and act as an agent for change
1.1.13 Align supply chain to unique strategy of the organization as well as optimizing capital and returns
1.2 Supply Chain Multiplicity

Definition: This involves identification of different supply chain models and the understanding of the difference in functioning between the different models. The emphasis is on the different performance objectives, different configurations required, the end-to-end workflow requirements and how technology enablement will differ across different models.

1.2.1 Identify and provide examples of different types of supply chains
1.2.2 Explain why different supply chains are functioning in different ways
1.2.3 Identify the factors that distinguish different supply chains from one another
1.2.4 Demonstrate cause-and-effect understanding by explaining why it is required to develop different strategies for different supply chains
1.2.5 Identify which aspects from diverse supply chain strategies need to be different
1.2.6 Differentiate performance objectives of different types of supply chains from each other
1.2.7 Explain the different configurations required for different types of supply chains in detail
1.2.8 Outline how logistics networks between different supply models will operate differently from each other
1.2.9 Apply approaches to segmented supply chain strategy, which go beyond the idea of Lean and Agile supply chains
1.2.10 Develop different inventory strategies for the different supply chain configurations
1.2.11 Formulate different strategies that deliver the desired results for the different supply chains
1.2.12 Develop process models to support the relevant supply chain configuration
1.2.13 Integrate different types of supply chain configurations within the same business
1.2.14 Integrate different functional requirements for diverse supply chains
1.2.15 Implement and, where possible, digitize or automate process models that leverage the common aspects of diverse supply chains, but provide unique functionality
1.2.16 Implement and, where possible, digitize or automate performance management approaches to integrate diverse supply chains in the same business

1.3 Demand Management Strategy

Definition: Demand management strategy is the process of analyzing the key trends and dynamics in the industries and markets. The objective of this analysis is to identify cost trends, technology trends, potential structural changes in the market and associated risk factors. This analysis will provide direction for the design of supply chain strategies.

1.3.1 Interpret different industry models in terms of capital intensity and cost structures
1.3.2 Demonstrate cause-and-effect understanding by explaining how the supply chain configuration for different industry models will be different in terms of its functioning

“Supply Chain Canada has done a solid job creating competencies that will allow organizations to evaluate their staff on their demand management skills.”

Martin Montanti, MBA, FSCMP, P.Mgr, SCMP
Assistant Deputy Minister
Procurement and Supply Chain Central Services
Government of Manitoba
1.3.3 Explain how the key performance measures will vary for the different industry models
1.3.4 Explain how the supply chain process designs for different industry models will have a varied focus
1.3.5 Demonstrate cause-and-effect understanding by explaining the impact of different industry models on the scalability of the supply chain
1.3.6 Apply the concept of an industry business model to selected industries and identify the potential impact on supply chain
1.3.7 Develop a clear strategy to manage costs of working capital and how the levers you use impact the bottom line
1.3.8 Develop the supply chain configuration for different industry models that will be different in terms of their functioning
1.3.9 Develop key performance measures for different industry models
1.3.10 Develop broad templates to optimally manage end-to-end workflows for the designs of different industry models
1.3.11 Develop models to illustrate the impact of different industry models on the scalability of the supply chain
1.3.12 Recognize and manage risks and disruptions that may occur

1.4 Pricing Strategies

**Definition:** Developing a pricing strategy is the result of a complex set of calculations, research and analysis, and risk-taking. The most appropriate strategy considers a variety of factors (market segments, market conditions, competitor actions, trade margins, input costs and others). Determining pricing strategy is targeted at the defined customers and against competitors.

1.4.1 Understand the concept of cost-based and cost-plus-based pricing
1.4.2 Understand the concept of demand-based pricing
1.4.3 Explain the meaning of different types of demand-based pricing (price skimming, price discrimination, bundle pricing, penetration pricing and value-based pricing)
1.4.4 Explain the business rationale for each type of demand-based pricing
1.4.5 Identify the various cost inputs and variables involved
1.4.6 Understand the various factors that impact pricing (manufacturing cost, market place, competition, market condition, and quality of the product)
1.4.7 Assess market segmentation and market frictions to determine most appropriate pricing strategy
1.4.8 Baseline costs using market knowledge and research
1.4.9 Adjust pricing strategy according to organization’s business needs and appropriate market strategy
1.4.10 Consider and calculate financial implications (expenses and capital)
1.4.11 Manage supply chain risks

1.5 Global Logistics Strategies

**Definition:** Global logistics strategies focus on the development of different types of transport solutions (intermodal, multi-modal, commingled) that combine different modes of transport into an integrated strategy for global logistics. The management and improvement of a global logistics network of agencies and service providers also forms part of this competency.

1.5.1 Explain critical elements and components of a global logistics solution
1.5.2 Explain the importance of a global network of agencies or offices to optimize global logistics solutions
1.5.3 Explain the concept of a base load to cover fixed costs, with added volumes to improve profitability of the load
1.5.4 Demonstrate cause-and-effect understanding by explaining what challenges are involved in the management of global multi-modal logistics solutions
1.5.5 Explain the key tactical objectives to be achieved through key modes of transport in global logistics

1.5.6 Participate in the process of combining different types of cargo to ensure optimization of transport capacity in a single industry

1.5.7 Participate in the process of developing service providers for the provision of multi-modal global logistics in a single industry

1.5.8 Participate in the process of developing multi-modal solutions for global logistics in a single industry

1.5.9 Participate in the process of developing international freight solutions by balancing levels of consolidation of freight and levels of flexibility required in a single industry

1.5.10 Integrate land-based infrastructure design with multi-modal global logistics solutions in a single industry

1.5.11 Lead the coalescing of different types of cargo from different industries to ensure optimization of transport capacity

1.5.12 Lead the development of service providers for the provision of multi-modal global logistics across different industries

1.5.13 Lead the development of multi-modal solutions for global logistics across different industries

1.5.14 Lead the development of international freight solutions by balancing levels of consolidation of freight and levels of flexibility and cost efficiency required across different industries

1.5.15 Lead the integration of land-based infrastructure with multi-modal global logistics solutions across different industries

1.5.16 Consider and calculate financial implications (expenses and capital)

1.5.17 Manage supply chain risks

1.6 Supply Chain Sustainability

**Definition:** Supply chain sustainability focuses on the implementation of principles, strategies and processes that ensure the long-term sustainability of the supply chain and its social and environmental acceptance. Aspects that are included in this are: raw materials and intermediate goods sourcing; energy/resources consumption and environmental footprints; recycling and the circular economy and various others. Supply chain sustainability initiatives must comply with local and global regulations as well as being aligned with corporate policies and commitments.

1.6.1 Explain the importance of supply chain sustainability and Environmental, Social and Corporate Governance (ESCG) performance and how it could support company growth strategy

1.6.2 Understand what drives sustainability expectations, standards and associated regulations
1.6.3 Understand ESCG assessment and rating and explain the result obtained by the company (if applicable)
1.6.4 Evaluate the inherent sustainability risks associated with specific supply chains, raw materials and intermediate goods
1.6.5 Evaluate the inherent ESCG risks associated with all the suppliers (not limited to tier 1 supplier only)
1.6.6 Evaluate the global company footprint and environmental/sustainability awareness
1.6.7 Recommend the best Environmental Management System for planning, developing, implementing, maintaining and evaluating corporate environmental policies, programs and initiatives
1.6.8 Recommend the most effective strategies to increase supply chain visibility (certification scheme, supply chain mapping, supplier risk assessment, supplier engagement, traceability, compliance, intelligent supply chain, etc.)
1.6.9 Recommend the best technology available to increase supply chain visibility (track and trace solutions, blockchain solutions, mass balance solutions, chain of custody solutions, supplier scorecards, etc.)
1.6.10 Design strategies that will enhance the company sustainability performance
1.6.11 Identify what internal and external resources are needed to implement the company sustainability strategy and the costs
1.6.12 Evaluate the return on impact/investment of the company sustainability strategy
1.6.13 Implement improvement actions in collaboration with supply chain stakeholders to improve the supply chain sustainability and distribute costs and benefits
1.6.14 Monitor and evaluate the company sustainability performance; quantify the key performance indicator (KPI) into financial returns

2.0 SUPPLY CHAIN DESIGN

2.1 Supply Chain Design

**Definition:** The development of business rules, policies, procedures and controls during the design, implementation and maintenance of supply chain strategies and processes. The objective is to ensure adherence to business rules at all times with the purpose of achieving consistent operational activities, mitigating supply chain risks and ensuring that the required contingencies are in place.

2.1.1 Explain the importance of design in achieving supply chain objectives
2.1.2 Explain the risks if design is not complied with in the broader business context
2.1.3 Explain the rationale for the different approaches, regulatory frameworks and tools (e.g. SCOR, Six Sigma, Lean, etc.)
2.1.4 Explain in broad terms the relevant ISO systems (Quality – 9001; Environmental – 14001; Safety and Health – 18000)
2.1.5 Explain the auditing and assessment process
2.1.6 Develop basic design for specific processes such as customer demand, logistics or facilities management
2.1.7 Implement operating procedures, policies and business rules for identified risks in the different areas
2.1.8 Complete compliance audits to determine the appropriateness of the supply chain design, operating procedures and business rules
2.1.9 Monitor key performance indicators (KPI’s) to track adherence to business rules and policies
2.1.10 Implement corrective actions in case of non-compliance
2.1.11 Develop a basic risk matrix that identifies potential risks in the different areas across the supply chain
2.1.12 Apply the relevant ISO systems (Quality – 9001; Environmental – 14001; Safety and Health – 18000) for selected parts of the transport of a business unit
2.13 Identify all the potential risk areas across the supply chain of a business unit
2.14 Develop key performance indicators (KPI’s) to track potential risk areas
2.15 Develop compliance audits to be implemented to measure the appropriateness of the supply chain design
2.16 Initiate increased use of clean master data in decision making across functional lines and throughout the organization
2.17 Champion a data governance organization to promote and establish the right level of emphasis and support for technology
2.18 Align outbound supply chain design with internal requirements from other areas such as supply chain operations and planning
2.19 Enable design, implementation and maintenance processes through the use of systems technology to ease measurement and improve responsiveness to non-compliance
2.20 Implement and, where possible, digitize or automate change management programs to improve the level of responsiveness to business demands
2.21 Develop an integrated risk matrix that would reflect risks in the different areas
2.22 Monitor compliance to assess performance
2.23 Design and conduct internal audits
2.24 Contribute to audit design and how it is applied to various areas of risk

2.2 Demand and Supply Balancing

Definition: The process of identifying and measuring the gaps and imbalances between demand and resources to effectively resolve the variances through marketing, pricing, packaging, warehousing, outsource plans or some other action. The focus is on a solution(s) that will optimize service, flexibility, costs and assets (or other supply chain inconsistencies) in an iterative and collaborative environment. The process of developing a time-phased course of action that commits supply chain resources to meet constraint-based supply chain requirements. This process includes the formalization of the sales and operations plan.

2.2.1 Explain the process of demand and supply balancing and its importance for supply chain performance
2.2.2 Provide examples of the potential gaps or imbalances between demand and supply that can occur
2.2.3 Explain the difference between hard and soft constraints in demand supply balancing
2.2.4 Provide examples of the potential options to resolve these imbalances between demand and supply
2.2.5 Explain the importance of communicating the plan and influencing implementers of the plan to adhere to the constrained plan
2.2.6 Explain the process of reviewing and re-planning to ensure that plans are adjusted based on changes during execution of the plan
2.2.7 Implement, digitize or automate (where appropriate) a process of demand and supply balancing for a selected business segment to ensure supply chain performance
2.2.8 Identify the potential gaps or imbalances between demand and supply that can occur for a selected business segment
2.2.9 Identify hard and soft constraints in demand supply balancing for a selected business segment
2.2.10 Identify the key business and supply drivers causing imbalances between demand and supply for a selected business segment
2.2.11 Identify the potential options to resolve these imbalances between demand and supply for a selected business segment
2.2.12 Implement, where appropriate, capacity management and planning strategies (outsourcing business operations, purchasing additional equipment and leasing or selling commercial property)

2.2.13 Re-balance the supply chain through selection of appropriate options for a selected business segment

2.2.14 Adapt to evolving technologies and shifting global environments

2.2.15 Facilitate the cross-functional integration required to improve demand and supply balancing across segments in a business unit

2.3 Environmental Management

**Definition:** Environmental management within the supply chain focuses on how the supply chain interfaces with the environment. The objective is to avoid any harmful effects that the supply chain might have on the environment. The process involves the identification of potentially harmful impacts, and the formulation of proactive actions to avoid such impact.

2.3.1 Explain why environmental management is important for supply chain management

2.3.2 Provide examples of potential harmful impacts the supply chain can have on the environment

2.3.3 Explain what strategies can be implemented to avoid the harmful impact of the supply chain on the environment

2.3.4 Demonstrate cause-and-effect understanding by explaining who should be involved in environmental management

2.3.5 Complete an assessment for the environmental impact of the supply chain

2.3.6 Identify the potential harmful impacts that the supply chain might have on the environment

2.3.7 Calculate the carbon footprint of the business processes

2.3.8 Establish proper business mapping for all sustainability projects, setting out the venture’s goals, processes and reporting

2.3.9 Develop and implement action plans to reduce the harmful impact and increase the positive impacts on the environment

2.3.10 Create and implement measurable key performance indicators (KPI’s) for sustainability plans

2.4 Network Design

**Definition:** The network includes all facilities in the inbound and outbound supply chain such as sources of supply and facilities, distribution centres, production facilities, tank depots, customer facilities, transport routes and modes, and the inventory at the different inventory holding points across the network. The design and optimization of the network is focused on achieving the best performance by optimizing cost, customer service and inventory given the network constraints.

2.4.1 Explain the concept of a supply chain network

2.4.2 Explain all the components such as sources of supply, production facilities, depots, customer facilities and others that make up a total network

2.4.3 Provide examples of the different inventory positioning strategies that can be followed

2.4.4 Provide examples of the techniques for quantification of costs, service, constraints and other performance metrics of a network

2.4.5 Explain the different strategies that can be used for the optimization of the network

2.4.6 Explain the different quantification techniques for the optimization of the network

2.4.7 Map the network with components such as sources of supply, production facilities, depots, customer facilities and others that make up a total network for a specific business segment or mini supply chain
2.4.8 Develop different inventory positioning strategies for the business segment network
2.4.9 Develop a network model for the quantification of costs, service, constraints and other performance metrics for the network of a specific business segment
2.4.10 Apply the different strategies to optimize the network of a specific business segment
2.4.11 Harmonize all of the supply chain technologies to optimize the existing network infrastructure
2.4.12 Consider prototyping/deployment of applications to optimize cost, customer service and inventory
2.4.13 Manage and integrate all of the different connectivity pieces to ensure compatibility with wider business systems
2.4.14 Learn the use of control centres and control tower technology to execute network design
2.4.15 Manage multi-channel (i.e. e-commerce) fulfillment methods

2.5 Supply Chain Improvement Concepts

**Definition:** For improving supply chain performance, it is important to have a good understanding of the improvement concepts that underline supply chain performance and include them as part of a process of performance improvement.

2.5.1 Identify potential improvement concepts that can be implemented to improve supply chain performance
2.5.2 Explain the concepts and principles of improvement
2.5.3 Benchmark which supply chain improvement concepts can be applied for the improvement of the performance of the company’s supply chain
2.5.4 Formulate an action plan to implement improvement concepts such as quick response and others in the supply chain of the company
2.5.5 Implement the action with improvement concepts such as quick response and others in the supply chain of the company
2.5.6 Manage the identification of which supply chain improvement concepts can be applied for the improvement of the performance of the company’s supply chain
2.5.7 Manage the formulation of an action plan to implement improvement concepts such as quick response and others in the supply chain of the company
2.5.8 Manage the implementation of the action with improvement concepts such as quick response and others in the supply chain of the company

“Data Science is unleashing the power of the strategic advantage in Supply Chain.”

Kristie Syndikus
Vice President, Procurement
Maple Leaf Foods

“Data Science is unleashing the power of the strategic advantage in Supply Chain.”

Kristie Syndikus
Vice President, Procurement
Maple Leaf Foods
3.0 SUPPLY CHAIN ANALYTICS

3.1 Data Analytics

**Definition:** Data analytics is the process of capturing, analyzing, integrating and interpreting high-quality, real-time data that fuels process optimization and predictive analytics with the aid of a main data engine and peripheral systems/tools. Data analytics technologies and techniques are widely used to enable the organization to make more-informed business decisions leading to increased revenues, improved operational efficiency, optimized marketing campaigns and customer service efforts. Data allows organizations to integrate with key stakeholders and respond more quickly to emerging market trends and gain a competitive edge over rivals – all with the ultimate goal of boosting business performance.

3.1.1 Understand the importance of master data analysis for achieving supply chain performance
3.1.2 Collaborate with the IT team to migrate data from legacy systems
3.1.3 Decentralize master data for analysis and interpretation
3.1.4 Structure and filter data in ways that allow the organization to execute key actionable decisions
3.1.5 Interpret the challenges of data analysis resulting from inputs and the impacts on outcomes
3.1.6 Use methods and algorithms to turn very large collections of master data into actionable insight
3.1.7 Conduct data profiling, transformation and cleaning, data mining, data warehousing and cloud computing operations
3.1.8 Design, implement and manage predictive analytics
3.1.9 Select the appropriate analysis, decentralize master data for analysis, menu-driven and syntax programming, interpret outputs and present results in a fitting format
3.1.10 Provide techniques that model the relationships between inputs and outputs
3.1.11 Provide tools to optimize actions against a complex set of objectives to find best practices and design best policies under all circumstances
3.1.12 Consider the competitive advantages created by analytical capabilities
3.1.13 Embed analytics into the business culture
3.1.14 Build capability for use of real-time analytical insights (including dashboards, notifications or predictive analytics) through proof of concepts, learning through trial
3.1.15 Consider applications that provide new capabilities that customers will value (increased speed of decision making, increased asset velocity, creation of new performance analytics)
3.1.16 Ensure data governance policies, rules and procedures for handling master data are in place and the possibility of errors is minimized through increased control and compliance of master data
3.1.17 Consider the creation of a Master Data Centre of Excellence
3.1.18 Prototype/deploy the application of predictive analytics, artificial intelligence and business intelligence
3.2 Demand Sensing and Shaping

**Definition:** Demand sensing and shaping is the process of developing an understanding of the factors that determine the true demand patterns of customers. This understanding is then used to implement strategies that influence or shape the demand pattern to improve the profitability of fulfilling that demand pattern.

3.2.1 Explain how customer demand is the key driver of all supply chain activities
3.2.2 Explain what the impact on the supply chain is of fluctuating demand patterns
3.2.3 Explain what the bullwhip effect is and what factors cause it
3.2.4 Identify the factors that can potentially influence the customer demand pattern
3.2.5 Identify the potential strategies that can be implemented to influence the customer demand pattern
3.2.6 Map the demand of a specific customer and determine the demand pattern
3.2.7 Identify the factors that drive or influence the actual demand pattern of a customer
3.2.8 Identify and quantify the impact of a fluctuating demand pattern on the profitability of fulfillment
3.2.9 Formulate strategies that can be implemented to improve the profitability of fulfilling that demand pattern
3.2.10 Implement the strategies formulated to improve the profitability of fulfilling that demand pattern

3.3 Performance Metrics

**Definition:** Supply chain performance metrics include two aspects: performance attributes and performance metrics. A performance attribute is a grouping of indicators used to express a specific strategy, while an indicator is a standard for measurement of the performance of the end-to-end workflow involved in supply chain. The performance attributes include reliability (this focuses on the predictability of the outcome of a process); responsiveness (describes the speed at which tasks are performed); agility (describes the ability to respond to external influences); cost (describes the cost of operating a process and includes all aspects of costs expressed as total costs to serve); and assets (describes the ability to efficiently utilize both fixed and variable assets). Supply chain performance metrics are defined at different levels based on the composition of the relevant supply chain process. Performance metrics are aligned with performance attributes and provide cause-and-effect measurements at three levels to enable performance measurement to a detail or activity level.

3.3.1 Explain the concept of supply chain performance metrics or measures
3.3.2 Provide examples of different supply chain performance attributes such as reliability, etc.
3.3.3 Explain how the different levels of supply chain performance metrics or indicators relate to each other
3.3.4 Outline the key supply chain performance metrics that are critical for the organization's success
3.3.5 Explain the importance of real-time data for supply chain performance measurement
3.3.6 Identify some of the different types of real-time data (statistics and quantitative research)
3.3.7 Calculate perfect order fulfillment for a business unit or a business
3.3.8 Calculate order fulfillment cycle time for a business unit or business
3.3.9 Calculate total cost to serve for a business unit or business
3.3.10 Calculate the cash-to-cash cycle time for a business unit or business
3.3.11 Calculate the return on fixed assets for a business unit or business
3.3.12 Calculate the return on working capital for a business unit or business
3.3.13 Identify which supply chain processes would impact each of the above supply chain performance metrics
3.3.14 Link the relevant supply chain best practices to each of the above calculations
3.3.15 Calculate return on capital and its impact on decisions
4.0 SUPPLY CHAIN DYNAMICS

4.1 Geo-Political Environment

Definition: This involves understanding existing/evolving rules and regulations that govern international trade to ensure compliance of international import/export of goods and services.

4.1.1 Explain the importance of trade lanes and the development of international trade for the design of global supply chains

4.1.2 Explain the integration of global logistics design with the types of supply chain strategies required for different industries

4.1.3 Explain the integration of the global supply chain taking into account stock levels, product flow and different transport modes

4.1.4 Provide examples of the challenges and required strategies to synchronize operations across multiple players in the global supply chain

4.1.5 Explain the challenge of creating visibility of requirements and progress across the different participants in the supply chain

4.1.6 Conduct a situational and cost analysis to define the scope of any proposed international trade initiative, the current capabilities of the organization and the potential impact on clients, suppliers and other partners

4.1.7 Understand and assess the ethics and socio-ethics within a region/country that may impact business outcomes

4.1.8 Evaluate potential risk factors in the target market based on research results (regional commerce law, climate, geography, regional customs and social mores, etc.)

4.1.9 Identify human resource skill levels and production capacity, for example: current level of diversity in the workplace, number of languages spoken in the workplace and current experience in international trade

4.1.10 Understand and comply with existing/emerging legal mechanisms and rules that govern international trade, including corporate tax law and trade compliance practices

4.1.11 Consider import and export taxes, relative currency valuations and volatilities

4.1.12 Lead the process of developing strategy templates or approaches for different trade lanes for multiple industries

4.1.13 Lead the process of developing different strategy templates for different types of supply chains in different industries

4.1.14 Lead the process of designing the synchronization of the global supply chain across elements such as transport modes, product flow, customs, clearing and service providers

4.1.15 Lead the process of designing visibility and collaboration mechanisms across different participants in the global supply chain

4.1.16 Manage the relationships associated with multiple directional flows of goods and services in a complex, global system

“The Competencies of Canadian Supply Chain Professionals

“Applying the right competency at the right situation decides in today's fast-paced operational environment about success - or failure.”

Patrick Dittli
Chief Operating Officer
Office Depot Europe
4.2 Negotiations and Conflict Resolution

**Definition:** Negotiation is an open process for parties to find an acceptable solution to a matter of mutual interest. Negotiations result from careful analysis of the wider business and political implications when making decisions, including the effectiveness of outcomes. The use of productive and meaningful communications will facilitate a clearer understanding of common areas of interest leading to an increased understanding of what each party values and more win-win results when challenging information to detect discrepancies in reasoning.

4.2.1 Understand the key steps in a negotiation process
4.2.2 Organize and accumulate the necessary information or data
4.2.3 Identify main negotiating points and possible areas of leverage
4.2.4 Align with the organization on all core outcome elements and requirements
4.2.5 Gain the trust and respect by exploring all parties’ needs, concerns and initial positions
4.2.6 Build common ground by highlighting areas of agreement, enabling future efforts to focus on areas of disagreement
4.2.7 Limit ability of other parties to gain leverage through material/non-public information
4.2.8 Keep dialogue issue/outcome oriented by managing the interpersonal process
4.2.9 Engage in mutual problem solving by brainstorming alternative positions or approaches and evaluating them openly and fairly
4.2.10 Build support for preferred alternatives by relating them to the needs of others
4.2.11 Respond to objections by emphasizing value and exposing problems with undesirable alternatives
4.2.12 Seek a win-win solution through a give-and-take process that recognizes the core needs of all parties
4.2.13 Invoke alternative dispute resolution mechanisms such as mediation and arbitration

4.3 Project Management

**Definition:** Project management is the practice of initiating, planning, executing, controlling and closing an initiative geared toward the achievement of specific goals and meeting specific success criteria within the specified time. The primary constraints are scope, time, quality and budget. The secondary – and more ambitious – challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives.

4.3.1 Develop strategic objectives for the project
4.3.2 Identify and evaluate options for the project
4.3.3 Prepare the business case for undertaking a project
4.3.4 Prepare a project brief
4.3.5 Establish and maintain a culture of risk awareness
4.3.6 Identify strategic risk and evaluate options for minimizing project risk
4.3.7 Review the effectiveness of measures for controlling risk
4.3.8 Establish the requirements of the project management team
4.3.9 Establish the project team’s working methods and monitor performance
4.3.10 Develop operational objectives for the project
4.3.11 Prepare the specification of requirements
4.3.12 Estimate and specify resources required for the project
4.3.13 Outline the project schedule, including key milestones
4.3.14 Develop a work breakdown structure for the project
4.3.15 Specify activities for the project schedules
4.3.16 Recommend the means of procuring resources for the project
4.3.17 Develop a detailed schedule for the project
4.3.18 Monitor risks and review the effectiveness of measures for controlling them

4.4 Relationship Management

**Definition:** Relationship management is the process of implementing demand or market strategies. It involves the implementation of different product offerings in line with market and customer segmentation strategies. Establishing relationships with new customers and managing relationships with existing customers are included in the process. This process needs to be aligned with the sales process and calling cycles of the sales team.

4.4.1 Explain the basic concept of market and customer segmentation
4.4.2 Provide examples of how product offerings for different customer segments might differ
4.4.3 Explain the concepts of customer satisfaction and service quality
4.4.4 Provide examples of how customer service can be measured
4.4.5 Explain the implication of the Pareto principle applied to customers
4.4.6 Explain the concept of customer profitability and how it should be calculated
4.4.7 Explain the process of customer engagement to ensure successful achievement of objectives
4.4.8 Apply market and customer segmentation to a portfolio of customers for a business or business unit
4.4.9 Participate in the development of different product offerings for different customer segments
4.4.10 Participate in the process of measuring customer satisfaction or customer service for a portfolio of customers
4.4.11 Apply the Pareto principle to a portfolio of customers to determine the different segments
4.4.12 Participate in the process of calculating customer profitability for a portfolio of customers
4.4.13 Participate in the process of customer engagement to ensure that customer and revenue targets are realized
4.4.14 Manage the process of market and customer segmentation of a portfolio of customers for different businesses or business units
4.4.15 Manage the process of developing different product offerings for different customer segments
4.4.16 Manage the process of measuring customer satisfaction or customer service for a portfolio of customers
4.4.17 Manage the application of the Pareto principle to a portfolio of customers to determine the different segments
4.4.18 Manage the process of calculating customer profitability for a portfolio of customers
4.4.19 Manage or co-manage the process of customer engagement to ensure that customer and revenue targets are realized

4.5 Risk Management

**Definition:** Risk management is the early identification, evaluation and prioritization of risk followed by coordinated and economical application of resources to minimize, monitor and control the probability or impact of unfortunate events or to maximize the realization of opportunities. Risks can come from various sources, including uncertainty in financial markets, threats from project failures (at any phase in design, development, production or sustainment life cycles), legal liabilities, accidents, natural causes and disasters, deliberate attack from an adversary, or events of uncertain or unpredictable root-cause. Negative events can be classified as risks while positive events are classified as opportunities.

4.5.1 Understand the various sources of risk and the impacts of each threat on various elements of the organization
4.5.2 Identify and characterize potential threats to organization, business strategy and/or real-time visibility of assets
4.5.3 Assess the vulnerability of critical assets to specific threats
4.5.4 Determine the expected likelihood and consequences of specific types of attacks on specific business outcomes or assets
4.5.5 Identify ways to reduce those risks
4.5.6 Prioritize risk reduction measures
4.5.7 Monitor and reassess processes to ensure continuous improvement to policies and practices that might facilitate earlier identification of threats
4.5.8 Take a proactive approach to the identification of potential issues before they arise
4.5.9 Calculate the effects of the problem
4.5.10 Automatically correct the issue using pre-determined actions or flag it for the escalation team
4.5.11 Manage the identification of potential threats and the vulnerability of specific threats to critical business outputs
4.5.12 Manage the identification, evaluation and prioritization of risk management strategies
4.5.13 Ensure that the risk strategy is creative, iterative and responsive to the specific threat
4.5.14 Manage a transparent and inclusive approach to internal and external communication of risk implications
4.5.15 Reduce or better manage volatility, increase asset utilization and provide customer convenience at optimized cost
4.5.16 Modify the organization’s response as information is confirmed or clarified

4.6 Structure and Change Management

**Definition:** This is the process of aligning people with different views and perspectives with a shared vision and shared objectives in terms of outbound supply chain strategy and direction. It involves addressing resistance to change through change management interventions with communication mechanisms, dealing with obstacles in the process of managing different stakeholders representing different groups with different objectives.

4.6.1 Explain the basic principles and concepts involved in change management
4.6.2 Provide examples of the concept of stakeholder management
4.6.3 Provide examples of the potential barriers to change
4.6.4 Identify potential strategies to overcome barriers to change
4.6.5 Participate in change management for initiatives within a specific sub-process or function of the supply chain
4.6.6 Identify potential barriers to implementing outbound supply chain projects
4.6.7 Formulate and implement a change management program
4.6.8 Identify conflicting objectives of different stakeholders within a sub-process
4.6.9 Facilitate a process of compromises to achieve a common goal within a sub-process
4.6.10 Participate in the process of aligning performance objectives for a sub-process
4.6.11 Develop and implement change management programs across macro-processes within a business
4.6.12 Demonstrate approach(es) to remain current with changes in technology, business models and programs and monitor implications for the business
4.6.13 Facilitate a process to align vision and objectives across different supply chain macro-processes
4.6.14 Facilitate a process of aligning objectives across functions such as supply chain, marketing, manufacturing and financial management
4.6.15 Formulate communication programs to align stakeholders across different levels of the business
5.0 SYSTEMS TECHNOLOGY DEPLOYMENT

5.1 Systems Technology Deployment

**Definition:** This involves the process of selecting and implementing different types of systems technology to enable outbound supply chain processes and operations for the purpose of performance improvement. This will include the benchmarking of improvement opportunities, understanding the different types of system technologies available, how to assess the functionality of different technologies, integrating these system technologies into technology architecture and the formulation of an implementation plan to ensure the successful implementation of such system technologies. The protection of intellectual property and cyber security fall within the scope of this competency.

5.1.1 Understand digital technology (systems, networks, tools and applications) to process information

5.1.2 Demonstrate cause-and-effect understanding by explaining the importance of systems technology for achieving outbound supply chain improvement

5.1.3 Identify different types of systems technologies that might be applied to achieve enablement of outbound supply chain management

5.1.4 Explain the process of implementing systems technology to achieve improvement

5.1.5 Provide examples of some of the challenges of successful systems technology implementation

5.1.6 Understand that technology and process functionality have an interconnected relationship

5.1.7 Lead virtual teams

5.1.8 Establish digital technology (systems, networks, tools and applications) to process information

5.1.9 Link different types of system technologies to the different areas of outbound supply chain management where it can be used for enablement

5.1.10 Manage the process of implementing systems technology projects in selected areas of the sub-strategy such as customer demand management

5.1.11 Manage the interface with different stakeholders

5.1.12 Implement improvement methods that are supported by technology

5.1.13 Interface with business users to ensure successful implementation

5.1.14 Complete a post-implementation audit to track performance improvement achieved

5.1.15 Create a digital environment and data-driven culture

5.1.16 Champion a data governance organization to promote and establish the right level of emphasis and support for technology

5.1.17 Implement technology enablement projects for macro-processes such as outbound supply chain

5.1.18 Manage multi-functional technology enablement projects that span different functions such as procure and supply, outbound supply chain

5.1.19 Interface with stakeholders across different levels and functions to align objectives within a business case for technology

5.1.20 Manage the process of developing functional requirements across business functions

5.1.21 Manage the process of technology and supplier selection with the involvement of management across different levels of the business

5.1.22 Manage the process of technology implementation that involves multiple functions of the business with significant capital investment involved

5.1.23 Initiate process improvements that are enabled and supported by technology
5.2 Technology Innovation

Definition: This involves the process of selecting and implementing different types of technological innovations to enable outbound supply chain processes and operations for the purpose of performance improvement. This will include the benchmarking of improvement opportunities, understanding the different types of system technologies available, how to assess the functionality of different technologies, integrating these technologies into technology architecture and the formulation of an implementation plan to ensure the successful implementation of such system technologies. The protection of intellectual property and cyber security fall within the scope of this competency.

5.2.1 Understand digital technology (systems, networks, tools and applications) to process information
5.2.2 Demonstrate cause-and-effect understanding by explaining the importance of systems technology for achieving outbound supply chain improvement
5.2.3 Identify different types of systems technologies that might be applied to achieve enablement of outbound supply chain management
5.2.4 Explain the process of implementing systems technology to achieve improvement
5.2.5 Provide examples of some of the challenges of successful systems technology implementation
5.2.6 Understand that technology and process functionality have an interconnected relationship
5.2.7 Provide leadership, management, direction and advocacy so that individuals and the organization may effectively conduct cyber security work
5.2.8 Lead virtual teams
5.2.9 Establish digital technology (systems, networks, tools and applications) to process information
5.2.10 Link different types of system technologies to the different areas of outbound supply chain management where it can be used for enablement
5.2.11 Manage the process of implementing systems technology projects in selected areas of the sub-strategy such as customer demand management
5.2.12 Manage the interface with different stakeholders
5.2.13 Implement improvement methods that are supported by technology
5.2.14 Interface with business users to ensure successful implementation
5.2.15 Complete post-implementation audit to track performance improvement achieved
5.2.16 Create a digital environment and data-driven culture
5.2.17 Champion a data governance organization to promote and establish the right level of emphasis and support for technology
5.2.18 Implement technology enablement projects for macro-processes such as outbound supply chain

“Organizations that empower a strategic supply chain will invariably drive the pace of commercial innovation at all levels and roles with both external and internal stakeholders.”

Vice President, Supply Chain
Encana Corporation

“Organizations that empower a strategic supply chain will invariably drive the pace of commercial innovation at all levels and roles with both external and internal stakeholders.”

Vice President, Supply Chain
Encana Corporation
5.2.19 Manage multi-functional technology enablement projects that span different functions
5.2.20 Interface with stakeholders across different levels and functions to align objectives within a business case for technology
5.2.21 Manage the process of developing functional requirements across business functions
5.2.22 Manage the process of technology and supplier selection with the involvement of management across different levels of the business
5.2.23 Manage the process of technology implementation that involves multiple functions of the business with significant capital investment involved
5.2.24 Initiate process improvements that are enabled and supported by technology

5.3 Intellectual Property Risk

Definition: Copyright pirates, brand impersonators, patent flouters and trade secret thieves are a major threat to businesses. As levels of partner collaboration increase, organizations need to ensure protection of their intellectual property through effective risk management practices.

5.3.1 Review historic and current data related to protection of intellectual property
5.3.2 Assess the business and legal environment for the organization’s intellectual property
  • the protection infrastructure
  • enforceability of the law
  • reliability of joint ventures
  • past performance of potential partners, e.g. history of copying, patent infringement
  • quality control mechanisms or infrastructures
5.3.3 Assess value of organization’s intellectual property (cost-based valuation, market-based valuation and income-based valuation)
5.3.4 Determine benefits to be gained from theft of intellectual property
5.3.5 Identify who would benefit from taking the intellectual property
5.3.6 Define risk to organization of unauthorized use (damage to future profits, reputation, quality, brand recognition)
5.3.7 Consult patent agent or specialized legal advisor, if applicable:
  • determine what can be protected, e.g. a process, a product, a service
  • determine how Internet Protocol protection process works in different jurisdictions
  • determine level of protection required
  • duration of protection provided
5.3.8 Determine cost of protecting intellectual property
5.3.9 Develop scenario analysis, including:
  • assessment of current measures in place to address specific risk factors
  • impact assessment
  • probability of occurrence
TECHNICAL COMPETENCIES

Technical competency categories allow SCM professionals to develop expertise and excellence in core functions and supply chain activities that lead to overall business success. SCM practitioners with specialist knowledge in one or more SCM functions can contribute to the design and management of efficient and effective cross-functional supply chain systems.

There are five technical competency categories that SCM professionals across the Canadian supply chain community may elect to demonstrate.

- Operations Planning and Control
- Procurement Strategy and Execution
- Transportation and Distribution
- Warehousing and Facilities Management
- Public Sector Procurement
OPERATIONS PLANNING AND CONTROL

Operations planning and control is concerned with ensuring that the day-to-day production process proceeds smoothly. Quality is an important part of this process as quality should be one of the key performance objectives against which any operation is measured. SCM professionals ensure the process is quality-based through the integration of quality processes, systems and techniques that are consistent with the organization’s business objectives.

PROCUREMENT STRATEGY AND EXECUTION

Procurement strategy and execution are increasingly seen as central to an organization’s ability to achieve its business goals, meet financial targets and achieve successful innovation. SCM professionals identify and assess value levers and determine what market opportunities can be captured and how those opportunities can benefit the organization. New approaches to procurement and contract management are emerging, in which advanced skills and expertise are combined with state-of-the-art technologies and new business models, to deliver high levels of value to the organization through the purchase of materials, services and expertise.

TRANSPORTATION AND DISTRIBUTION

From the supply of raw materials to the delivery of the finished product, the optimization of an organization’s transportation and distribution network allows companies to remain competitive. SCM professionals plan, manage and move products by road, pipeline, air, rail and water. They realize that optimal configuration of their distribution network enables them to remain highly reactive, which guides them in their tactical decision-making process, and assists with identifying problems or responding to customer issues. All these elements must be integrated, balanced and managed skillfully. The reduction of costs in one sector of activity can increase costs in another.

WAREHOUSING AND FACILITIES MANAGEMENT

Warehousing solutions improve inventory efficiency and accelerate responses to changing customer demand. SCM professionals analyze every point in the supply chain to identify, design and implement flexible warehousing solutions tailored to the organization’s business needs.

PUBLIC SECTOR PROCUREMENT

Federal, provincial and municipal government departments have exceptional issues in relation to the public trust and value. Procurement, contracting and logistics occur within the context of legislation, policies and procedures special to government. SCM professionals working within this specific realm must understand the unique aspects of accountability and transparency, examine the roles and responsibilities of governments and explore the constant evolution of e-Government.
Each of the five competency categories is accompanied by a summary of the skill requirements of an SCM professional within the category. Below is a detailed overview of the knowledge and skill areas and subskills identified.

1.0 OPERATIONS PLANNING AND CONTROL

1.1 Demand Planning

**Definition:** Demand planning involves the process of identifying, aggregating and prioritizing all sources of demand for the integrated supply chain of a product or service at the appropriate level, horizon and interval. The sales forecast comprises the following concepts: sales forecasting level, time horizon and time interval. The sales forecasting level is the focal point in the corporate hierarchy where the forecast is needed at the most generic level, i.e. corporate forecast, divisional forecast, product-line forecast, stock keeping unit and stock keeping unit by location. Cross-functional integration as required.

1.1.1 Explain the basic economic/market factors that drive demand in the specific industry/market
1.1.2 Explain the impact of business drivers and business planning (e.g. profitability, environmental) on demand planning
1.1.3 Explain the importance of demand planning for the performance of the supply chain and the business
1.1.4 Explain the process involved in setting up demand planning which includes the selection of the best forecasting techniques
1.1.5 Explain the process involved in incorporating supply chain events into the demand plan
1.1.6 Explain the process involved in collaborative forecasting with selected customers
1.1.7 Explain the process involved in aligning the demand plan with the business plan and business objectives
1.1.8 Explain the process involved in generating a consensus forecast through internal market development collaboration
1.1.9 Explain the process involved in identification of external demand constraints and risks across all sources of demand and how to resolve these constraints and mitigate the risks
1.1.10 Identify the basic economic/market factors that drive demand for a specific market or business segment
1.1.11 Perform the setting up of demand planning, which includes the selection of the best forecasting techniques for a specific market or business segment
1.1.12 Capture, analyze and interpret real-time data from all internal and external systems (including those owned by third-party logistics providers like freight forwarders and customs brokers) in preparation for demand planning
1.1.13 Generate a baseline sales forecast at the required level of detail for a specific market or business segment
1.1.14 Perform incorporation of supply chain events into the demand plan for a specific market or business segment
1.1.15 Facilitate the process of collaborative forecasting with selected customers for a specific market or business segment
1.1.16 Facilitate the alignment of the demand plan with the business plan and business objectives
1.1.17 Generate a consensus forecast through internal collaboration with sales and marketing for a specific market or business segment
1.1.18 Perform cross-functional integration and liaison as required for achieving optimal demand planning
1.1.19 Use predictive analytics to improve demand forecasting

1.2 Process Optimization

**Definition:** Ensure continuous improvement of business performance across the supply chain. This would include assessment of current performance across and between all areas of the supply chain (supply chain planning, outbound strategy, procurement strategy, demand fulfillment, facilities and transport management). Assessment will be followed by identification of improvement strategies, process development, real-time data planning, implementation plans and the actual implementation.

1.2.1 Explain the importance of business process optimization
1.2.2 Understand the distinctions between different process optimization strategies (Value Stream Mapping, SCOR, Six Sigma, Lean, Just-in-Time, etc.) as value-added activity and elimination of waste in the system
1.2.3 Identify potential ways to improve business performance
1.2.4 Provide examples of some of the basic analysis techniques to identify opportunities for improvement
1.2.5 Provide examples of some of the barriers toward achieving business process optimization
1.2.6 Implement business process optimization within a specific supply chain process group or sub-process
1.2.7 Benchmark opportunities for improvement of a sub-process such as customer demand management or facilities management
1.2.8 Perform analysis of activities, sub-processes and resources to quantify the improvement opportunities
1.2.9 Compare alternative plans to achieve process improvement and select the best plan of action
1.2.10 Formulate implementation plan for the execution of the plan
1.2.11 Identify the potential barriers to success and develop contingency plans
1.2.12 Manage business process optimization across supply chain management processes within the same business
1.2.13 Manage process optimization through trade-offs and resolving conflicting functional objectives in the different areas of the supply chain
1.2.14 Implement and, where possible, digitize or automate process optimization through integration of all elements such as strategy, infrastructure, processes and people management
1.2.15 Identify cause-and-effect drivers of performance using performance multi-level scorecards
1.2.16 Test optimization alternatives using decision support tools such as simulations
1.2.17 Formulate change management initiatives to ensure successful implementation of process optimization
1.3 Supply Planning

**Definition:** Supply planning is the process of identifying, prioritizing and aggregating, as a whole with constituent parts, all sources of supply that are required and add value in the supply chain of a product or service at the appropriate level, horizon and interval.

1.3.1 Provide examples of the basic economic/market factors that drive supply in a specific industry/market
1.3.2 Explain the impact of business drivers and business planning (e.g. profitability, environmental) on supply planning
1.3.3 Explain the importance of supply planning for the performance of the supply chain and the business
1.3.4 Explain the process of supply planning from distribution requirements planning to source planning
1.3.5 Explain the process of identification of supply constraints and risks across all sources of supply and how to resolve these constraints and mitigate the risks
1.3.6 Identify the basic economic/market factors that drive supply for a specific market or business segment
1.3.7 Perform data maintenance and clean-up in preparation of the supply planning process for selected supply resources only
1.3.8 Understand evolving customer expectations and related delivery techniques (direct to store delivery, home delivery, pickup from store, returns/reverse logistics, etc.)
1.3.9 Perform the process of generating a distribution requirement plan for selected distribution points
1.3.10 Generate inventory planning based on the distribution requirements plan that includes review of inventory levels and re-order levels for selected distribution points only
1.3.11 Generating a materials replenishment plan based on distribution requirements adjusted for inventory levels for only selected manufacturing sources
1.3.12 Generate a master production schedule based on the materials replenishment plan adjusted for manufacturing constraints for only selected manufacturing sources
1.3.13 Complete source planning based on the master production schedule for only selected sources of supply
1.3.14 Identify supply constraints and risks for selected sources of supply and resolve these constraints and mitigate the risks
1.3.15 Perform cross-functional integration and liaison as required for achieving good supply planning

1.4 Business Process Outsourcing

**Definition:** Outsourcing involves the process of using external business processes (manufacturing, services and/or facility provider) to fulfill capacity management requirements. This will involve in-depth understanding of the capacity requirement(s), development of Request for Quote documentation, identification of potential service providers, requesting proposals, evaluation of proposals and selection of the provider best suited for the requirement. Contract implementation will require the contracting process to be completed followed by contract management based on a service level agreement to ensure the required performance from both parties.

1.3.1 Provide examples of the requirements of the specific type of service to be outsourced
1.3.2 Explain the development of a capacity management requirements plan and scope of work
1.3.3 Demonstrate cause-and-effect understanding by explaining the development of Request For Quote documentation which clearly states requirements and assumptions
1.3.4 Explain the identification and qualification of potential service providers
1.3.5 Explain the process of requesting proposals from various service providers
1.3.6 Explain the evaluation of alternative proposals provided by different service providers
1.3.7 Explain the development and negotiation of agreements, e.g. commercial, operational, service level agreements
1.3.8 Provide examples of the issues and process of commissioning new service providers
1.3.9 Describe the process of contract management and dealing with changes required in the contract during its duration
1.3.10 Develop a capacity requirement plan and scope of work for a specific contract
1.3.11 Develop Request For Quote documentation which clearly states requirements and assumptions focusing on a business segment
1.3.12 Identify and qualify potential service providers for a specific contract
1.3.13 Request proposals from various service providers for a specific contract
1.3.14 Evaluate alternative proposals provided by different service providers for a specific contract
1.3.15 Develop and negotiate agreements, e.g. commercial, operational, service level agreements, for a specific contract
1.3.16 Commission new service provider(s) for a specific contract
1.3.17 Contract management and dealing with changes required in the contract during its duration for a specific contract

1.5 Order Management

**Definition:** Development, implementation and improvement of the process from allocation of inventory or production capacity and delivery up to invoicing the customer. This includes translating the sales and operations plan into sales allocation planning, managing the inflow of orders, prioritization of the orders for distribution, liaison with transport/distribution and ensuring dispatch in line with priorities and allocations. The process will also include Available to Promise and Capable to Promise business rules and facilitate removal of credit or distribution blocks and re-routing/diversions.

1.5.1 Explain how the operational allocation planning process relates to customer fulfillment strategies
1.5.2 Provide examples of the operational allocation planning process
1.5.3 Explain how the operational allocation planning process integrates with the sales and operations plan
1.5.4 Explain the calculation of Available to Promise and Capable to Promise dates
1.5.5 Explain the process of managing order inflow against operational allocation and correcting allocation problems
1.5.6 Provide examples of execution problems such as distribution or credit blocks and how to remove them
1.5.7 Explain re-routing and diversions and how they are used to maximize customer service
1.5.8 Perform operational allocation planning for a selected market or business segment
1.5.9 Align the segment operational allocation plan with the sales and operations plan
1.5.10 Calculate the Available to Promise and Capable to Promise dates for a specific market or business segment
1.5.11 Manage order inflow against operational allocation and correcting allocation problems for a specific market or business segment
1.5.12 Identify execution problems such as distribution or credit blocks and removing those for a specific market or business segment
1.5.13 Perform re-routing and diversions for a specific market or business segment to maximize customer service
2.0 PROCUREMENT STRATEGY AND EXECUTION

2.1 Cost Management

Definition: Cost management is a process of analyzing the total cost, direct and indirect cost of a procured item over its life cycle. It includes working capital cross functions, value-added services and, most importantly, cost avoidance.

2.1.1 Explain the concept of cost management
2.1.2 Provide examples of the process of analyzing the total cost of ownership
2.1.3 Provide examples of the internal cost drivers of cost management
2.1.4 Provide examples of the external drivers of cost management
2.1.5 Explain the potential strategies that can be applied to effectively manage costs
2.1.6 Explain the process of implementing initiatives for the reduction of direct and indirect costs
2.1.7 Explain how strategic supplier partnerships can reduce direct and indirect costs
2.1.8 Provide examples of how the redesign of certain internal practices can reduce costs
2.1.9 Apply the process of analyzing the total cost of ownership for selected procured items or parts of the procurement portfolio
2.1.10 Identify internal and external cost drivers
2.1.11 Identify the potential strategies that can be applied to reduce direct and indirect costs
2.1.12 Implement initiatives for the reduction of costs
2.1.13 Demonstrate how costs can be reduced through strategic sourcing
2.1.14 Recommend strategic supplier partnerships to reduce the direct and indirect costs for selected procured items or parts of the procurement portfolio
2.1.15 Redesign certain internal practices to reduce the direct and indirect costs for selected procured items or parts of the procurement portfolio

2.2 Performance Management

Definition: The identification and implementation of key performance indicators (KPI) that drive behaviour and measure the health of the procurement process. Metrics should cover key areas such as savings, costs, efficiency, effectiveness, people/organization and stakeholders.

2.2.1 Explain the importance of supplier performance in achieving successful demand fulfillment
2.2.2 Explain the key principles and objectives of supplier relationship management
2.2.3 Provide examples of which strategies for supplier relationship management can be applied
2.2.4 Explain the purpose and process of supplier integration
2.2.5 Explain which strategies for supplier integration can be applied
2.2.6 Explain the principles and process of supplier performance measurement
2.2.7 Provide examples of the alternative corrective action in case of supplier non-performance
2.2.8 Explain the purpose and process of supplier development
2.2.9 Understand how to apply technology tools (enterprise resource planning systems, Microsoft Excel, etc.) to increase category and business intelligence
2.2.10 Establish a supplier management process to:
- Maintain supplier scorecards
- Measure the cost of poor performance
- Develop cost recovery practices
- Integrate operations with those of suppliers to better share risk and data

2.2.11 Communicate potential risks and their mitigation strategies to stakeholders, ensuring they:
- Are aware of their accountability for individual risks
- Contribute to continuous improvement of the risk management process
- Understand that risk awareness and management are a key part of the organization’s culture
- Report any signs of risk to senior management

2.2.12 Apply strategies for supplier integration for procurement portfolio

2.2.13 Apply technology tools to increase category and business intelligence

2.2.14 Employ spend analytics software, a sourcing platform and contract system to collect real-time data from all internal and external systems

2.2.15 Triage requests to the appropriate resource group depending on level of spend, risk and complexity

2.2.16 Review risk management practices regularly with a focus on updating contract templates as the breadth of risks increases

2.2.17 Perform supplier financial evaluations to inform and influence stakeholders with regards to risk

2.2.18 Measure supplier performance for procurement portfolio

2.2.19 Implement alternative corrective actions in case of supplier non-performance

2.2.20 Update supplier code of conduct with cross-functional collaboration, adding new sections related to supplier diversity, data ownership, etc.

2.2.21 Collaborate across business units and functions, thereby creating flexible supply networks

2.2.22 Demonstrate ability to remain current with new technology, new business models and implications for their business as well as the selection and sourcing process (category management, contract management, cost reduction)

2.3 Supplier Relationships and Development

Definition: Focus is on segmentation of suppliers (strategic, transactional, emerging) to understand the type of relationship the organization should have with each supplier. Suppliers are stratified by spend and impact of the relationship. Relationships are strategically planned and managed based on each segment, placing greater emphasis on critical performance-driven relationships and less on transactional ones.

2.3.1 Explain the basic concept of supplier segmentation

2.3.2 Provide examples of how product offerings for different supplier segments might differ
2.3.3 Explain the process of supplier engagement to ensure successful achievement of objectives
2.3.4 Apply supplier segmentation to a portfolio of customers for a business or business unit
2.3.5 Participate in the development of different product offerings for different supplier segments
2.3.6 Participate in the process of measuring customer satisfaction or customer service for a portfolio of suppliers
2.3.7 Participate in the process of supplier engagement to ensure that customer and revenue targets are realized
2.3.8 Manage the process of measuring customer satisfaction or customer service for a portfolio of suppliers

2.4 Payment Transaction Processes

**Definition:** Development, implementation and improvement of the process from the planning of sourcing orders based on a demand plan, through delivery up to supplier payment. This includes translating the operations plan into a sourcing plan with planned orders on suppliers, managing the placement of orders, prioritization of the orders for delivery, liaison with transport/distribution ensuring delivery in line with priorities and customer service commitments. The process will also include the formulation of business rules and constant coordination with stakeholders to resolve changes in planning if required.

2.4.1 Explain how the supply order planning process relates to stakeholder fulfillment strategy
2.4.2 Explain the supply order planning process
2.4.3 Provide examples of how the supply order planning process integrates with the sales and operations plan
2.4.4 Explain how planned delivery dates of orders need to be aligned with customer service requirements and risk management
2.4.5 Provide examples of what type of execution problems can occur such as distribution or credit blocks and how to remove those
2.4.6 Explain the process of stakeholder management during order execution to provide visibility and manage expectations
2.4.7 Align, perform and integrate the supply order planning process using cross-functional dialogue for a selected part of supply orders in a business unit
2.4.8 Align planned delivery dates of orders with customer service requirements and risk management for a selected part of supply orders in a business unit
2.4.9 Identify potential execution problems that can occur such as distribution or credit blocks and how to remove those for a selected part of supply orders in a business unit
2.4.10 Perform stakeholder management during order execution to provide visibility and manage expectations for supply orders in a business unit

2.5 Strategic Sourcing

**Definition:** The process of commodity management focuses on the creation of an approach that manages procurement commodity groups from a consolidated perspective through the application of a unique management approach for each commodity group. The objective of the approach is to achieve the optimal total cost of ownership for each commodity or commodity group at acceptable levels of supply risk.

2.5.1 Develop category profile by conducting a supply market analysis using Porter’s five forces model
2.5.2 Develop sourcing strategy and integrate the results of all the tools and analysis into a coherent sourcing strategy for a segment of supply demand or spend
2.5.3 Generate supplier profile
2.5.4 Apply the principles of building a competitive global sourcing and supply chain network and the interaction between the elements of the network

2.5.5 Select implementation plan

2.5.6 Negotiate and select suppliers

2.5.7 Implement agreements

2.5.8 Implement continuous improvement activities

2.6 Category Management

Definition: Category management is an approach to the organization of purchasing/procurement within a business. Applying category management to procurement activities reduces the cost of buying goods and services, reduces risk in the supply chain, increases overall value from the supply base and gains access to more innovation from suppliers. If applied effectively throughout a business, the results can be significantly greater than traditional transactional-based purchasing negotiations.

2.6.1 Develop a clear sourcing strategy that reflects the needs of the business and is aligned to procurement policy objectives and regulatory framework imperatives in all sourcing projects

2.6.2 Build positive relationships with key internal and external stakeholders

2.6.3 Ensure that all pre-procurement engagement has been completed and that the organization is ready to go to market

2.6.4 Consider the key financial and commercial issues in the development of the contracting model and implement these as appropriate in contract terms and conditions

2.6.5 Facilitate supplier dialogue and negotiation during preparation of the contract

2.6.6 Ensure that the contract management mobilization phase and supporting activities are carried out successfully

2.6.7 Develop category strategies, product road maps and sourcing plans; maintain these taking into account outputs from market analysis

2.6.8 Develop baseline costs using market knowledge and research; manage sourcing and benefits realization plans

2.6.9 Actively monitor key performance indicators against baselines and use information to improve client and supplier performance

2.6.10 Develop opportunities to incentivize contract delivery and continuous performance improvement (where appropriate)

2.6.11 Build and maintain strategic partnerships with key suppliers to share risks, benefits and services costs as well as identify possible scope for supplier innovation during the contract

2.6.12 Manage the disposal or recycling process of any intellectual property that is no longer needed once the current contract expires

2.7 International Trade

Definition: The facilitation of international trade initiatives requires an understanding of the importance of assessing potential gains against potential risks to establish market feasibility to determine if the concept will improve the organization’s bottom line and fit with strategic direction.

2.7.1 Review industry-specific information on product or service exports to potential target markets

2.7.2 Collect specialized knowledge through consultations with experts (trade commissioners, distributors)
2.7.3 Examine available data on current and long-term trends to determine:
- consistency of market growth on a year-to-year basis
- conditions that may impact market growth (political changes, economic instability)
- import growth or decline during periods of economic recession and recovery
- potential emerging market

2.7.4 Assess competitiveness of product or service in market, for example:
- identify businesses offering similar products and services
- research purchasing practices and consumer preferences
- identify distribution channels for product or service
- review market-specific reports to identify purchasing trends

2.7.5 Analyze factors affecting marketing and use of the product or service in target market (end-user purchasing patterns, distribution channels, cultural idiosyncrasies, business practices)

2.7.6 Compare the costs associated with entry to each potential market (market research, competitive analysis)

2.7.7 Compare the administration costs associated with entry to each potential market (sales and marketing, accounting, contract administration, bid and proposal preparation)

2.7.8 Evaluate regulatory and legal requirements in each potential target market (taxes, employment and labour laws)

2.7.9 Review trade agreements of potential target markets

2.7.10 Determine requirements to import/export product:
- identify certifying bodies
- determine required inspection certificates, e.g. safety, security, labelling, licensing, language, translation, packaging, nutritional facts
- determine if adaptation of product is required

2.7.11 Determine if product needs to comply with non-preferential or preferential rules of origin:
- determine requirements of verification/proof of origin
- review requirements for documentary evidence
- meet requirements for certificate, if required
- review specific import guidelines
- review export regulations of target markets, e.g. protection laws, norms and certification

2.7.12 Determine e-commerce costs and financial capabilities of target market

2.7.13 Identify costs of international financing, foreign exchange cost and profit margin

2.7.14 Determine costs of bonds, e.g. bid bond, performance bond

2.7.15 Conduct due diligence before entering into negotiations:
- check client/buyer reputation
- identify how long organization has been in business and scope of business activities
- identify owner(s) and source of funding
- ensure client/buyer can pay
- ensure supplier can deliver goods/services

2.7.16 Negotiate contract details with foreign suppliers and customers, including:
- warranty, if applicable
- penalties for non-delivery and non-compliance
- payment terms that help with organization’s cash flow
- ensure pre-shipment inspection
- hedge for foreign exchange fluctuations
- responsibility for costs, e.g. shipping, customs duties (i.e. Incoterms), inspections, liability
- contract dissolution condition and procedure

2.7.17 Acquire Accounts Receivable Insurance, when applicable, to protect against:
- customer’s bankruptcy or default
- customer’s refusal to accept goods as contracted
- wrongful cancellation
- payment delays caused by blocked funds or transfer difficulties
- hostilities in a customer’s country
- cancellation or non-renewal of export or import permits and political risk

2.7.18 Acquire Contract Frustration Insurance, when applicable, to protect against:
- customer’s bankruptcy or default
- contract cancellation
- payment delays caused by blocked funds or transfer difficulties
- hostilities in a customer’s country
- cancellation of export or import permits
- moratorium on debt
- performance guarantees

2.7.19 Identify documents required for product or services to cross border(s)

3.0 TRANSPORTATION AND DISTRIBUTION

3.1 Fleet Management

**Definition:** Fleet management involves the end-to-end process of managing an internal or external transport fleet. This process starts with the development of fleet requirements based on the transport or distribution requirements. This will be followed by the selection of the best-suited transport fleet, which would include the selection of vehicles, trailers and other equipment that might be required in the transport process. Financing the fleet needs to be arranged in terms of the best approach from options such as full maintenance leasing and others. Once the fleet is operational, asset management is required in order to manage fleet maintenance including the scheduling of services and repairs, accounting of all costs and arranging for the eventual replacement of the fleet.

3.1.1 Describe the process of developing transport fleet requirements
3.1.2 Provide examples of requirements for compliance, including legal requirements, health and safety, business rules and labour legislation
3.1.3 Demonstrate cause-and-effect understanding by explaining the process of costing the different fleet options using a total cost of ownership approach
3.1.4 Explain the process of selecting the best transport fleet for the specific requirement
3.1.5 Explain the process, requirements, options and selection of the best financing option for the selected fleet
3.1.6 Explain the different maintenance requirements and strategies
3.1.7 Describe the process of asset management to manage the operational availability and cost of an operational fleet, while maximizing return on existing assets
3.1.8 Develop the transport fleet requirements for a specific transport requirement within a business unit
3.1.9 Implement processes and business rules to ensure compliance, including legal requirements, health and safety, business rules and labour legislation
3.1.10 Develop costing for the different fleet options using a total cost of ownership approach
3.1.11 Select the best transport fleet
3.1.12 Leverage data to discover optimum routes that will reduce fuel costs and identify the most effective journey
3.1.13 Select the best support equipment required for transport requirements within a business unit
3.1.14 Select the best financing option for selected fleet within a business unit
3.1.15 Implement different maintenance strategies and programs for a subset within a business unit
3.1.16 Implement asset management approach to manage the operational availability and cost of an operational fleet
3.1.17 Implement and, where possible, digitize or automate maintenance strategies and programs for a business unit
3.1.18 Implement and, where possible, digitize or automate asset management approach to manage the operational availability and cost of an operational fleet
3.1.19 Interact with Customs officials and provide security trade program credentials if available, e.g. Partners in Protection, Free and Secure Trade Program, Authorized Economic Operator
3.1.20 Provide required shipment documentation (bill of lading, import/export declaration, any required certifications or permits)

3.2 Reverse Logistics Management

**Definition:** Reverse logistics refers to the management of the movement involved in the return of products or empty containers from downstream customers to upstream operations for either re-work or re-use in the production of new products. Planning the collection of such products needs to be synchronized with the distribution and transport processes. This includes disposal of products.

3.2.1 Demonstrate cause-and-effect understanding by explaining the role of reverse logistics in the total logistics network
3.2.2 Demonstrate cause-and-effect understanding by explaining how the requirements for reverse logistics are planned as part of the sales and operations plan
3.2.3 Explain the areas of synergies between normal and reverse logistics and how to exploit the opportunities for cost savings
3.2.4 Explain how planning for reverse logistics needs to be integrated with transport operational scheduling
3.2.5 Provide examples of the special administration and documentation requirements of reverse logistics
3.2.6 Integrate the role of reverse logistics in the total logistics network
3.2.7 Determine the requirements for reverse logistics from the sales and operations plan process
3.2.8 Develop the areas of synergies between normal and reverse logistics and determine how to exploit the opportunities for cost savings
3.2.9 Integrate planning for reverse logistics through integration with transport operational scheduling
3.2.10 Perform the special administration and documentation requirements of reverse logistics
3.2.11 Comply with legislation and regulations regarding disposal, recycling, anti-dumping, recalls
3.3 Transport Operational Management

**Definition:** Transport operational management focuses on the process of moving cargo from the distribution facility, including requirements planning, load planning, route planning and vehicle scheduling, to the assurance of quantity and quality. Tracking vehicles and cargo during the process of transport will be required to ensure on-time delivery, contingency planning if required and the safety and security of cargo. The process will be ended with the processing of a Proof of Delivery document and managing the payment of transport service providers. Liaison with all stakeholders during the process of transport needs in order to provide visibility of all progress against scheduled delivery times. Key performance indicators such as vehicle utilization, transport costs, damage rates and customer service levels need to be optimized while ensuring compliance with health and safety, legislation and regulatory requirements.

3.3.1 Demonstrate cause-and-effect understanding by explaining the transport requirements or distribution requirements planning

3.3.2 Explain the translation of distribution requirements and constraints into load planning

3.3.3 Demonstrate cause-and-effect understanding by explaining how vehicle selection (e.g. trucks, vessels, tankers, pipelines) takes place once load planning is completed

3.3.4 Describe the route planning and vehicle scheduling process

3.3.5 Show understanding of tracking vehicles and cargo during the process of delivery

3.3.6 Explain management of inventory while in transit (dwell, cycle and transit times)

3.3.7 Demonstrate cause-and-effect understanding by explaining the types of contingency planning required to ensure that cargo is delivered on time

3.3.8 Explain providing visibility to relevant stakeholders for cargo during delivery

3.3.9 Demonstrate cause-and-effect understanding by explaining diversions during the process of delivery

3.3.10 Provide examples of the administration requirements of Proof of Delivery documents and their management

3.3.11 Describe the payment process of service providers once Proof of Delivery documents are submitted

3.3.12 Perform transport requirements or distribution requirements planning for a specific segment of business

3.3.13 Translate distribution requirements into load planning for a specific segment of business

3.3.14 Perform vehicle selection (e.g. trucks, vessels, tankers, pipelines) once load planning is completed for a specific segment of business

3.3.15 Perform route planning and vehicle scheduling for a specific segment of business

3.3.16 Perform tracking of vehicles and cargo during the process of delivery

3.3.17 Perform contingency planning required to ensure that cargo is delivered on time

“Forward looking competencies for the Canadian supply chain sector are critical to ensuring that we are able to attract, retain, and develop the right talent for the right roles in supply chain. As the supply chain advances digitally in Canada and the world, as supply chain leaders we need prepare for a more technical automated future.”

*Corrie Banks*
Director Logistics
Cando Rail
3.3.18 Provide visibility to all stakeholders for cargo during delivery for a specific segment of business
3.3.19 Manage diversions during the process of delivery
3.3.20 Implement process of collecting and processing Proof of Delivery documents for a specific segment of business
3.3.21 Implement process for payment of service providers once Proof of Delivery documents are submitted
3.3.22 Keep up-to-date on status of labour contracts and negotiations at transportation hubs and carriers relevant to your supply chain

3.4 Import and Export Requirements

**Definition:** As the global supply chain becomes more complex with every passing year, organizations must adapt to this change and incorporate import and export requirements into their supply chain strategies and practices. Supply chain professionals have to understand that cultural difference plays a deciding role in the success or failure of a venture in a new global region.

3.4.1 Determine potential shipping options (loading and sharing container capacity, conventional, containerized)
3.4.2 Calculate shipping preparation and export cost:
   - identify and confirm Harmonized System Classification
   - determine cost of freight
   - determine cost of insurance, if applicable
   - determine export documentation costs (customs and brokerage)
   - determine applicable Incoterms costs
3.4.3 Verify country of origin and applicable tariff treatment
3.4.4 Calculate duties and local taxes owing (value-added tax, cargo insurance)
3.4.5 Identify documents required for product or services to cross border(s)
3.4.6 Ensure documents are in compliance and aligned with international standards, including correct measurements in required measurement system
3.4.7 Ensure supplier provides inspection and health certificates and Certificate of Origin, if required
3.4.8 Ensure supplier provides the correct documents to financial institution for trade transaction to take place in accordance with agreed-upon Incoterms
3.4.9 Provide appropriate information to licensed custom broker, freight forwarder, if applicable
3.4.10 Keep up-to-date with changes to international trade processes and reporting requirements
3.4.11 Explain the Incoterms program and how the selection of an Incoterm will affect the import/export process and requirements
3.4.12 Understand the importance of correct packaging for each mode of transport and the specific commodities being shipped along with the international standards for packaging materials
3.4.13 Keep up-to-date with relevant international trade agreements and negotiations taking place, including the introduction and/or removal of both tariff and non-tariff barriers to trade
4.0 WAREHOUSING AND FACILITIES MANAGEMENT

4.1 Facility Locations

**Definition:** Facility location decisions play a crucial role in the logistics activities involved in supply chain management. The optimization of location and allocation decisions starts by assessing the quality of the current locations of service facilities as they relate to customer demands for those facilities.

4.1.1 Assess variables to identify fulfillment centre/facility locations that will provide a competitive edge to the organization:
- regulations in target market
- infrastructure in target market
- lead-times to customer base
- costs to establish, maintain fulfillment centre(s)
- geographic location of manufacturing centre or point of entry for offshore manufacturing
- sustainability in geographic location
- transportation costs
- potential for site to also serve as reverse supply chain facility

4.1.2 Assess potential of other locations, e.g. Foreign Trade Zones, partnerships with distributors

4.1.3 Determine cost-effective means of reducing lead-times and outbound transportation costs

4.1.4 Analyze costs of establishing and maintaining fulfillment centre and inbound costs of shipping inventory to facility from the manufacturing or point of entry

4.1.5 Select centralized or decentralized strategy

4.2 Facility Design and Layout

**Definition:** Facility design and layout focuses firstly on the design and layout of the facility/building, which includes the size and configuration of the building/facility. The second element includes the design of the operational flow of material or product and selection of material handling equipment such as racking, forklifts and any other special equipment required. The objective is to maximize the productivity of the facility while achieving health and safety objectives through policies, procedures and legislation.

4.2.1 Explain the principles applicable to the design and layout of facilities

4.2.2 Demonstrate cause-and-effect understanding by explaining the different flow patterns that can be applied in the design and layout of facilities

4.2.3 Explain the design of applicable storage equipment

4.2.4 Explain the layout and design of the site (outside of the facility) required for the movement of vehicles or other transport modes

4.2.5 Explain the integration of the facility with the inflow and outflow of product, such as routes, roads, pipelines, marine or rail

4.2.6 Provide examples of the health, safety, security and other legal requirements that should be taken into account, including product compatibility

4.2.7 Provide examples of the potential risks that should be taken into account with facility design

4.2.8 Apply the principles applicable to the design and layout of facilities to the design of a small facility or part of a facility

4.2.9 Design the required flow pattern for the design and layout of a small facility or part of a facility

4.2.10 Design applicable storage equipment that might be required of a small facility or part of a facility

4.2.11 Complete the layout and design of the site (outside of the facility) required for movement of vehicles or other transport modes of a small facility or part of a facility
4.2.12 Integrate the facility with the inflow and outflow of product, such as routes, roads, pipelines, marine or rail

4.2.13 Apply the health, safety, security and other legal requirements that should be taken into account, including product compatibility

4.2.14 Identify the potential risks that should be taken into account with facility design and formulate mitigation strategies

### Facilities Operations Management

**Definition:** Facilities operations management focuses on achieving daily throughput targets while maintaining productivity, health, safety, security and other legal management objectives. Operational activities include receiving, storing, blending, picking, pre-loading, loading, returns, documentation and administration.

#### 4.3.1 Explain the operational requirements of the specific type of facility managed

#### 4.3.2 Demonstrate cause-and-effect understanding by explaining the basic operational activities taking place within facilities such as receiving, put-away, picking, pre-loading and loading

#### 4.3.3 Provide examples of the documentation and administration requirements of the operational processes in facilities

#### 4.3.4 Provide examples of the health, safety, security and other legal requirements involved in facility operational management, including product compatibility

#### 4.3.5 Provide examples of the potential risks involved in daily facility operational management and required mitigation strategies

#### 4.3.6 Provide examples of the basic rules of housekeeping and its importance for good operational management

#### 4.3.7 Design and implement the documentation and administration process for a small to medium single-product facility (only hazardous or non-hazardous)

#### 4.3.8 Apply health, safety, security and other legal requirements for a small to medium single-product facility, including product compatibility

#### 4.3.9 Identify the potential risks involved in daily facility operational management and implement the required mitigation strategies for a small to medium single-product facility

#### 4.3.10 Apply the basic rules of housekeeping and its importance for good operational management for a small to medium single-product facility

### Inventory Management and Optimization

**Definition:** The process of inventory management is focused on optimizing inventory or stock in distribution/fulfillment centres, warehouses or other facilities. The activities involved are receiving of products into a facility, putting away these products and issuing these products for customer orders or transfer to other facilities. The key objective is to achieve inventory accuracy, namely that the physical inventory in the facilities is accurate in terms of what should be there based on the transactional processes.

#### 4.4.1 Explain what the objective of inventory control is

#### 4.4.2 Explain how to calculate stock accuracy

#### 4.4.3 Explain the concept of reserved stock and how to manage it

#### 4.4.4 Demonstrate cause-and-effect understanding by explaining what activities through a fulfillment centre or facility need to be managed to ensure stock control

#### 4.4.5 Provide examples of the potential causes of inaccurate stock on the floor

#### 4.4.6 Provide examples of what technologies and techniques can be applied to monitor stock accuracy

#### 4.4.7 Describe the process of inventory management of assets, including normal and perpetual inventory takes

#### 4.4.8 Design and implement an inventory management process to reduce dwell times of idle stock and lower working capital required
4.4.9 Consider advantages and disadvantages of using a vendor-managed inventory system to allow for more efficient coordination of production to maintain inventory levels

4.4.10 Implement appropriate control system, such as first-in, first-out; last-in, first-out

4.4.11 Identify and establish tracking system for problem inventory (obsolete product; excessive just-in-case stock; stock in wrong locations; supplies too good to discard but no longer used; materials approaching end of shelf life)

4.4.12 Implement short-term solutions to decrease levels of problem stock

4.4.13 Implement long-term solutions to prevent accumulation of problem stock

4.4.14 Track inventory in and out of system using electronic data interchanges to scan bar codes or radio frequency identification

4.4.15 Determine stock accuracy within the distribution/fulfillment centre, warehouse or other facility

4.4.16 Identify discrepancies between the software system record and physical stock

4.4.17 Identify the root causes that can result in inaccurate stock counts across a number of facilities

4.4.18 Establish problem inventory as a permanent performance measure

4.4.19 Create inventory analysis reports that:
   - forecast deliveries to fulfillment centres
   - analyze sales and inventory levels for sales forecasting
   - provide accurate information for tax calculations
   - project the impact that inventory decisions will have on capital costs

4.4.20 Implement strategies to ensure stock accuracy across different distribution/fulfillment centres, warehouses or other facilities for different types of products

4.5 Materials Management

**Definition:** Materials management focuses on ensuring that products that are handled through the supply chain process are handled with safe and productive mechanisms to limit the associated risks and avoid product damage. This involves the selection of appropriate material packaging, handling equipment and techniques for different products through the different stages of product handling.

4.5.1 Explain the objectives of material handling

4.5.2 Explain the cost elements involved in material handling

4.5.3 Demonstrate cause-and-effect understanding by explaining the potential risks involved in material handling

4.5.4 Explain the importance of product packaging in the handling process

4.5.5 Explain where products are typically handled in the warehousing process

4.5.6 Explain which factors would be considered in the process of selecting material handling equipment

4.5.7 Quantify the cost of material handling for all different fulfillment centres and facilities

4.5.8 Identify the opportunities for generating savings in material handling costs

4.5.9 Identify the potential risk areas where material is handled through the supply chain

4.5.10 Implement initiatives for generating cost savings in material handling

4.5.11 Develop sustainability processes that strive to incorporate renewable raw materials and eliminate waste

4.5.12 Implement initiatives for risk mitigation in areas where products are handled

4.5.13 Develop and implement a framework for the evaluation and selection of material handling equipment for different types of products that are handled
5.0 PUBLIC SECTOR PROCUREMENT

5.1 Public Sector Procurement Essentials

**Definition:** Government procurement regulations normally cover all public works, services and supply contracts entered into by a public authority. However, there may be exceptions. These most notably cover military acquisitions. Additionally, certain politically or economically sensitive sectors, such as public health, energy supply or public transport, may also be treated differently. Separation of function and transparency of process take on a stricter adherence in the public sector than in the private sector. It’s important for SCM professionals to understand the unique public sector procurement perspective and why leading collaborative efforts of private business cannot be easily adopted in the public sector world.

5.1.1 Describe the unique characteristics of public sector procurement

5.1.2 Describe the unique aspects of ethics in public sector procurement

5.1.3 Identify the stakeholders of public sector supply chains

5.1.4 Understand the unique public (vs. private) sector perspective on SCM

5.1.5 Understand the unique aspects of procurement of products and services in the public sector

5.1.6 Discover the advantages and disadvantages of cooperative procurement

5.1.7 Identify lessons for the public sector from Ethics Commission reports and scandals

5.1.8 Assume the role of “whistle-blower,” and consider alternative courses of action

5.1.9 Identify unique challenges and opportunities associated with procurement and supply chain management by the federal government

5.1.10 Identify unique challenges and opportunities associated with procurement and supply chain management by provincial and municipal governments

5.1.11 Understand the unique differences in structure and governance across different public sector bodies and their respective accountabilities

5.1.12 Describe how sustainability, innovation and value-based procurement should be a part of the value proposition

5.2 Competitive Bidding in the Public Sector

**Definition:** If not handled properly, competitive bidding in the public sector can lead to serious legal, financial and public accountability consequences. The application of fairness and transparency for SCM professionals working in the public sector includes competitive bidding outside of those typically found in the private sector: Pre-Qualification, Request for Information, Negotiated Requests for Proposal, Bid Rigging, Vendor Debriefs and Non-Competitive Awards. The issue of compliance is always centre stage, in terms of compliance to internal procedures, governmental laws and regulations and trade agreements.

5.2.1 Explain the rationale for competitive bidding in public procurement

5.2.2 Understand competitive bidding activities and best practices

5.2.3 Understand the importance of developing good bidding requirements as input into a scope of work

5.2.4 Discuss the characteristics and purposes of a well-drafted scope of work, the common challenges to their development and consequences of failure
5.2.5 Distinguish between information gathering tools and competitive bidding tools
5.2.6 Understand the role, value and constraints of Qualified Supplier Rosters
5.2.7 Describe alternatives to standard competitive bidding processes (e.g. negotiation, sole sourcing and two envelope practice), and identify conditions under which these alternatives could or should be used in the public sector
5.2.8 Understand the difference between a mandatory requirement and a deliverable
5.2.9 Distinguish the difference between a Request for Proposal and a Request for Tender
5.2.10 Understand the evaluation and rated criteria
5.2.11 Identify the Price Schedule and how the product or service is to be priced
5.2.12 Discuss vendor debriefing and bid protests
5.2.13 Differentiate between a Request for Proposals and a Negotiated Request for Proposals
5.2.14 Identify the potential benefits and legal issues in public sector on-line tenders
5.2.15 Read/write competitive bidding documents (Request for Quote, Request for Tender and Request for Proposal)
5.2.16 Define proper file retention and reporting requirement
5.2.17 Understand the foundations and implications of Canadian competitive bidding law
5.2.18 Interpret recent Canadian legal cases in tendering and contracting, and their implications
5.2.19 Understand the implications of Canadian interprovincial trade agreements for competitive bidding activities in the public sector
5.2.20 Understand the implications of global trade agreements for competitive bidding activities in the public sector

5.3 Contract Management

**Definition:** Contract management throughout the procurement life cycle (charter, contract scope, statement of work, benchmarks, deliverables, expiration/termination) is key to ensuring compliance, accountability and transparency. SCM professionals working in public sector environments must demonstrate the knowledge and skills to manage contracts effectively, handle any performance or other issues that arise, invoke contract remedies with minimal disruption to the contract deliverables and outcomes, and handle potential contract extensions, modifications and renewals so that they do not create policy, legal or other risks for their organization.

5.3.1 Review the importance of managing vendor relationships and explore how to apply the win/win approach to your discussions
5.3.2 Analyze strategies for designing a contract monitoring plan
5.3.3 Manage measurable contract monitoring plans to ensure goods/services are delivered in accordance with contract
5.3.4 Establish timing of payments, release of financial guarantees and holdbacks
5.3.5 Define proper file retention and reporting requirement
5.3.6 Manage contract performance (positive and negative), handle performance issues, conduct root cause analysis
5.3.7 Demonstrate how to conduct ongoing risk assessment throughout the contract term
5.3.8 Evaluate deliverables and outcomes against contract requirements
5.3.9 Define contract governance and identify escalation provisions
5.3.10 Recognize common performance issues and remedies/incentives that can be used to help address these issues
5.3.11 Negotiate and draft change orders, amendments and contract modifications while understanding the implications of each
5.3.12 Adopt ideas and best practices for continuous improvement through post-contract evaluation
5.3.13 Manage contract closure and corporate reporting
5.3.14 Handle contract transition, phased termination and termination procedures
5.3.15 Conduct internal team debriefing and capturing lessons learned for next procurement cycle
5.3.16 Understand and describe the transition from procurement to implementation to stakeholders.
RESOURCES

Adulyasak, Yossiri, Driving Supply Chain Excellence Through Analytics, May 2019
Amaya, Geraldo, Business Technologies: The True Path to Digital Transformation, January 2019
Amaya, Geraldo, Digital Transformation of Supply Chain, May 2019
Amaya, Geraldo, Leading Innovation and Disruption Change, August 2017
APICS Australasia, Supply Chain Competency Model for 26 occupations
Balakrishnan, Jaydeep, The Bullwhip Effect (BWE) in Supply Chains, May 2019
Canadian Institute of Traffic and Transportation (CITT) course descriptions
Canadian Manufacturers and Exporters, INDUSTRIE 2030 ONTARIO, 2018
Canadian Professional Sales Association (CPSA), Sales Professional Competency Framework, October 2017
Canadian Society of Customs Brokers, Introduction to Customs Administration and Procedures 2nd Edition, October 2019
Career One Stop Competency Model Clearinghouse, Transportation, Distribution and Logistics Competency Model, February 2014
Chartered Institute of Procurement and Supply (CIPS), The Global Standard for Procurement and Supply, Version 31, 2018
Chartered Professional Accountant (CPA) Canada, The Chartered Professional Accountant Competency Map, original release in 2013, revised in 2018
Chartered Professional Accountant (CPA) Canada, The CPA Competency Map Knowledge Supplement, original release in 2013, revised in 2018
Chartered Professionals in Human Resources (CHRP), Human Resources Professional Competency Framework, 2014
Chung, Gina, The Evolution of Supply Chain: Key Trends for the Future, May 2019
Cilliers, Willem W., Development of an Integrated Supply Chain Competency Model, University of Stellenbosch, December 2015
CSA Group, Setting a New Direction: Information Technology, prepared for automotive manufacturing, May 2011
CSA Group, Setting a New Direction: Logistics and Planning, prepared for automotive manufacturing, May 2011
DHL Supply Chain, The Supply Chain Talent Shortage: From Gap to Crisis, July 2017
DHL Trend Research, Logistics Trends Radar 2018-2019, December 2018
Employment and Social Development Canada, Skills and Competencies Taxonomy, version 13, June 2018
European Commission, Skills, Competencies, Qualifications and Occupations (part of Europe 2020 strategy)
Forbes, The 12 Crucial Leadership Traits of a Growth Mindset, April 2018
Forum for International Trade Training (FITT), Certified International Trade Professional (CITP/FIBP) Competency Profile
Gartner, Creating Your Digital Edge Through a Competency-Based Talent System, May 2014 (originally published), July 2017 (refreshed)
Gartner, Develop the Competencies Your Workforce Needs for the Digital Ecosystem, July 2017 (originally published), December 2018 (refreshed)
Gartner, Digital Dexterity at Work, Executive Guidance, Q3 2018
GEP, Artificial Intelligence and Its Impact on Procurement and Supply Chain: A Comprehensive Study
Handfield, Rob, Harnessing the Power of Collaboration to Impact the Global Supply Chain, September 2018
Handfield, R., Jeong, S. and Choi, T., Emerging Procurement Technology: Data Analytics and Cognitive Analytics, April 2019
Harvard University, Competency Dictionary, June 2017
Lanero, C. Marc, From Functional Expert to CEO, evolving SCM skills for a new world, May 2019
Lee, Seung Hwan (Mark), Strategy: Espousing an Unconventional Lens, May 2019
Liwanag, Arnold, AI Success Starts with a Clear Strategy, August 2017
Lund, Susan, Skills for the Future, February 2018
Lund, Susan, Globalization in Transition: High-Skilled Labour is Now the Holy Grail, March 2019
Massicotte, Serge, Intelligent Supply Chain: How Artificial Intelligence is changing supply chain today and how to prepare your company for tomorrow, May 2019
National Research Council Canada, Management Competency Dictionary, January 2014
Nicholson, Leslie, Intelligent Supply Chain People: Why value chain integrators will be the future of the profession, May 2019
Noronha, Janice, Sustainable Supply Chain, May 2019
Pritwani, Kamlesh, Sustainability of Business in the Context of Environmental Management, 2019
Schroeder, Harold, Procurement and Contract Management: The Role of Art and Science, March 2016
The Chartered Institute for Procurement and Supply (CIPS), The Global Standard for Procurement and Supply, Version 31, 2018
The Hackett Group, 2019 CPO Agenda: Building Next-Generation Capabilities, February 2019
Treasury Board of Canada, Government of Canada Procurement Community Competencies, October 2018
University of Waterloo, Department of Management Sciences, Graduate Courses in Operational Research, Data and Analytics, and Supply Chain Management
Vitasek, Kate, Vested for Success, Winter 2016
Vitasek, Kate, Finding the Right Sourcing Business Model, July 2016
Watson, Brian, Addressing Canada’s Productivity Challenge: Sustainable Competitiveness through Integrative Supply Chain Thinking, May 2018
Zhao R., Mashruwala R., Pandit S., and Balakrishnan J., Supply Chain Relational Capital and the Bullwhip Effect, May 2019
Zhu, T., Balakrishnan, J. and Cheng, C.H., Recent Advances in Dynamic Facility Layout Research, October 2018