



National
Defence

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ASSISTANT DEPUTY MINISTER (MATERIEL)

Director General Materiel Systems and Supply Chain



Shedding Light on the Supply Chain

Department of National Defence

CIPMM Symposium – Emerging Trends in Materiel Management

1 December 2022





Outline

- Why is Supply Chain Risk Management Important
- How are we assessing supply chain risks
- How are we leveraging risk and threat information
- What's in it for you as procurement and materiel management specialists



Why is Supply Chain Risk Management Important

GOVERNMENT & PUBLIC SECTOR SECURITY

Canadian military provider suffered ransom attack, says news report

HOWARD SOLOMON

JUNE 9, 2022



A Canadian military contractor has acknowledged suffering a ransomware attack.

In a statement to *ITWorldCanada.com*, CMC Electronics said an unauthorized third-party had gained access to its computer network on May 31st and disrupted operations with a ransom.

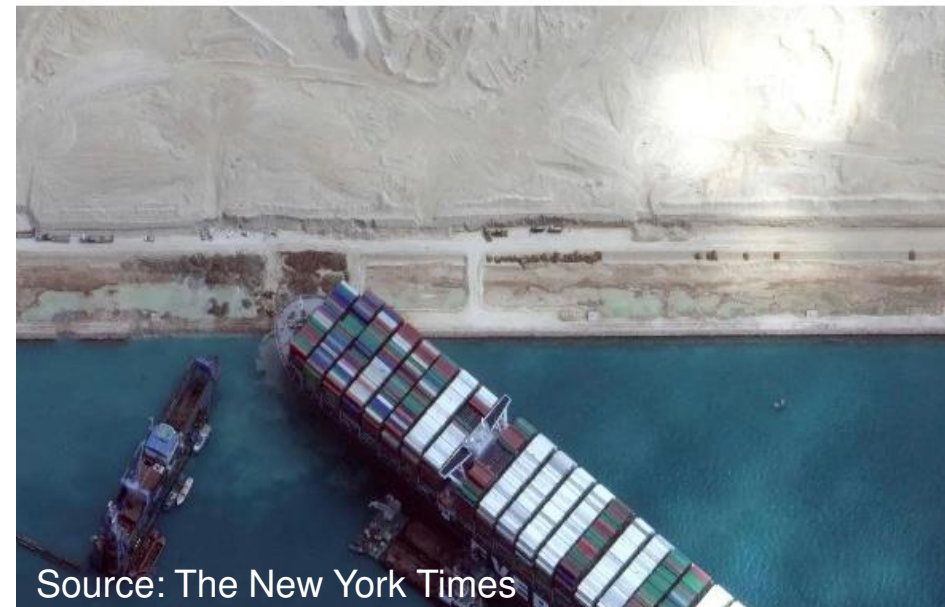
Source: Business Insider

The New York Times

How One of the World's Biggest Ships Jammed the Suez Canal

Four months after the megaship Ever Given got stuck in the canal, neither the canal nor the shipping industry has addressed some of the most critical issues that led to the grounding.

Give this article



Source: The New York Times



Risk Management

- Need to understand the risks
- Need to capture the risks in context
- Need to ensure stakeholders and decision makers understand these risks
- Need to decide what actions to take with the risks
- Need to monitor the risks

So how can we understand our supply chain risks?



Supply Chain Risk Assessment Solutions

- We've been investigating solutions since Fall 2017
- Different companies offer different approaches
- Have run a pilot project with one supplier and a specific Defence System
- Established a Contract with Task Authorization for illumination and assessment services
- Collaboration with our allies in this space





Potential Benefits

- For the acquisition process:
 - Pre-RFP:
 - Socialize intent to leverage Supply Chain Identification and Risk Assessment with Potential Suppliers or Qualified Suppliers (incentivizes good governance)
 - RFP:
 - Inclusion of specific Supply Chain Identification and Risk Assessment Criteria for Bid Evaluation (possible link to Capability Delivery Risk Evaluation)
 - Notify suppliers (Bid Instructions) with intent to conduct with Supply Chain Risk Assessments
 - After contract award:
 - Conduct assessment to monitor supply chain risks throughout the contract
 - Anytime following the Contract Award when there is an indication of a change in partnership within the major suppliers in the supply chain
- In-Service Support:
 - As a means to identify risk areas before contract renewal
 - Could be used as part of the Sustainment Business Case Analysis criteria
 - As a means of mitigating new risks in the supply chain throughout the existing contracted work
 - Obsolescence of spare parts



How are we conducting Supply Chain Risk Assessments

- Have entered into contract with Ernst and Young (EY) for Supply Chain Illumination and Risk Assessment services
 - EY BRETA tool provides automated analysis to help analysts focus on detailed manual analysis for most significant risks as defined by the client
- Currently illuminating and assessing supply chain risks for single military platforms
- Risk Assessments being integrated in overall project/platform risk registers



Operational Risk	Obsolescence Risk	Physical and Personnel Security Risk	Cybersecurity Risk	Economic Risk	Quality and Technical Risk	Geographical and Environmental Risk	Regulatory Risk
Transportation network disruptions	Parts no longer manufactured by OEM	Theft of intellectual property	Cyber vulnerabilities in the suppliers products	Poor credit rating	Counterfeit or non-conforming parts	Civil unrest or conflict	Environmental regulatory violations
Shift in business strategy	Parts no longer licensed to be manufactured	Compromise of products by unauthorized modifications	Cyber breaches in the suppliers' networks as entry to government networks	Insolvency	Unreported supplier recalls	Acts of terrorism	History of non-compliance to international standards
Loss of productivity or manufacturing capacity	Product life expectancy	Merger and acquisitions from companies with ties to adversarial nations	Cyber breaches leading to loss of productivity or theft of intellectual property	Industrial disputes		Natural disasters	Regulatory infractions
Employee turnover		Foreign influences in our supply chains		Financially depressed suppliers		Human illness	Trade regulation violations
				Business ethics incidents		Loss of talent or key skills	Loss of right to use intellectual property
						Labour unrest	



What are the steps of Supply Chain Illumination and Risk Assessment

- **Illumination/identification**
 - Identify all suppliers within a supply chain, from prime contractor all the way down to suppliers of raw material
- **Risk identification and analysis**
 - Determine problems or potential risk points in the supply chain based on the illumination
- **Mitigating Recommendations**
 - Provide recommendations to reduce supply chain risks
- **Continuous Monitoring**
 - Maintain the illumination of the supply chain as it changes over time and adapt



EY BRETA Threat Dimensions

EY | BRETA Appendix - Five Threat Dimensions

Financial	Ecosystem	Geopolitical	Cybersecurity	Innovation
<p>Financial health and viability, evaluated on the basis of key financial metrics and indicators</p>	<p>The footprint and processes of sourcing and logistics, and elements of supply network efficiencies</p>	<p>Country risks associated with relationships, based on indicators of in situ, market and operating environment risk</p>	<p>Strength and rigor of cyber hygiene based on external indicators of behaviors and reported incidents</p>	<p>Currency, differentiation and sustainability of technological capabilities, R&D rigor, and adaptability</p>
<p>Holistic assessment of financial health using publicly available financial data:</p> <ul style="list-style-type: none"> ▶ Size and liquidity assessed from a entity's balance sheet ▶ Earnings health assessed from the income statement ▶ Threat of default assessed from the balance sheet and income statement 	<p>Indicates the threat of experiencing adverse outcomes due to the relationships and dependencies of its ecosystem. Threats include:</p> <ul style="list-style-type: none"> ▶ Loss of capability or operational disruptions due to any reason that makes it an unviable source of supply ▶ Compromised intellectual property or technical advantage due to a joint venture relationship 	<p>Indicates the threat of experiencing adverse outcomes due to the countries an entity conducts business in. Uses geopolitical factors such as:</p> <ul style="list-style-type: none"> ▶ International: impact of cross-border interests of countries in defined policy areas collide ▶ Domestic: national political impact on corporations ▶ Regulatory: stability of regulatory regime ▶ Societal: social impact on corporations 	<p>Indicates the threat of adverse outcomes due to the entity's IT infrastructure, policies and procedures</p> <p>A multidimensional perspective on the strength/health of an entity's cybersecurity as measured by external indicators, including:</p> <ul style="list-style-type: none"> ▶ Evidence of malware ▶ Hacker chatter ▶ Time taken to apply software patches ▶ Past data breaches 	<p>Indicates the threat of adverse outcomes related to an entity's innovations and intellectual property.</p> <p>The Innovation threat indicator consists of the following:</p> <ul style="list-style-type: none"> ▶ Significance: measure of downstream impacts of an innovation in its technical field ▶ Breadth: the scope of technological fields in which a entity innovates ▶ Coverage: geographic locations or legal jurisdictions into which patents are filed ▶ Effectiveness: assessment of the enforceability of patents



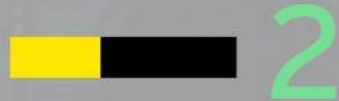
EY BRETA Client Dashboard

All information in this dashboard is simulated, any similarity to actual entities is entirely coincidental.

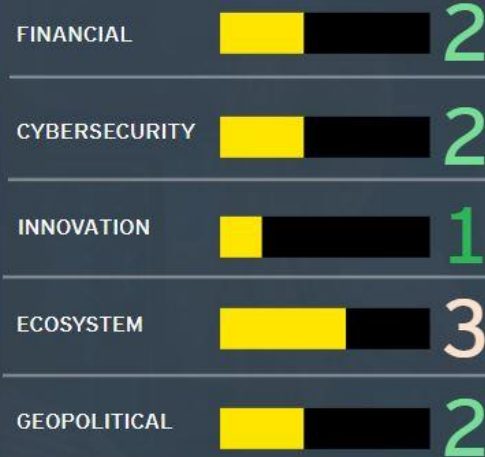
EY BRETA

ANALYSIS SNAPSHOT

TIER 1 AVERAGE OVERALL THREAT INDICATOR ("TI")



CLICK TO VIEW DASHBOARD



Tier 1 Suppliers	Overall TI	Unique Entities	# Relationships	in Russia	in Sanctioned Countries
Company A	2	30,947	45,059	279	3,973
Company E	2	29,413	42,538	251	4,384
Company D	2	25,813	36,745	180	3,755
Company C	2	15,888	21,217	124	1,703
Company B	2	12,094	15,913	97	1,486

Data last refresh: 07 November 2022
 Number of Tier 1 suppliers researched: 7





EY BRETA Client Dashboard

Tier 1 Overview

All information in this dashboard is simulated, any similarity to actual entities is entirely coincidental.

[Clear Filters](#)

Tier 1 Suppliers

- Company A
- Company B
- Company C
- Company D
- Company E

Supplier Name Company A	System Name
Immediate Parent Company A Holdings Ltd	Ultimate Parent Company A Corporation
Country United Kingdom	Industry Heavy Electrical Equipment
Click below to go to website	

Business Description

▼
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. Aenean nec lorem. In porttitor. Donec laoreet nonummy augue. Suspendisse dui purus, scelerisque at, vulputate vitae, pretium mattis, nunc. Mauris eget neque at sem venenatis eleifend. Ut nonummy.

BRETA Dimension Threat Indicators

Ecosystem	<div style="width: 100%; height: 20px; background-color: #f96;"></div>	3
Financial	<div style="width: 100%; height: 20px; background-color: #f96;"></div>	3
Cybersecurity	<div style="width: 100%; height: 20px; background-color: #4caf50;"></div>	2
Geopolitical	<div style="width: 100%; height: 20px; background-color: #4caf50;"></div>	2
Innovation	<div style="width: 100%; height: 20px; background-color: #4caf50;"></div>	1

Overall BRETA Threat Indicator

2

2017	2018	2019	2020	2021	2022
2	3	2	2	2	2



EY BRETA Client Dashboard





EY BRETA Client Dashboard

EY BRETA

Ecosystem Overview

All information in this dashboard is simulated, any similarity to actual entities is entirely coincidental.

Clear Filters

Tier 1 Suppliers

- Company A
- Company B
- Company C
- Company D
- Company E

Geo Risk, Cou...

All

Classification

All

Tiers

All

Relation Type

All

Tier 1 Supplier
Company A

Entity used for Ecosystem
Company A Corporation

Relationships
45.1K

Country Presence
145

A) Unique Entities by Country

Classification Others Parts & Components Raw Materials

Select a measure

A) Unique Entities
B) # Relationships
C) \$ Revenue

A) Unique Entities by Relation Type by Tier

Relation Type	Tier2	Tier3	Tier4	Overall
Supplier	1%	13%	63%	64%
Alliance	0%	8%	51%	52%
Joint Venture	0%	1%	7%	7%
Overall	1%	20%	99%	100%

A) Unique Entities by Geo Risk by Tier

Geo Risk	Tier2	Tier3	Tier4	Overall
Others	1%	18%	90%	91%
Sanctioned Countries	0%	2%	9%	9%
Russia	0%	0%	1%	1%
Overall	1%	20%	99%	100%

A) Unique Entities by Classification by Tier

Classification	Tier2	Tier3	Tier4	Overall
Others	0%	8%	50%	51%
Parts & Components	1%	10%	38%	38%
Raw Materials	0%	2%	11%	11%
Overall	1%	20%	99%	100%

A) Unique Entities by TI

Overall

0%

31%

31%

1%

37%

Company	Overall TI	Tiers	Country	Classification	Industry	Revenue
Supplier A	n/a	Tier2	Luxembourg	Parts & Components	Electrical Components and Equipment	
Supplier B	2	Tier2	United States	Parts & Components	Systems Software	\$258M
Supplier C	2	Tier2	Australia	Others	Diversified REITs	\$247M
Supplier D	2	Tier2	India	Parts & Components	Heavy Electrical Equipment	\$959M
Supplier E	3	Tier2	Canada	Parts & Components	Application Software	\$0M
Supplier F	3	Tier2	India	Parts & Components	Construction Machinery and Heavy Tru...	\$195M
Supplier G	2	Tier2	United States	Parts & Components	Semiconductors	

Threat Indicator Filters: Overall Financial Cybersecurity Ecosystem Geopolitical Innovation

(applied to all visuals)



How are we leveraging this information

- Leveraging in contract negotiations
 - Obtaining parental guarantees
 - Negotiating better pricing
- Obtaining picture of supply chain distribution
 - Are the sub-suppliers in countries of concern?
 - Is the current supply chain providing best value to GoC?
- Sharing risk picture of our supply chains with 5-Eyes partners for common equipment



What's in it for you as procurement and materiel management specialists / things to ponder

- New risk/threat information may open opportunities during contract negotiations
- Supply chain risk assessments may require us to look at alternate sources of supply
 - Are our contracts flexible for this, can new contracts adapt to changing requirements?
- Knowing which companies have higher risk allow us to focus on which materiel requires a more robust quality assurance program
- May drive maintenance inspection periodicity based on known risks to suppliers (limit potential failures by increasing periodic maintenance)
- Understand what options are available if there are un-forecasted supply chain disruptions
- How can we use this information in a feedback loop (vendor performance)?



Conclusion

- Illuminating our supply chains is key to understanding the potential risks
- Risks must be contextualized and understood
- Government procurement and materiel management specialists should be aware of the developments in this space and ask questions as to whether the procurement considers supply chain risks
- Risks must be dealt with to ensure supply chain resiliency and maintain capabilities / delivery of our departments' core mandates

