



## Supply Chain Risk Management

From challenges to advantages:  
Supply network optimisation

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# Table of Contents

Thriving in Supply Chain Disruption.....	3
Key Considerations .....	4
How we could assist.....	7
Further enquires .....	9



# Thriving in Supply Chain Disruption

Supply chain disruption take place when one component of your supply chain fails to provide its good or service to the following process in the chain. By identifying the key business activities that could be affected by disruptions to your supply chain, you can prepare a plan of action to minimize the impact of supply chain disruption.

## Example of Supply Chain Disruption

### Climate Change & Natural Disaster

In 2011, Thailand suffered the worst flooding in 50 years with many regions under 3 meters of water. Flooding lasted 30 to 60 days, disrupted global electronics, automotive and food supply chains, and resulted in losses totaling \$40 billion to \$50 billion



### Global Health

In 2020, 150+ of the Fortune 1000 have Tier 1 suppliers and 900+ have one or more Tier 2 suppliers in highly impacted areas of China



### Operational Risk

In 2020, net income before taxes fell by 40% over the prior year to \$2.9 billion due to reduced shipments to wholesalers, labor shortages, and other "supply chain effects" for Nike.



### Cybersecurity

In 2021, Brenntag (chemical distribution company) suffered a DarkSide Ransomware attack that led to the organization paying a \$4.4 million ransom in Bitcoin



### Geopolitical

Brexit, US tariffs on imports from the European Union, the South Korea-Japan trade dispute, and the US-China trade war



### Financial Crisis

Sales and demand reached all-time lows and sourcing departments were faced with losing suppliers and entire supply chains to bankruptcy



# Key Considerations

## Arising risks

## Risk Strategy (Avoid, Transfer, Mitigate, Accept)



### Poor supplier performance

This is the most fundamental risk and businesses should prioritise it above all others. A supplier's financial health is a main indicator of their performance, but throughout the evaluation and selection phase, management should also evaluate other criteria such as production capabilities, compliance with relevant regulations and industry standards, etc.

#### Transfer:

Assess alternative supplier arrangement through a risk assessment on the options and financial impact

#### Mitigate:

Audit on due diligence, supplier management and contract management



### Demand planning complexity

A successful demand planning enables a company to find the perfect balance between sufficiency and surplus. This was easier when consumers' demand is predictable, and businesses functioned on a just-in-time (JIT) basis. However, many companies experience supply and demand shock during the pandemic. Demand patterns shifted as people were confined to their homes. Now, companies may not rely on internal historic data alone to make predictions, but rather to pay more attention to evolving consumer behaviors through granular as well as external data.

#### Mitigate:

Process optimization by assessing the material resource planning model such as forecasting, past consumption, safety stock model, inventory categorization



### Skilled labor shortage

The market, in particular the manufacturing, construction, and transportation industries are facing a skilled labor crunch. Due to the increased competition for skilled labor, companies may need additional resources or even hire ill-suited candidates just to keep pace with demand. Eventually, this would result in lower revenue and slow growth for businesses.

#### Transfer:

Assess alternative supplier arrangement through a risk assessment on the options and financial impact

#### Mitigate:

Audit on due diligence, supplier management and contract management







### Rising inflation

High inflation not only reduce the purchasing power of consumers, but also driving up direct costs, making it more expensive for businesses to produce, store, and ship their goods.

#### Transfer:

Assess alternative supplier arrangement through a risk assessment on the options and financial impact

Arising risks	Risk Strategy (Avoid, Transfer, Mitigate, Accept)
<p> <b>Economic volatility</b></p> <p>The global economic volatility has spiked since the last 2 years, making it more crucial for businesses to become responsive and take proactive measures in addressing supply chain disruptions. For example, the outbreak and geopolitical issues have caused in changing lead times and supply shortages. Businesses need to ensure they have enough inventory to fulfill demand, simultaneously, not holding too much if the market declines.</p>	<p><b>Mitigate:</b></p> <p>Process optimization by assessing the material resource planning model such as forecasting, past consumption, safety stock model, inventory categorization</p> 
<p> <b>Complex sanctions and regulations</b></p> <p>The recent Russian sanctions have increased businesses' awareness of their suppliers' ultimate beneficial owners, directors, and shareholders to prevent bad actors from damaging their supply</p>	<p><b>Mitigate:</b></p> <p>Identify regulations in the region where the company operate, leveraging on Subject Matter Experts in our geographic network</p>
<p> <b>Geopolitical risk</b></p> <p>Political crises on a global scale, such as the Russian invasion of Ukraine and China's zero-Covid policy, have subverted the supply chain and losing hundreds of millions of dollars' worth of sales. To mitigate this risk, businesses need to consider having alternative suppliers to ensure they have options during a disruption.</p>	<p><b>Transfer:</b></p> <p>Assess alternative supplier arrangement through a risk assessment on the options and financial impact</p> <p><b>Additional considerations:</b></p> <p>Risk Management to assess business disruptions impact and identify ongoing or mitigating controls</p>
<p> <b>Reputational risk</b></p> <p>Sustainable sourcing has never been more important than it is in the last decade. Businesses have no option but to integrate social, ethical, and environmental performance factors into the process of selecting suppliers. Deficiencies in corporate governance, and environmental or social responsibilities may hinder businesses from safeguarding their brand reputation.</p>	<p><b>Mitigate:</b></p> <p>Audit on environmental, social, and corporate governance.</p> <p><b>Additional considerations:</b></p> <p>Risk Management to assess ESG related risks and identify ongoing or mitigating controls</p>

**Arising risks** **Risk Strategy (Avoid, Transfer, Mitigate, Accept)**



**Natural disasters and climate risk**

Natural disasters can create detrimental impacts that affect the whole supply chain. Businesses are required to ensure balanced supply and demand, as well as finding alternative ways to keep its supply chain operational during emergencies.

**Additional considerations:**

Risk Management to assess business disruptions impact and identify ongoing or mitigating controls



**Cyber risk**

Cyber risk is an emerging threat that focusing on weak points in a company's supply chain. Because weak points in a supply chain, e.g., third party suppliers, are an easier target for cyber criminals, it has elevated the importance for businesses to be aware on their own cybersecurity and that of their business partners.

**Mitigate:**

Audit on Cyber, such as performing an IT Security Risk Assessment



**Pandemic risks**

The COVID-19 pandemic has accelerated the existing issues in the supply chain, making it more important for businesses to be agile, flexible, and resilient. The pandemic caused many to anticipate more disruptions to come on the supply chain. Hence, businesses are no longer able to operate the old ways but always prepared to respond to changes.

**Transfer:**

Assess alternative operational model through a risk assessment on the options and financial impact



**Insolvency risks**

From natural disasters to political, economic, and social events, businesses around the world are exposed to losing their suppliers as suppliers become unable to operate or honour their obligations.

**Transfer:**

Assess alternative operational model through a risk assessment on the options and financial impact

# How we could assist

Risk Strategy	Suggested areas we could assist
<p><b>Transfer:</b> Assess alternative supplier arrangement through a risk assessment on the options and financial impact</p>	<ul style="list-style-type: none"> <li>• Spending profile on suppliers</li> <li>• Key suppliers/critical items</li> <li>• Consider alternative and perform cost analysis on identified suppliers or products</li> </ul>
<p><b>Transfer:</b> Assess alternative operational model through a risk assessment on the options and financial impact</p>	<ul style="list-style-type: none"> <li>• Current model to identify risks area due to disruption in the company's supply chain</li> <li>• Assess the impact and the recovery time</li> <li>• Consider alternative model and impact on cost and operation</li> </ul>
<p><b>Mitigate:</b> Audit on due diligence, supplier management and contract management</p> 	<ul style="list-style-type: none"> <li>• Supplier on-boarding assessment and financial due diligence</li> <li>• Periodic reviews of supplier credit standing</li> <li>• Retention / termination of supplier accounts</li> <li>• Supplier incentives programme management</li> <li>• Continuous control monitoring of supplier accounts for suspicious activity transactions (please refer to our digital continuous control monitoring or ask us)</li> <li>• Assess contractual terms and purchase commitments</li> <li>• KPIs are outcome-based and are clear, measurable and achievable</li> <li>• Monitoring of supplier's obligations against contractual requirements</li> <li>• Quality assurance for goods supplied and services performed</li> <li>• Leverage on data analytics to identify performance gaps such as high occurrences of delay</li> </ul>
<p><b>Mitigate:</b> Process optimization by assessing the material resource planning model such as forecasting, past consumption, safety stock model, inventory categorization</p>	<ul style="list-style-type: none"> <li>• Identification of critical equipment/inventory</li> <li>• Inventory planning (demand and supply) including delivery lead time for critical, and consumables</li> <li>• Setting and monitoring of inventory levels for parts (including obsolete and slow-moving items)</li> <li>• Monitoring of inventory warranty period</li> <li>• Minimal quantity for critical inventory and regulatory requirements are maintained</li> <li>• Shelf-life monitoring</li> </ul>

Risk Strategy	Suggested areas we could assist
<p><b>Mitigate:</b> Identify regulations in the region where the company operate, leveraging on Subject Matter Experts in our geographic network</p>	<ul style="list-style-type: none"> <li>• Compliance with key Company's policies</li> <li>• Compliance with applicable law and regulations such as permits and licenses</li> <li>• Operations are monitored and inspected on a periodic basis</li> </ul>
<p><b>Mitigate:</b> Audit on environmental, social, and corporate governance ("ESG")</p>	<ul style="list-style-type: none"> <li>• Reporting metrics for data collected for sustainability reporting</li> <li>• Data for sustainability reporting is collected and reported accurately, timely and complete</li> <li>• Review and Reporting of ESG and climate related risks</li> <li>• Identification, Monitoring and Reporting of regulatory requirements and non-compliances</li> </ul>
<p><b>Mitigate:</b> Audit on Cyber, such as performing an IT Security Risk Assessment</p>	<ul style="list-style-type: none"> <li>• Privileged User Access Control</li> <li>• System Security</li> <li>• Malware Pwrotection</li> <li>• Network Security</li> <li>• Patch and Vulnerability Management</li> <li>• Security Event Monitoring</li> </ul>
<p><b>Additional considerations:</b> Risk management to assess business disruptions impact and identify ongoing or mitigating controls</p>	<ul style="list-style-type: none"> <li>• Identify potential impact and likelihood of the risks</li> <li>• Assess ongoing mitigating controls, and additional mitigating controls</li> <li>• Assess the risks, including consideration of the overall company's risk appetite</li> </ul>
<p><b>Additional considerations:</b> Risk management to assess ESG related risks and identify ongoing or mitigating controls</p>	<ul style="list-style-type: none"> <li>• Identify potential impact and likelihood of the risks</li> <li>• Assess ongoing mitigating controls, and additional mitigating controls</li> <li>• Assess the risks, including consideration of the overall company's risk appetite</li> </ul>





## For further enquires, reach out to:



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Cheryl leads the internal audit and enterprise risk management practice in Deloitte Singapore. She has over 16 years of experience in providing statutory audit, internal audit and Risk Advisory services. She is the Project Partner delivering internal audit and Risk Advisory services for a number of listed, government linked as well as multi-national corporations. She also provides SOX consulting and attestation services to US and Japanese multi-national corporations.

Cheryl has a proven track record in serving clients from a range of diversified industries such as energy (including oil & gas), real estate (REIT and Asset Management), government, hospitality, gaming, food and beverage, manufacturing, port management, and energy.

In relation to supply chain management, her clients include petrochemical logistics services providers, a leader in the supply chain industry and a multi-geography integrated specialised logistics provider.



**Andy Wee**  
Director  
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Andy has over 12 years of professional work experience in the area of Auditing (internal controls and financial), Enterprise Risk Management (advisory and implementation), corporate governance, business process review, establishing policy, implementing control self assessment framework and information system implementation. Andy is exposed to various industries such as the energy, resources and industrial, internet content & information, real estate, food & beverage, consumer (for online retail), pharmaceutical, and the public sector.

### **Industry specialisation: Energy, resources and industrial**

In this industry, he has performed services on internal controls, business process review, regulatory related audits, risk assessment to identify auditable areas, assurance map, and control self-assessment. The generic processes where he had been involved in this sector are revenue, procurement & payment, contract management, supply chain management, cash management, human resource, incident reporting, environmental and sustainability, business continuity planning, due diligence and managing anti-corruption, enterprise risk management, and spend analysis. The Industry specific processes he has covered are project management on renewable energy, investment on renewable assets, compliance with electricity and gas market, retail business on sales, portfolio effectiveness for energy, fuel & inventory management, trading office involving physical and hedging, chemical management, operations & maintenance, and construction.

### **Other specialisation: Supply chain management**

In this area, he has audited companies in the industry of energy, manufacturing, food & beverage, consumer (for online retail). Besides identifying internal control weakness, he shares insights on potential cost savings practices. In his earlier employment, he was in the aviation/defence industry for 8 years where he was involved in managing optimal inventories to support requirements which involves 20,000 types of inventory, and considerable value per inventory item. This involves dealing with users, suppliers, and logistics support. He was also involved in the company wide upgrade of SAP which require setting the governance, strategy and operational aspects such as controls to prevent misuse of data, critical data to import, data cleansing.

### **Project management**

In terms of project management, Andy is accustomed to handling multi-projects and plays a pivotal role in execution the audits and managing clients' requirements. He has worked with the regulators on compliance matters such as providing independence review on inventory management, revenue and procurement. Andy was part of implementing ERM within an organisation, and provided ERM consultancy to organisations.

Andy was part of an agency's Risk Management team where he was involved in facilitating discussion with project risk owners on risk relating to ongoing/future projects.



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