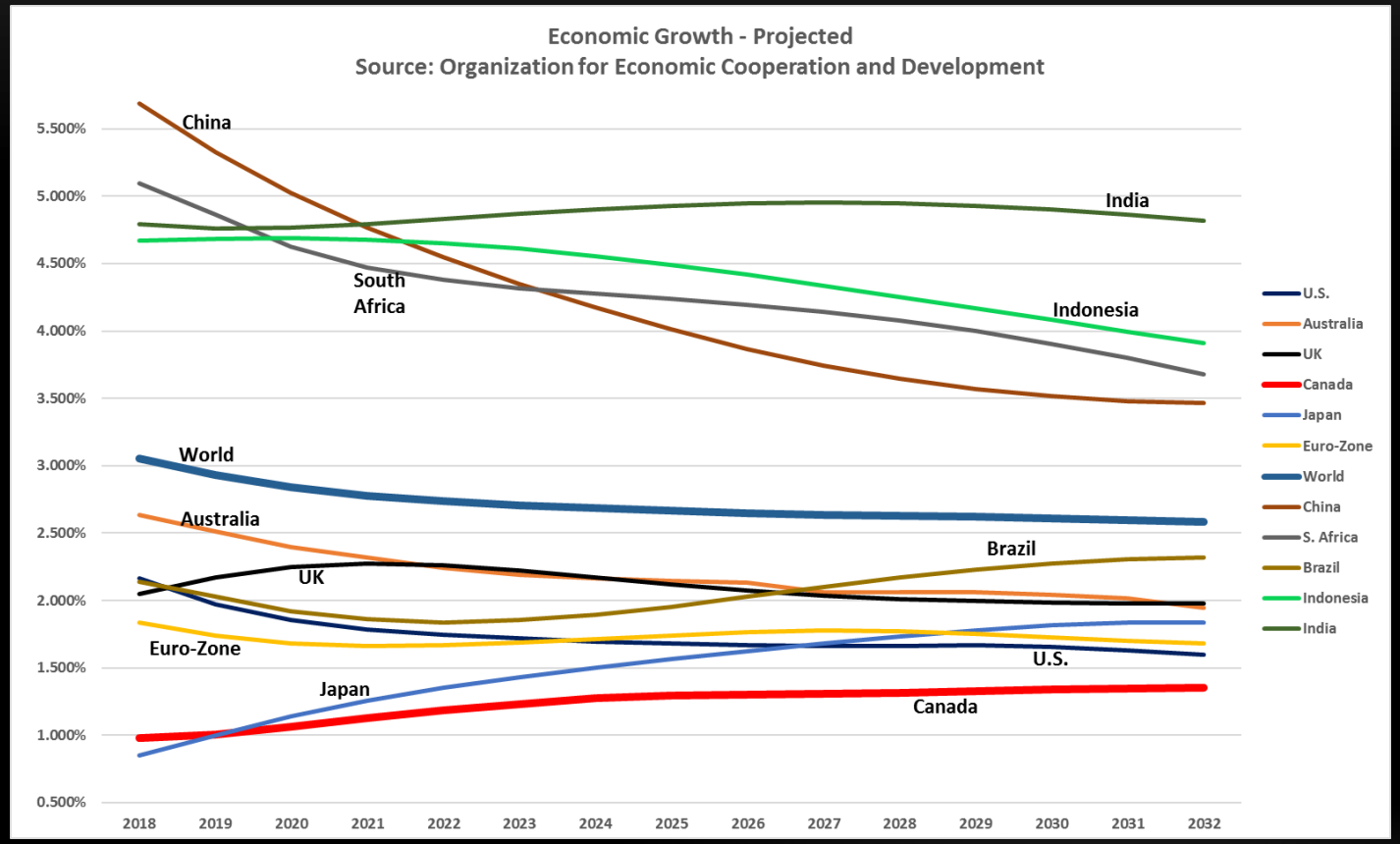
THE DIGITAL SUPPLY CHAIN

Creating skills for the future

Canadian Supply Chain Sector Council | Conseil canadien sectoriel de la chaîne d'approvisionnement

Name of conference & date

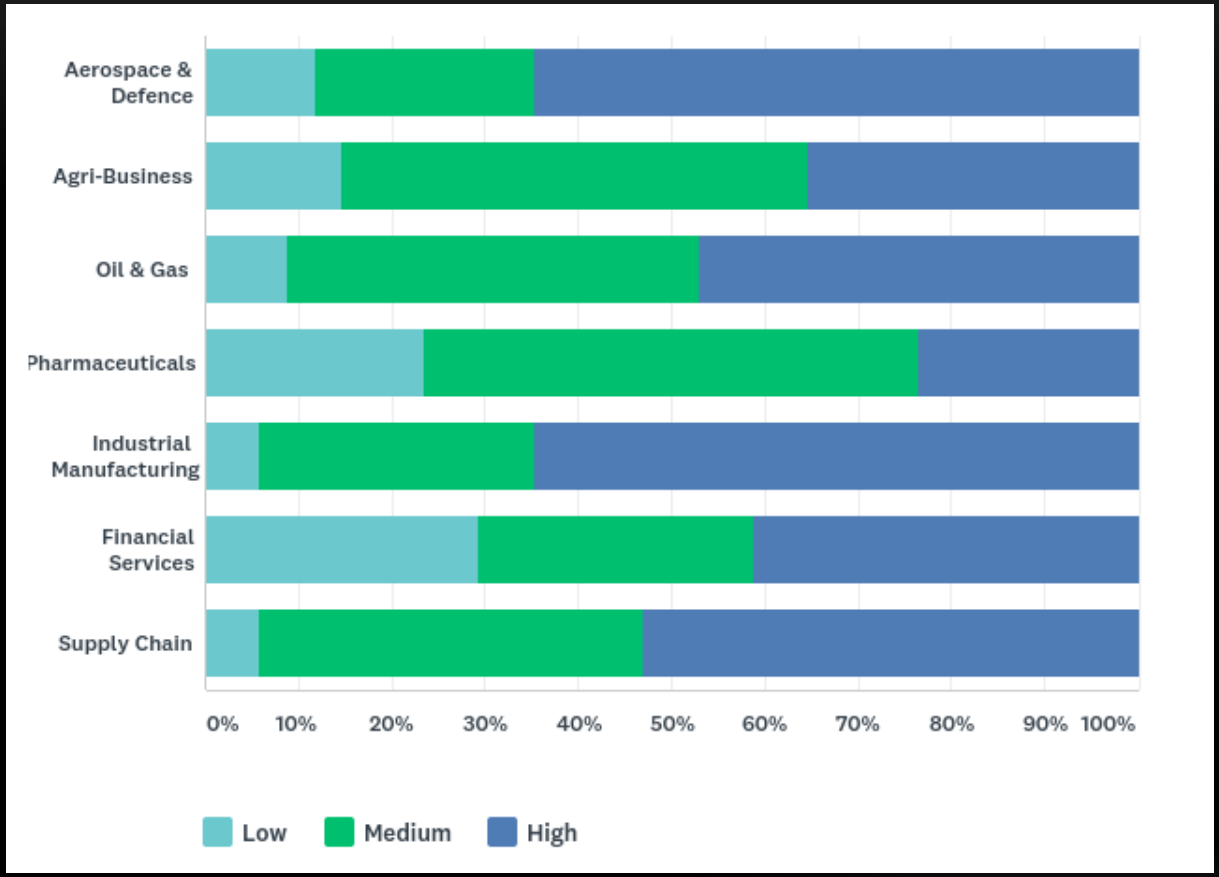
CANADIAN SUPPLY CHAIN OVERVIEW



Critical to Economy

- Moves over $1Trillion worth of goods
- Contributes $66B to GDP
- Employs approx. 900,000 (excluding Trucking)

IMPACT OF TECHNOLOGY



Technology in Supply Chain

Survey data reveals impact of technology

TECHNOLOGIES

Supply Chain Innovations

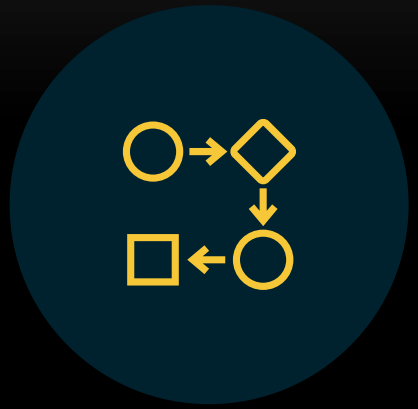
Those with potential to disrupt or create competitive advantage

- Robotics and Automation 65%
- Predictive Analytics 62%
- Internet of Things (IoT) 59%
- Artificial Intelligence 53%
- Inventory and Network Optimization 53%
- Driverless Vehicles and Drones 52%
- Wearable and Mobile Technology 45%

CANADA IS ADOPTING TECHNOLOGY. FAST.

Autonomous Vehicles

Anticipate 11% fully autonomous vehicles by 2025 with over 90% with partial autonomy



Robotics & Automation

Anticipate over $65B market sector by 2025 enjoying a 9% growth

Blockchain

Anticipate reaching a full maturity by 2025 impacting almost all aspects of supply chain

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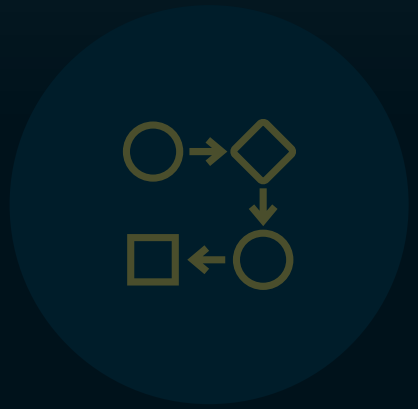

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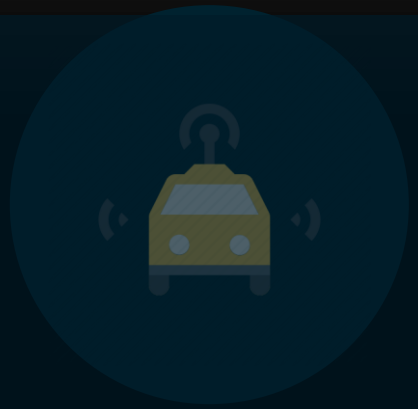

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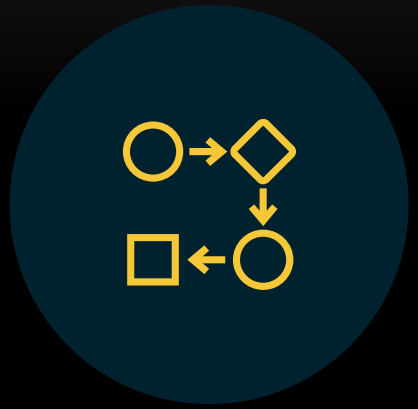

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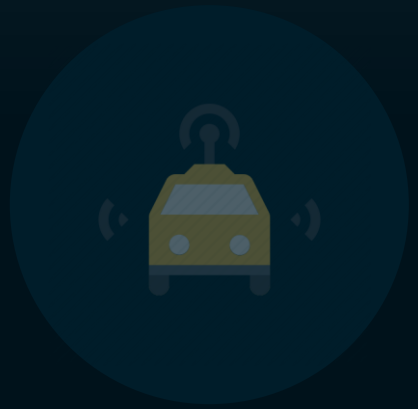

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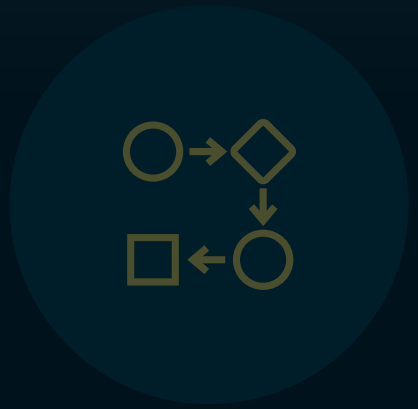

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CANADA IS ADOPTING TECHNOLOGY. FAST.

Predictive Analytics

Anticipate seeing up to 80% annual growth, in collection, processing and other offerings

Internet of Things (IoT) Anticipate 35M connected devices by 2020 and over $3T global annual spend by 2025

Drones

Anticipate over 2.7M drones sold by 2025, up from 150k in 2017

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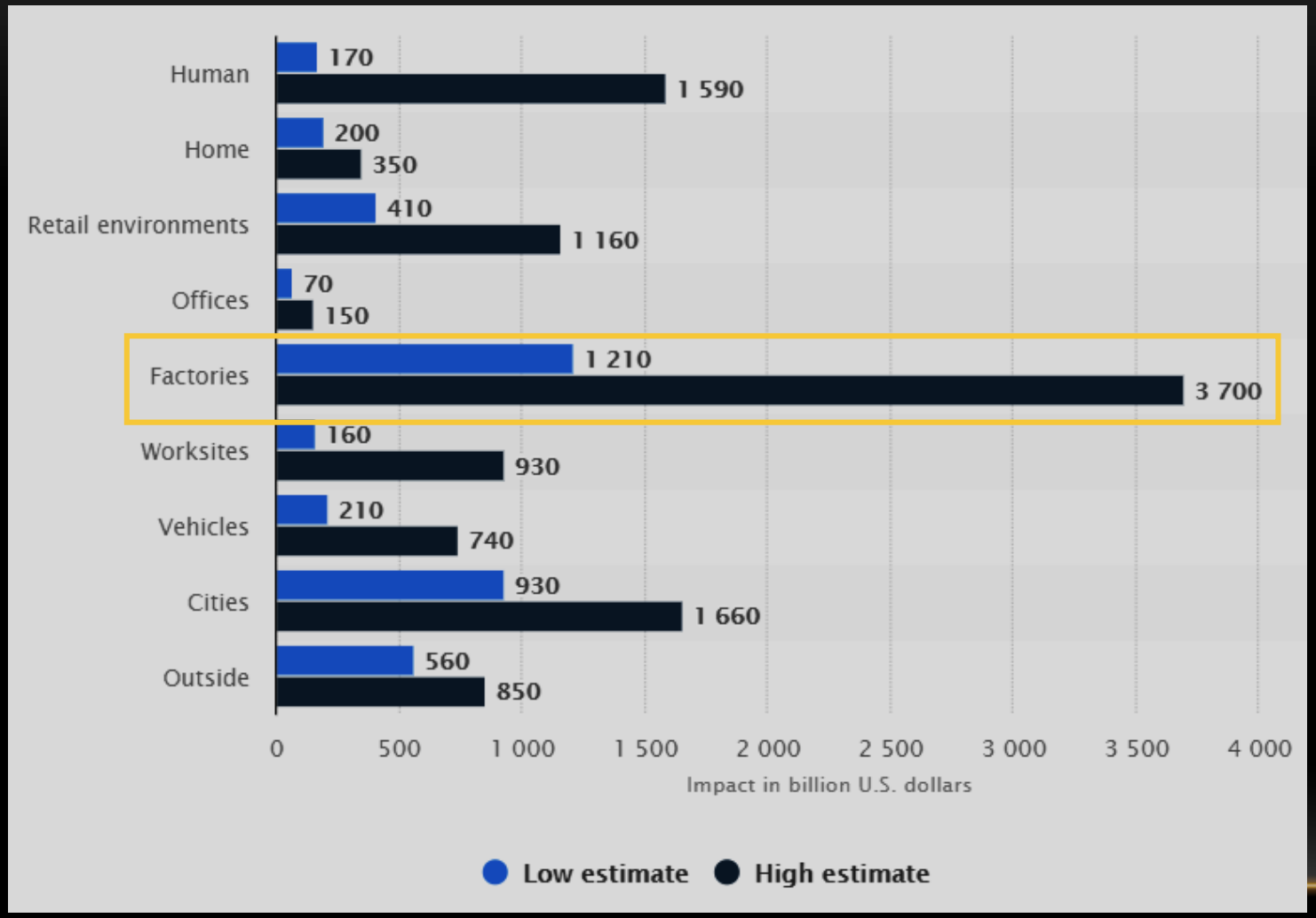
ECONOMIC IMPACT OF INTERNET OF THINGS



IoT in Industry

Anticipate between $1T and $4T of IoT Economic Impact into Manufacturing Sector

OPPORTUNITIES FOR TALENT

Province	2016	2017	2018	2019	2020	2021	Growth
Alberta	108,683	109,773	111,925	114,126	116,548	118,994	9,221
British Columbia	117,486	120,846	123,642	126,063	128,260	130,589	9,743
Manitoba	30,670	31,120	31,450	31,680	31,825	32,019	899
New Brunswick	17,418	17,630	17,756	17,845	17,926	18,045	415
Newfoundland and Labrador	10,346	10,520	10,655	10,778	10,889	11,025	505
Nova Scotia	18,637	18,801	18,858	18,879	18,906	18,950	149
Ontario	344,323	349,450	353,854	357,448	360,770	364,369	14,919
Prince Edward Island	2,902	2,963	3,008	3,049	3,088	3,135	172
Quebec	196,145	198,287	199,517	200,003	200,336	200,956	2,669
Saskatchewan	21,676	21,936	22,130	22,295	22,471	22,701	765
Grand Total	868,286	881,326	892,796	902,166	911,020	920,783	39,457

The annual labour force growth rate in the supply chain sector is expected to be around 1.1% from 2017 to 2021, resulting in a projected 920,783 workers in 2021.

EMPLOYMENT DEMANDS

Greatest increase in job growth

Database analysts and database administrators 6.1%

Computer and information systems managers 3.6%

Information systems analysts and consultants 3.2%

Professional occupations in business services, including consulting and compliance 5.9%

Logistics managers and analysts 3.1%

Greatest decrease in job demand

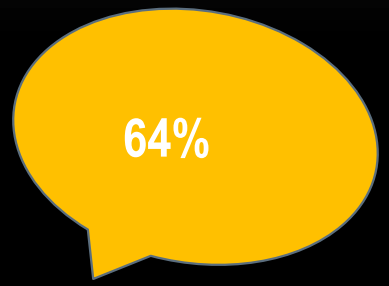
Shippers and receivers

Delivery and courier service drivers

Materials handlers

Labourers in food processing

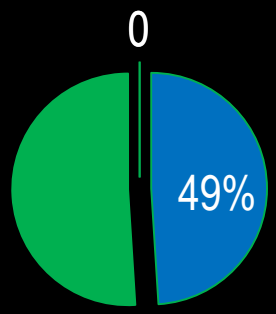
TOP EMPLOYER CHALLENGES



Hiring qualified talent

PREPARATIONS

- 49% - Training workforce to use new technologies
- 49% - Recruiting for different skillsets to align with future needs



LABOUR SKILLS CHANGES

- Paperwork versus Digital Literacy
- Drive or operate equipment versus manage and instruct equipment
- Develop data analysis versus understanding analysis
- Managing people versus managing technology
- Collaboration with outside vendors versus collaboration with internal stakeholders
- Tracking and administrative tasks versus planning and problem solving
- Task focused on specific area versus entire supply chain flow
- Understanding change versus being able to change

Logistics Analyst

Key Tasks	Examples of Changes	New Skills
Interpret data on logistics elements, such as availability, maintainability, reliability, supply chain management, and transportation.	Evaluate and analyze data/metrics from sensors and from a fleet of machines/robotics.	Planning and problem solving for developing optimal solutions for network efficiency
Track product flow from origin to final delivery.	Spend less time on tracking, as IoT devices automatically update on location and trip status. Although asset tracking is already used today, manual updates are often required due to the capabilities of current devices. Future versions will be more accurate, secure and predictive.[56]	Critical and creative thinking skills, as more time will be spent on problem solving for continuous improvement
Communicate with service providers, such as ocean carriers, air freight forwarders, global consolidators, customs brokers, or trucking companies.	Increase the use of software to manage transportation needs. There will be an increased use of chat windows, text messages, and online computer messaging systems.	Digital literacy to effectively use dedicated brokering software

Computer & Information Systems Manager

Key Tasks	Examples of Changes	New Skills
Work with other departments and senior management to manage information system priorities and workload, align information system resources, and ensure successful delivery of services.	The manufacturing industry will see significant changes as smaller autonomous vehicles further proliferate into facilities. Companies such as Otto Motors are creating smaller autonomous movers to shuttle material around a facility.[60]	Technical/analytical knowledge to manage increased levels of automation and artificial intelligence systems
Develop analytics, systems, and data management, including metrics and reports. Establish key performance indicators, monitor ongoing performance, and improve performance against set goals.	New manufacturing equipment will increasingly have IoT capabilities incorporated into the design. This enables increased productivity in manufacturing operations, as every process can be accurately tracked and analyzed to micro details[61]	End-to-end supply chain understanding to effectively find ways to leverage technology to improve operational performance
Collaborate with staff, other departments, senior management, decision makers, and other professionals and associates (external to the organization) to share or provide information, problem solve, and clarify management objectives.	Leadership will be required to manage increasingly larger projects. As technology advances, greater reliance will be placed on leadership with a technical background. Having leaders with technical backgrounds may help other organizations find new sources of competitive advantage through technology.[62]	Leadership skills to manage larger projects as automation takes a more prevalent role in organizations

Procurement Officer

Key Tasks	Examples of Changes	New Skills
Establish and negotiate contract terms and conditions, and maintain supplier relationships.	Use analytics software to perform dynamic analysis of purchases and contracts. EY expects procurement decision making to be significantly influenced by high-quality data analytics by 2025. As analytics becomes more powerful, procurement will become increasingly central to business decision making. This means that procurement officers will have more tools to effectively manage demand, costs, and risk.[47]	Ability to use and monitor technology systems to aid in decision making
Process purchase requisitions/orders within purchasing authority and reconcile or resolve value discrepancies.	These tasks will become increasingly automated and streamlined as technologies such as blockchain become integrated into operations. According to Accenture, blockchain technology has the potential to provide huge operational benefits in terms of speed, greater security, and decreased workload by facilitating the exchange of information.[48]	Digital literacy as purchasing processes become automated
Prepare and maintain purchasing records, reports and price lists.	With greater availability of data, the load of administrative tasks decreases, as reports become easier to generate through software. For example, IoT-connected devices in warehouses will be able to accurately track details of every delivery. The individual performance of suppliers can then be tracked with great accuracy. If specific suppliers are consistently late or inaccurate with deliveries, then changes to contracts can be made automatically.[49]	Technical/analytical knowledge as administrative time is reduced and more time is spent on analysis for problem solving to increase organizational efficiency

Supply Chain Manager

Key Tasks	Examples of Changes	New Skills
Lead and manage production planning, customer service, purchasing, inventory control, forecasting, warehousing, transportation and other areas, as required.	Manage supply chains with high levels of innovation and technology adoption. Business model innovations, such as Amazon Prime Shipping, require supply chain leadership to reinvent the network in order to create a competitive advantage.[50]	Leadership to create vision for innovative supply chains and to assist with change management
Develop analytics, systems, and data management capabilities, including metrics and reports.	Increasingly use big data analytics for decision making. Pratt & Whitney, an aerospace manufacturer, is using big data to help prevent inflight engine shutdowns and related delays and cancellations. 5,000 parameters are used to monitor in-flight engine activity. This data is then used to create predictive models for when an engine needs to be scheduled for maintenance.[51]	Technical/analytical knowledge to understand impact to organization
Direct, coordinate, assign, monitor, and review the work of individuals engaged in supply chain related duties.	Make increasingly more strategic decisions. A survey by DHL found that the top three skills that will be required by supply chain professionals are: leadership; strategic and critical thinking; and problem-solving skills, creativity and imagination.[52]	Holistic solution thinking to create alignment with vision of the organization

MANAGING THE CHANGE

- Labour workforce shortages across supply chain sector
- Changing skill sets across the sector
- Finding talent with leadership, analytical and operational skills will be difficult (57% of managers believe this combination is hard to find)

Identifying and Developing Top Performers in Supply-Chain and Logistics

Tom Pauls, CCLP
Managing Director
SCL Search Consultants Ltd.

- Supply Chain and Logistics Overview
- Competencies in Demand
- Supply Chain Talent Pool
- Attract and Retain

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PURCHASE ORDER
PO No.
PO DATE


Order Pick Time
00:05:15
Order Pick Time
002:09:27
Order Pick Time
15:14:03

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Core Competencies for Success

- Problem Solving
- Ability to Analyze Data
  - Excel, Access
- Big Picture Thinking
- Communication Skills
- Attention to Detail
- Education

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* Supply Chain Insights LLC. Talent Study (Feb-Mar 2017)

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Case Study

- Problem Solving
- Ability to Analyze Data
  - Excel, Access
- Big Picture Thinking
- Communication Skills
- Attention to Detail

- Real Problem
- Tools
  - Laptop, Excel, Powerpoint
- Time to Prepare
- Presentation to Panel
- Panel Interview / Discussion

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Education

- Continuous Learning
- Industrial Engineering
- B.Comm, Math, Science, Psychology
- MBA
- PMP, Lean, Six Sigma
- CCLP (CITT) SCMP (SCMA) CPIM, CSCP (APICS)

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Supply Chain and Logistics Talent Pool

- Estimated 881,326 workers in 2017 *
- Sector added 8,800 new jobs per year from 2010 - 2017 *
- Sector is expected to add another 39,457 jobs between 2017 and 2021 *
- Over 27,000 supply chain positions in Canada are CURRENTLY unfilled **
- Another 66,000 openings are anticipated each year for the next five years **

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* www.supplychaincanada.org

** www.careersinsupplychain.ca

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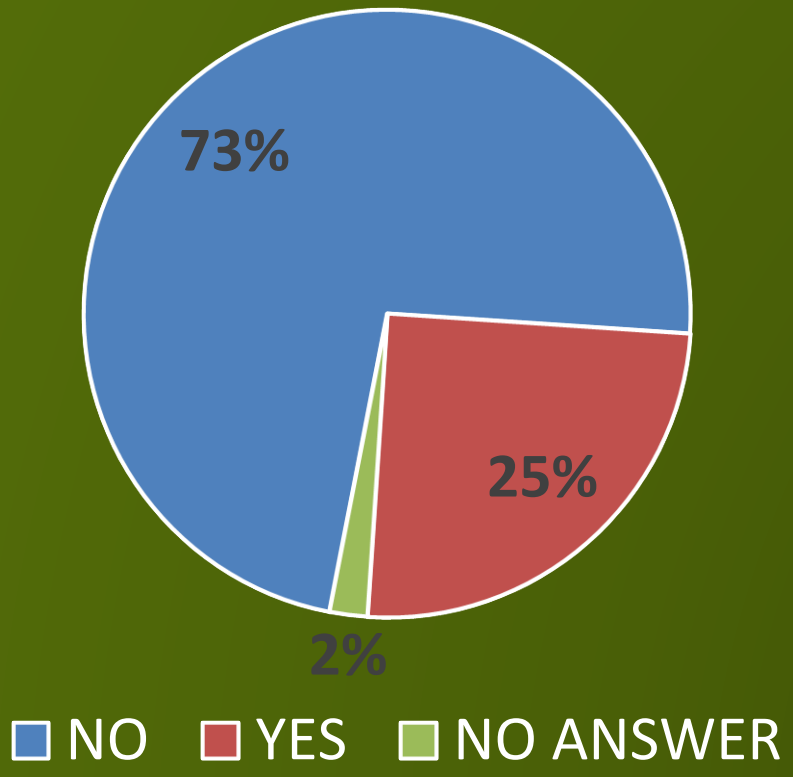
LOOKING FOR A NEW JOB



* MM&D Magazine, February 2018

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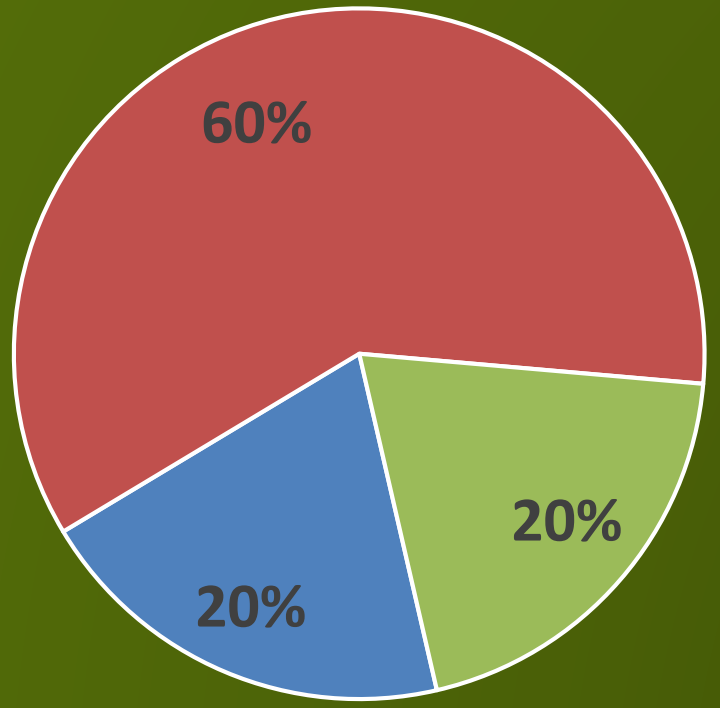
WOULD CONSIDER A NEW JOB



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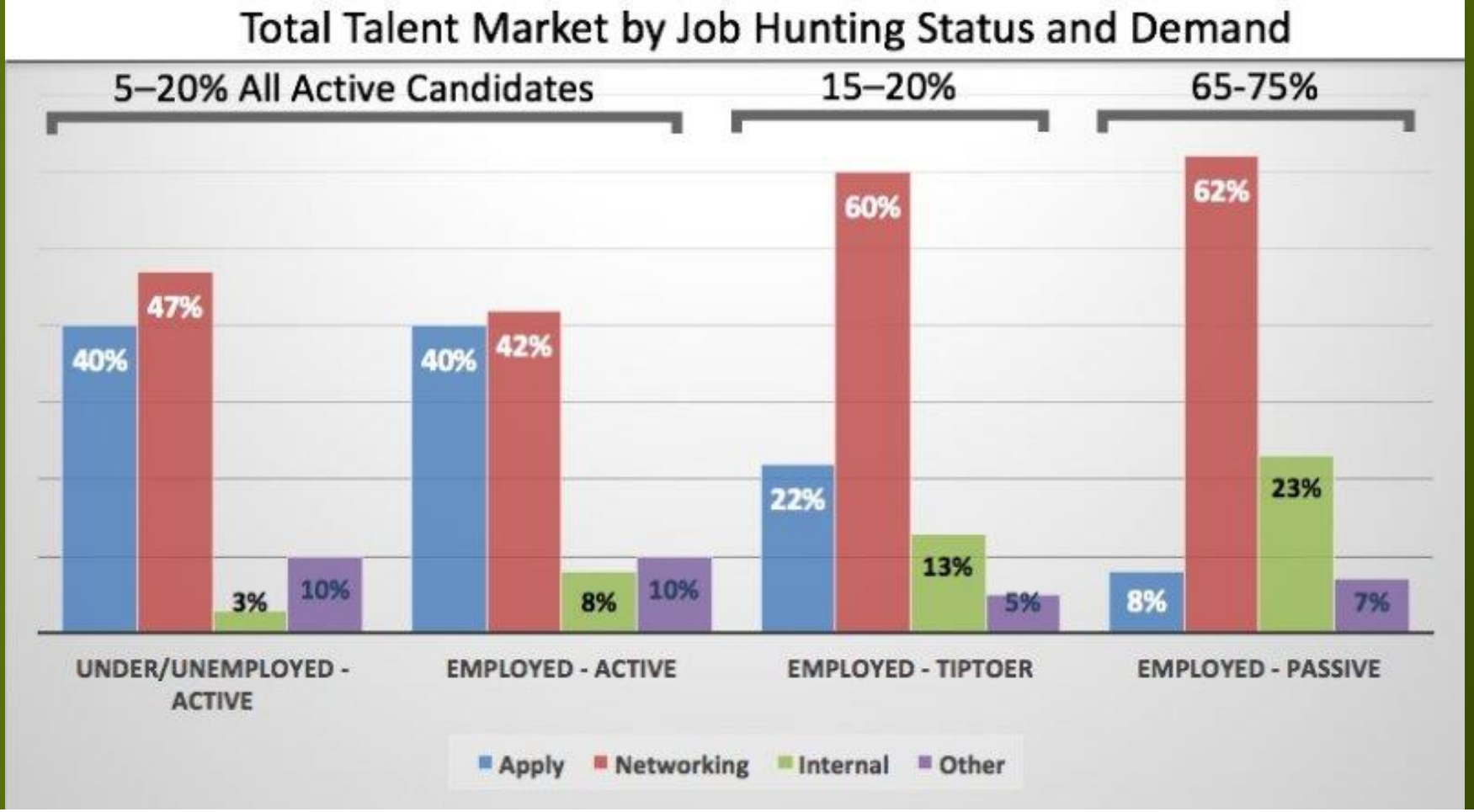
How People Get Jobs – 2015 & 2016



http://www.mentorworks.io/study-suggests-professional-networking-effective/

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- Supply Chain and Logistics Overview
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- Attract and Retain
- Job Seekers: How to Stand Out

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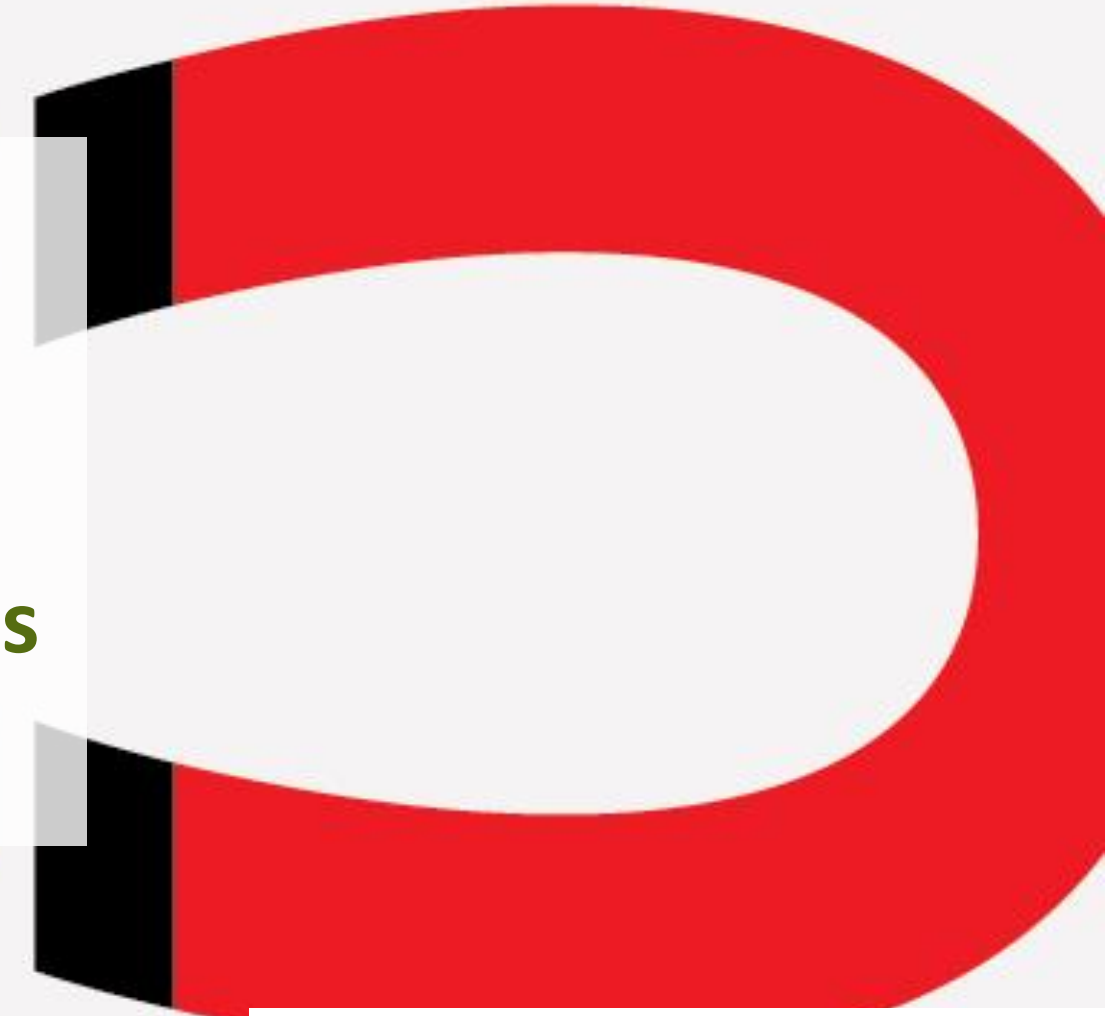
Attract

- Salary
- Work – Life Balance
- Challenging Work
- Advancement Opportunities
- Leadership



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* Supply Chain Insights LLC. Talent Study (Feb-Mar 2017)

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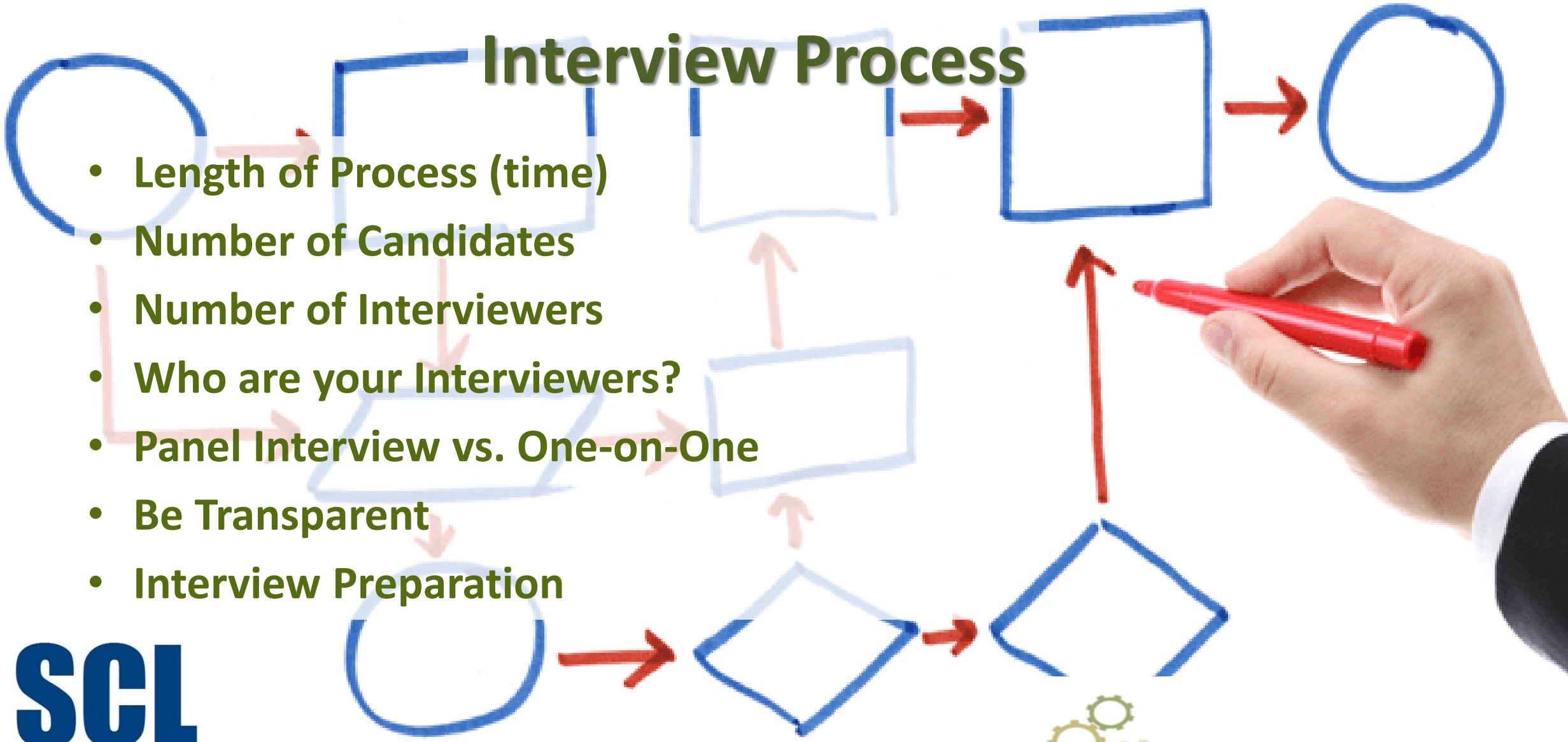
Interview Process

- Length of Process (time)
- Number of Candidates
- Number of Interviewers
- Who are your Interviewers?
- Panel Interview vs. One-on-One
- Be Transparent
- Interview Preparation



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Tips to retain your TALENTED EMPLOYEES

- Responsibility
- Respect
- Revenue-Sharing
- Reward
- Relaxation Time

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Tom Pauls, CCLP
Managing Director
SCL Search Consultants Ltd.
tpauls@sclsearch.com
905-230-7454

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CITT

Industry’s most valued source of supply chain learning, certification, and expertise

About CITT

- Founded in 1958 by industry for industry
- Grants CCLP designation
- 60 years certifying logistics professionals
- Content and professional development relevant to all modes, to shippers, carriers, 3PLs and beyond
- Annual Canada Logistics Conference and industry webinar series
- Corporate Training

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What is a designation?

- Best-known example is **CPA**
- Requires courses/program of study and sometimes a summative test or tests
- Must be renewed annually with demonstration of professional development / continued learning
- Often include practical experience requirement (**CCLP** is 5 years)

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Professional Learning & The Skills Gap

- As noted earlier, skills gap is real and especially pernicious in supply chain logistics
- Employers frequently note graduates of supply chain programs – while often knowledgeable – lack practical skills and operational insight
- Working professionals often struggle to find time to build new skills vital to businesses of the future
- Leadership is often overlooked in training for this industry, though it is now widely considered as important as technical expertise

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Professional Learning & The Skills Gap

- Supply chain performance is more sensitive to employee skill and expertise than any other operational factor (including fuel costs, natural disasters, etc)
- Unresolved skills gaps in supply chain roles cause increased operating costs, loss of revenue, and other major business problems; **filling these gaps is and will be a key HR strategy for many organizations**

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CITT and Industry

- CITT aims to help the supply chain logistics sector in Canada be as stable, competitive, and profitable as possible

- Work with industry to assure we teach competencies professionals need now and in the future

- Corporate training to address immediate needs of businesses

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Designations and the Skills Gap

- **CCLP** program designed to teach core competencies required on-the-job, and accelerates on-the-job learning

- Accelerates learning of new employees, and updates skills of seasoned professionals

- Program constantly updated in consultation with industry to reflect skills in-demand: **both** technical and soft skills

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Designations and the Skills Gap

- **Certification maintenance:** to maintain their designation, professionals must demonstrate continued learning; new courses, attending conferences, writing articles, etc

- Continued professional development post-certification ensures designation holders hone their skills and adapt to the changing sector

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