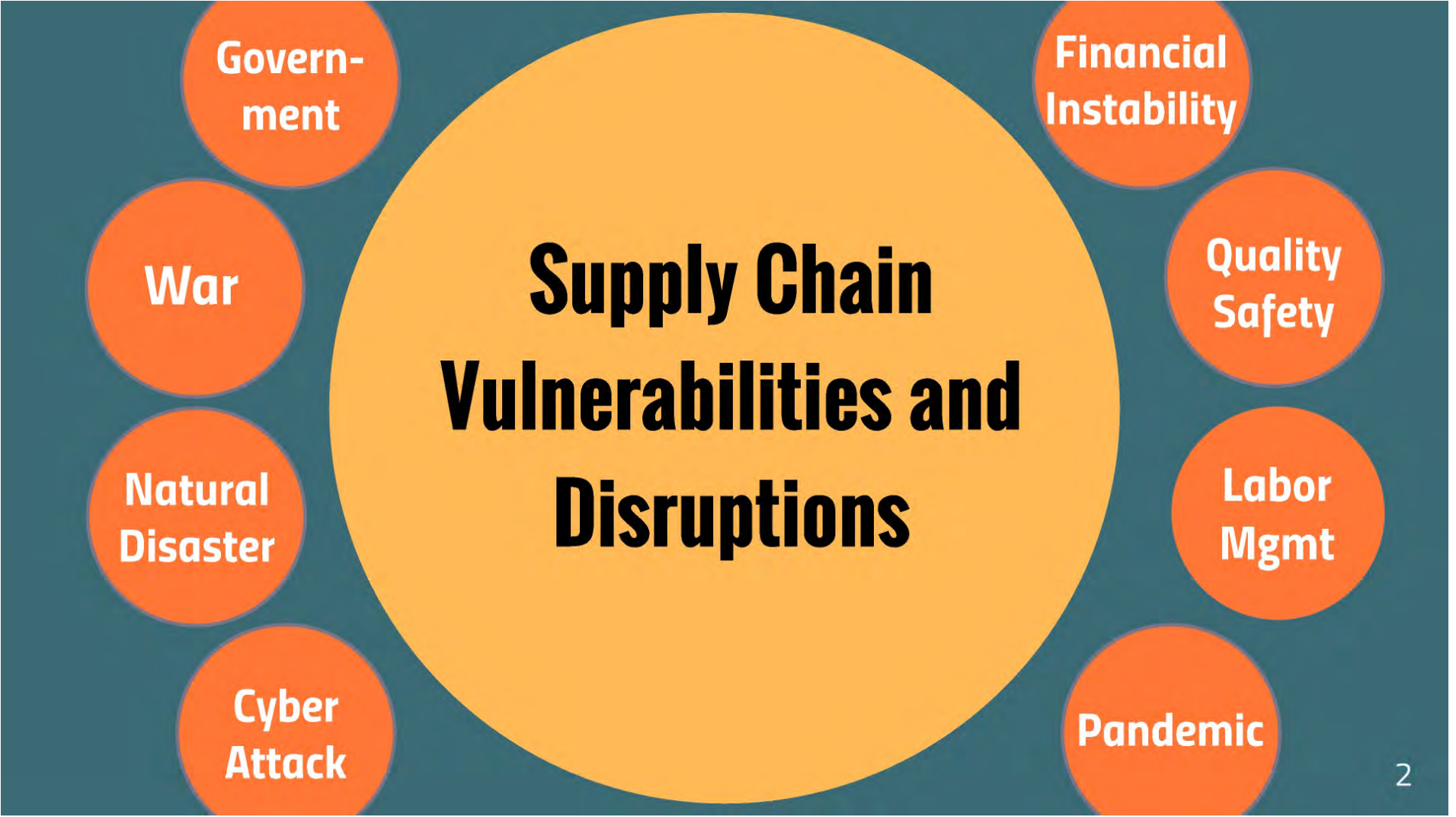


SUPPLY CHAIN





A central orange circle contains the text "Supply Chain Vulnerabilities and Disruptions". Surrounding this central circle are eight smaller orange circles, each containing a specific vulnerability or disruption. The circles are arranged in a ring around the center. The background is a dark teal color.

Supply Chain Vulnerabilities and Disruptions

**Govern-
ment**

**Financial
Instability**

War

**Quality
Safety**

**Natural
Disaster**

**Labor
Mgmt**

**Cyber
Attack**

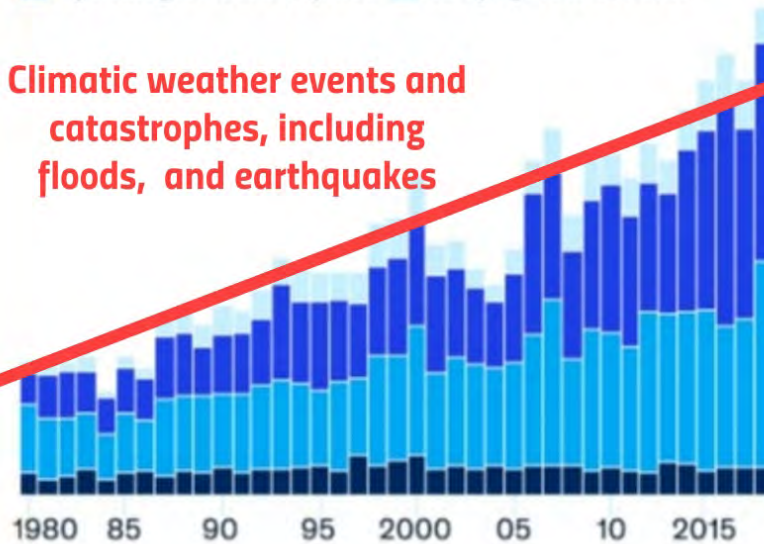
Pandemic

Noneconomic shocks are increasing in frequency and in impact on supply-chain cost and performance.

Number of disruptive events

■ Climatic catastrophes ■ Meteorological events
■ Hydrologic catastrophes ■ Geophysical events

Climatic weather events and catastrophes, including floods, and earthquakes



Source: McKinsey Agile Operations

McKinsey
& Company

Top 5 disruptions, 2017

	Estimated losses, USD billions	Average recovery time, weeks
Hurricane Irma, USA	61	33
Laredo border closing, USA & Mexico	n/a	24
Hurricane Maria, USA	69	23
Winter storms, USA	3	23
Hurricane Harvey, USA	95	17

2a



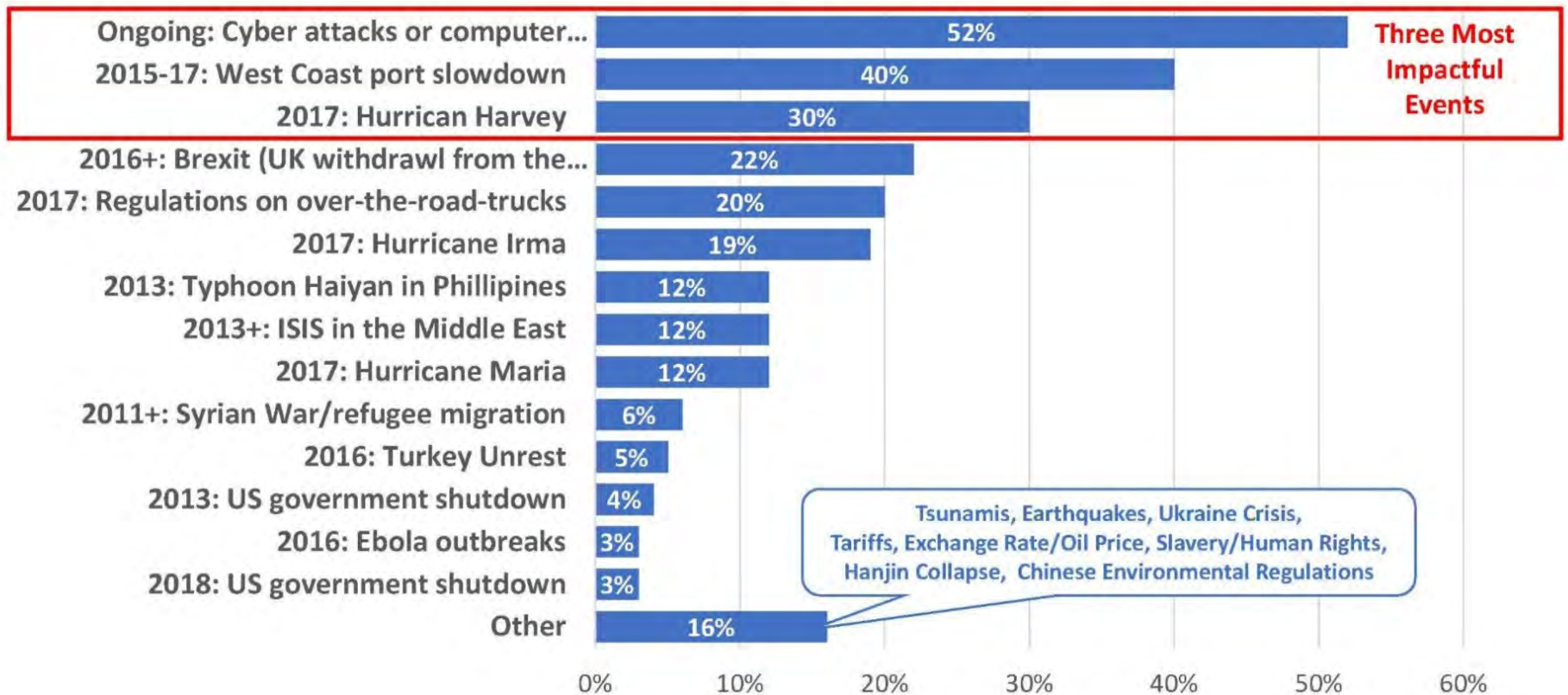
Following a magnitude 9.0 earthquake, a 15-meter tsunami disabled the power supply and cooling of three Fukushima Daiichi reactors, causing a catastrophic nuclear accident on 11 March 2011.

Supply chain impact:

- **22% of the world's supply of 300mm silicon wafer production - Affected makers of memory chips and consumer electronics**
- **Sole chemical plant for titanium dioxide - no white cars or other products**
- **60% of certain necessary auto parts.**

2b

Top Three Events to Impact Supply Chains from 2013-2018



Source: Supply Chain Insights LLC, Supply Chain Risk Management (Mar-May 2018) (c) 2018 p. 48

2c

How Do You Respond To Disruptions?

Reactive

Proactive

3

Reactive:

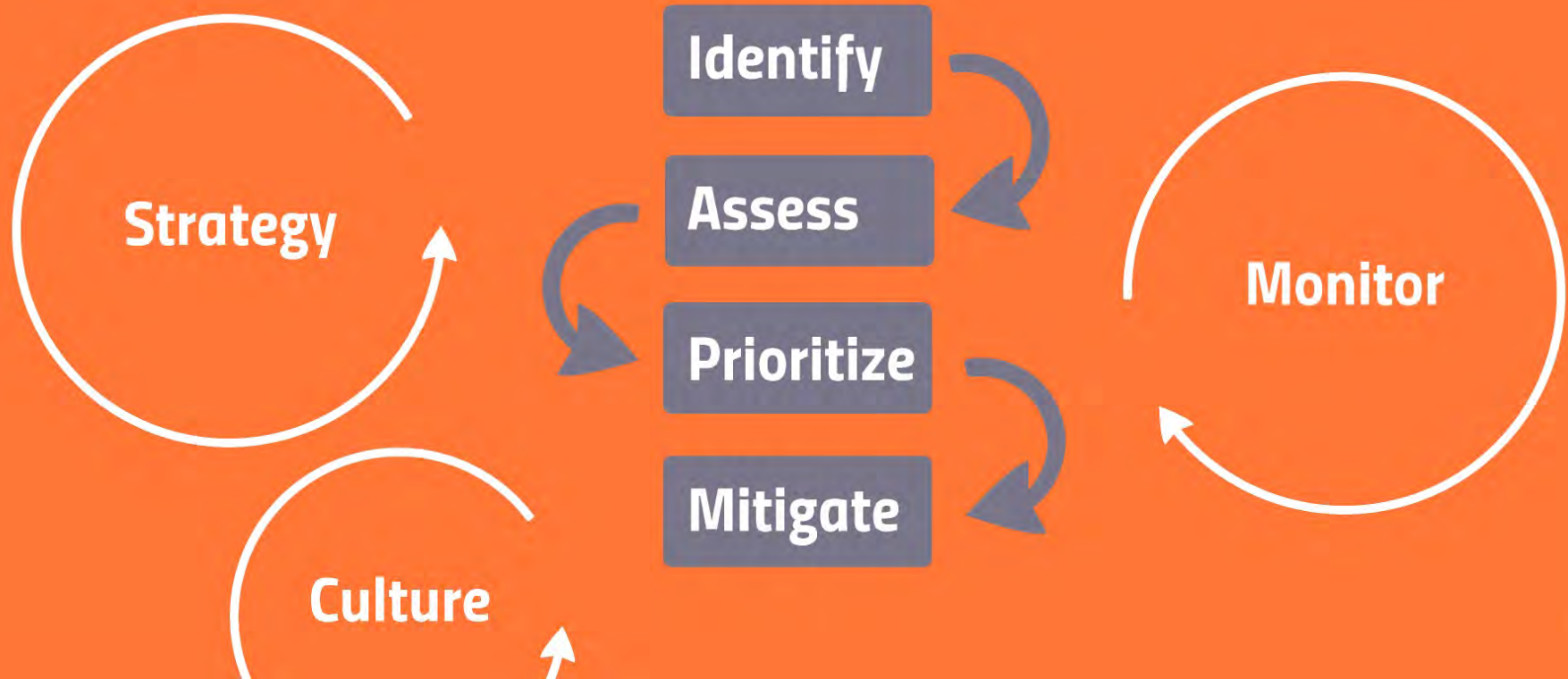
Scope and scale of risks is intimidating

"Nothing I can do"

"When it happens we'll deal with it"

Lack of robust processes

What Does a Proactive Approach Look Like:



5



The Nuts and Bolts

to Implement a Supply Chain Risk
Management Strategy

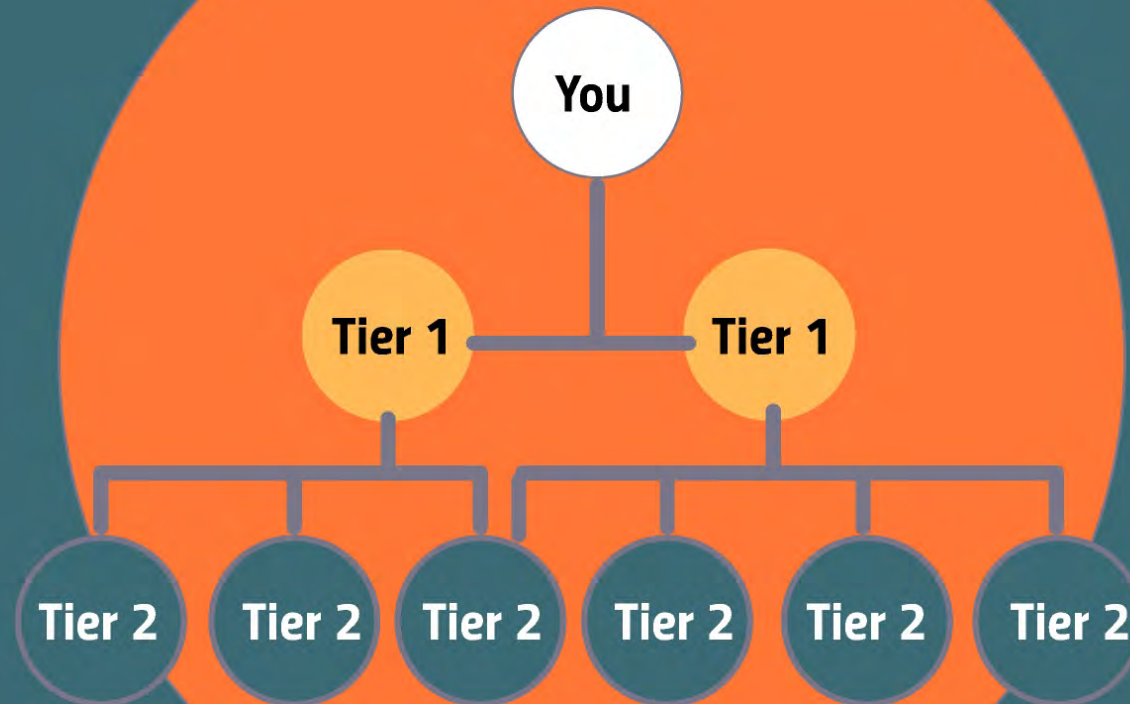
Identify

Assess

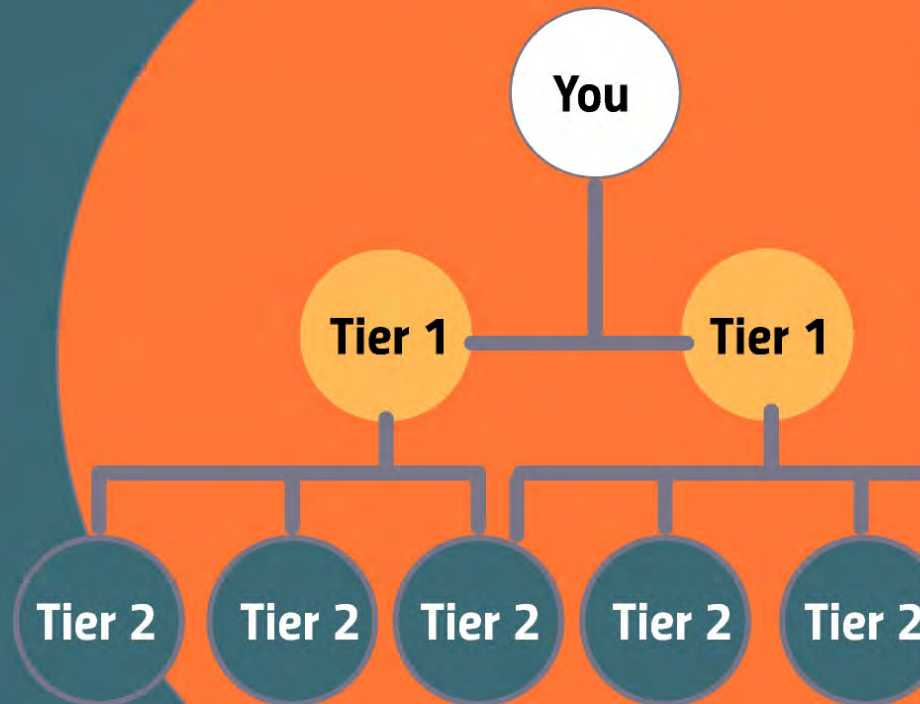
**Prioritize
Quantify**

6

Identify



Assess Risks

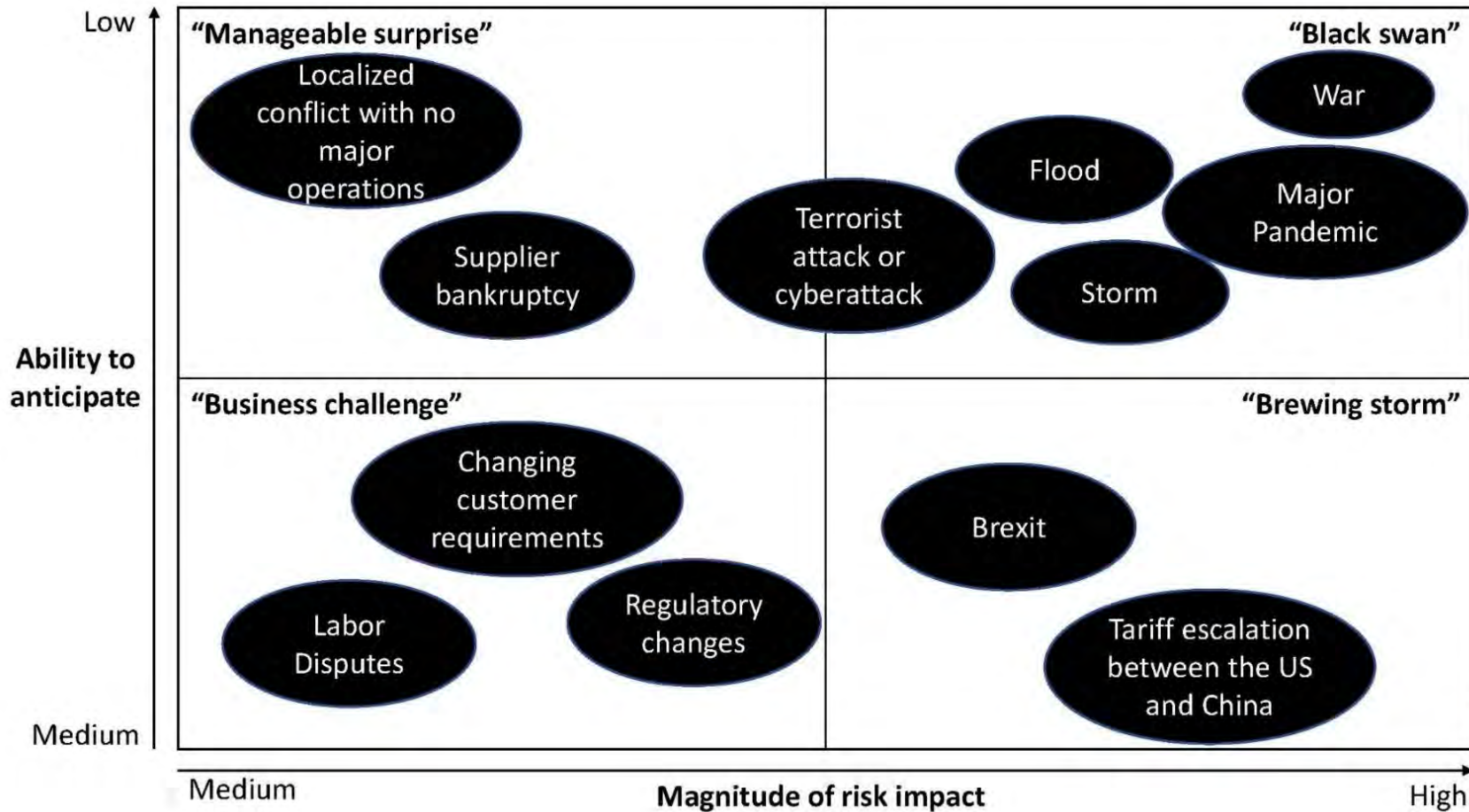


Sole source?
Intellectual Property?
China source?
British source (Brexit)?
War region impact?
Local conflict?
Labor contract due?
In hurricane region?
In hurricane season?
Payment terms?
Long term agreement?
Hold inventory?
Remote warehouses?
Management strength?
Technical competency?
Industries served?
Capacity?
What are your risk factors?

Simple SCRM Steps

- 1. Identify Tier 1 and 2 Suppliers**
- 2. Determine possible impact scenarios and assess their high level impact**
- 3. Develop response strategies for higher priority risks.**

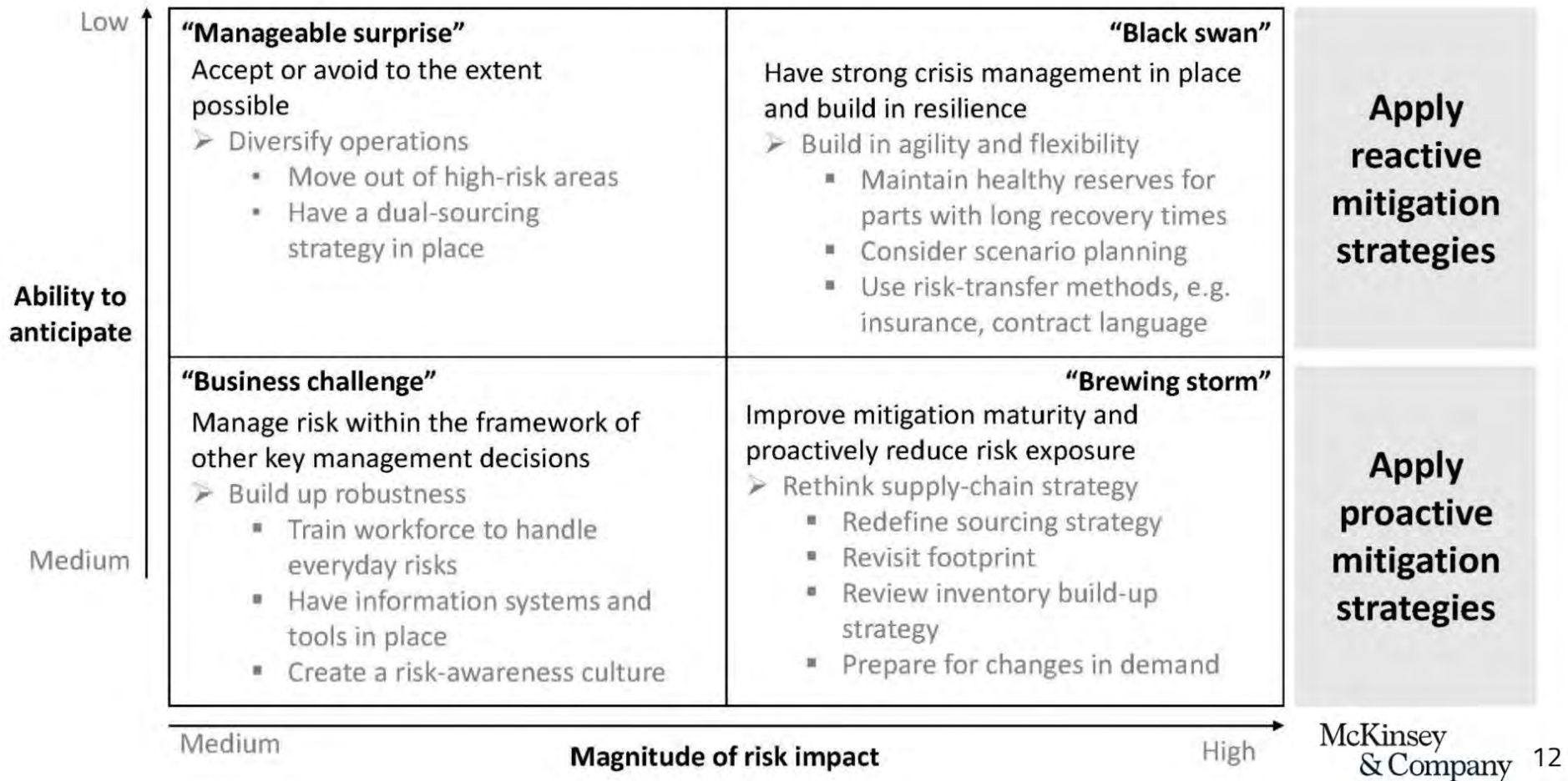
A simple classification of supply-chain risks helps in defining response strategies.



McKinsey
& Company

11

Each category of risk implies multiple responses.



SUPPLY CHAIN



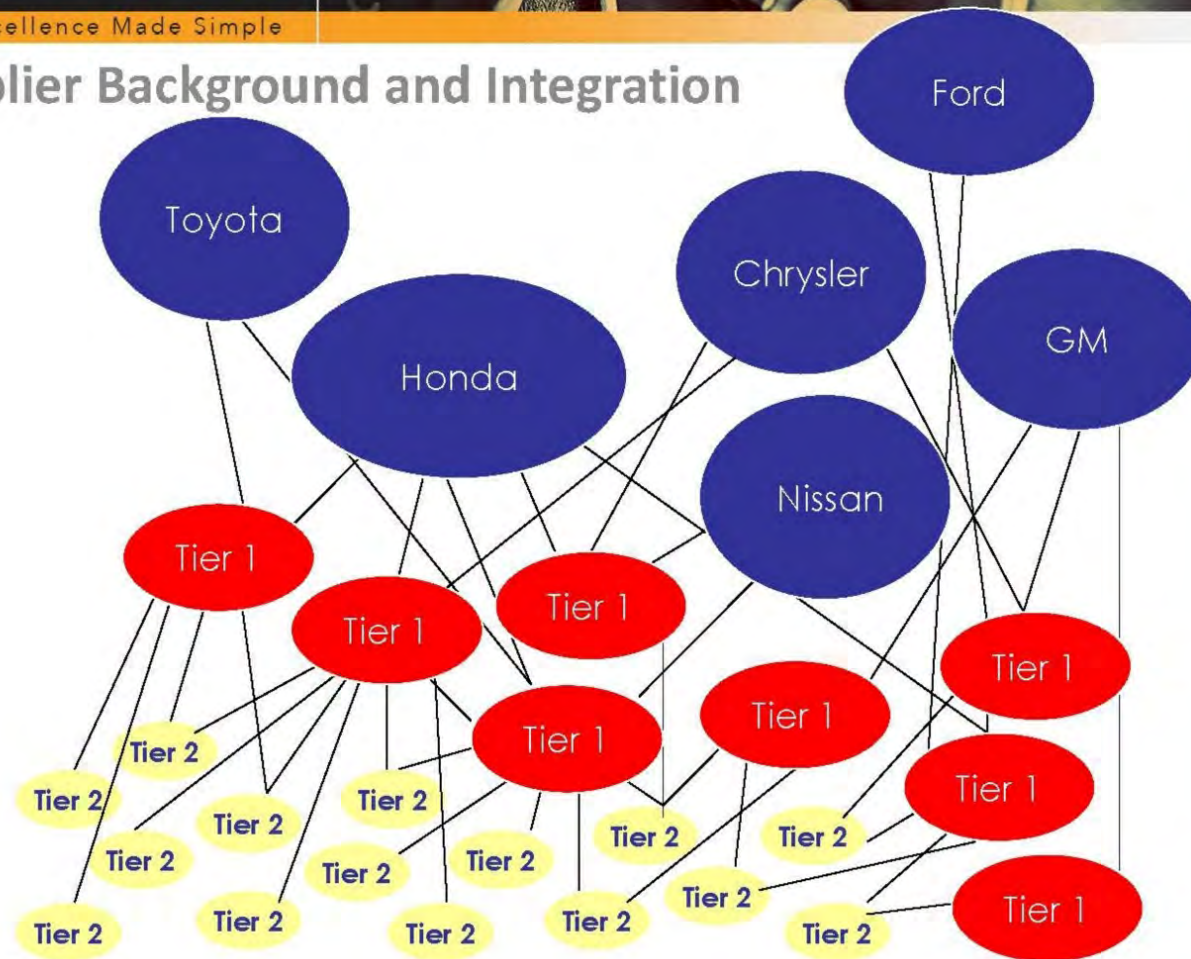


SCRM

Key Aspects of Honda's Supply Chain Risk Management

- Focus on Supplier Relationships
- Commodity and Supplier Strategies
- New Supplier Qualification Process
- Formal Process to Monitor and Manage Potential Risks in the Supply Chain
- Proactive Risk Assessment/Backup Plans

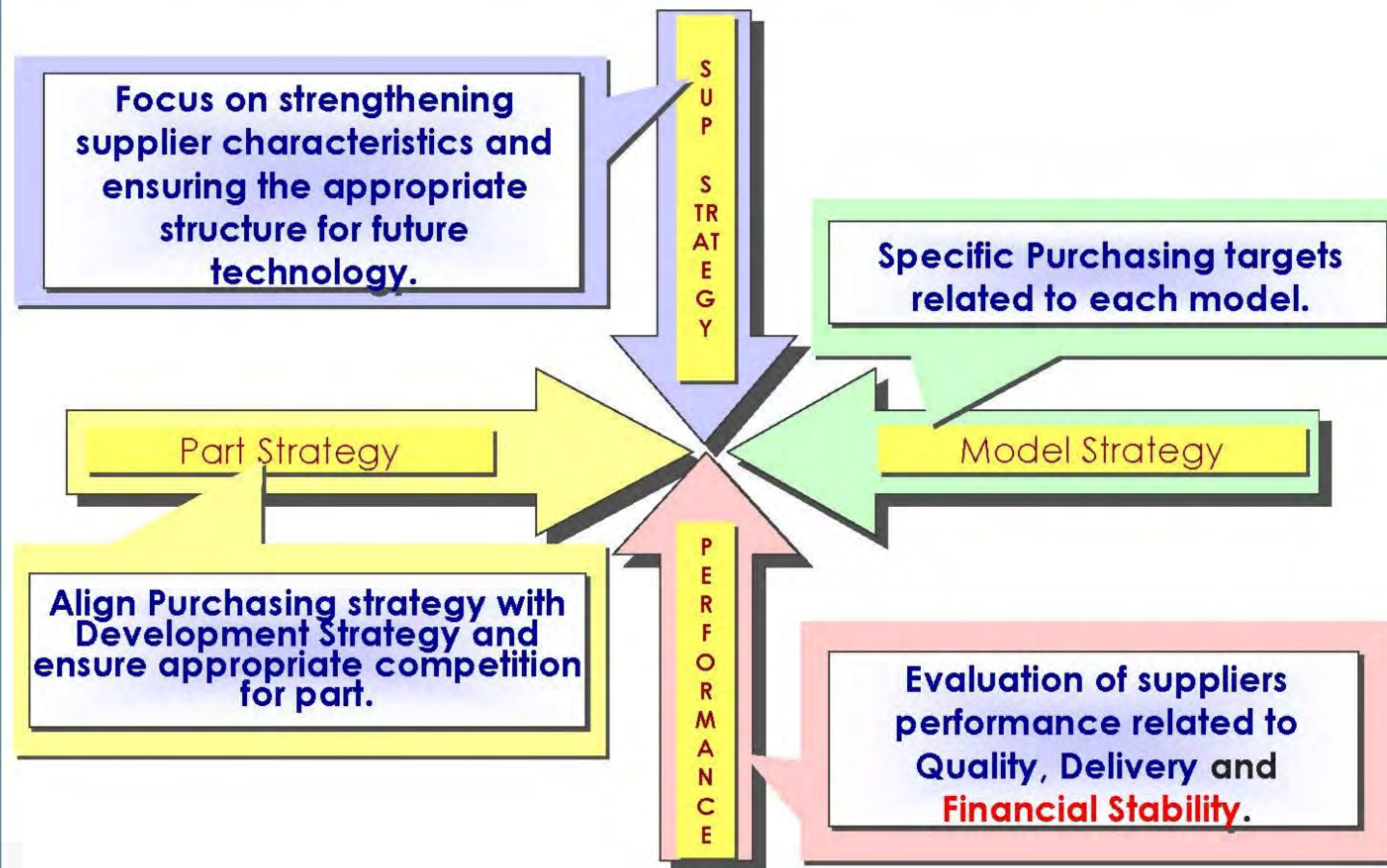
Supplier Background and Integration

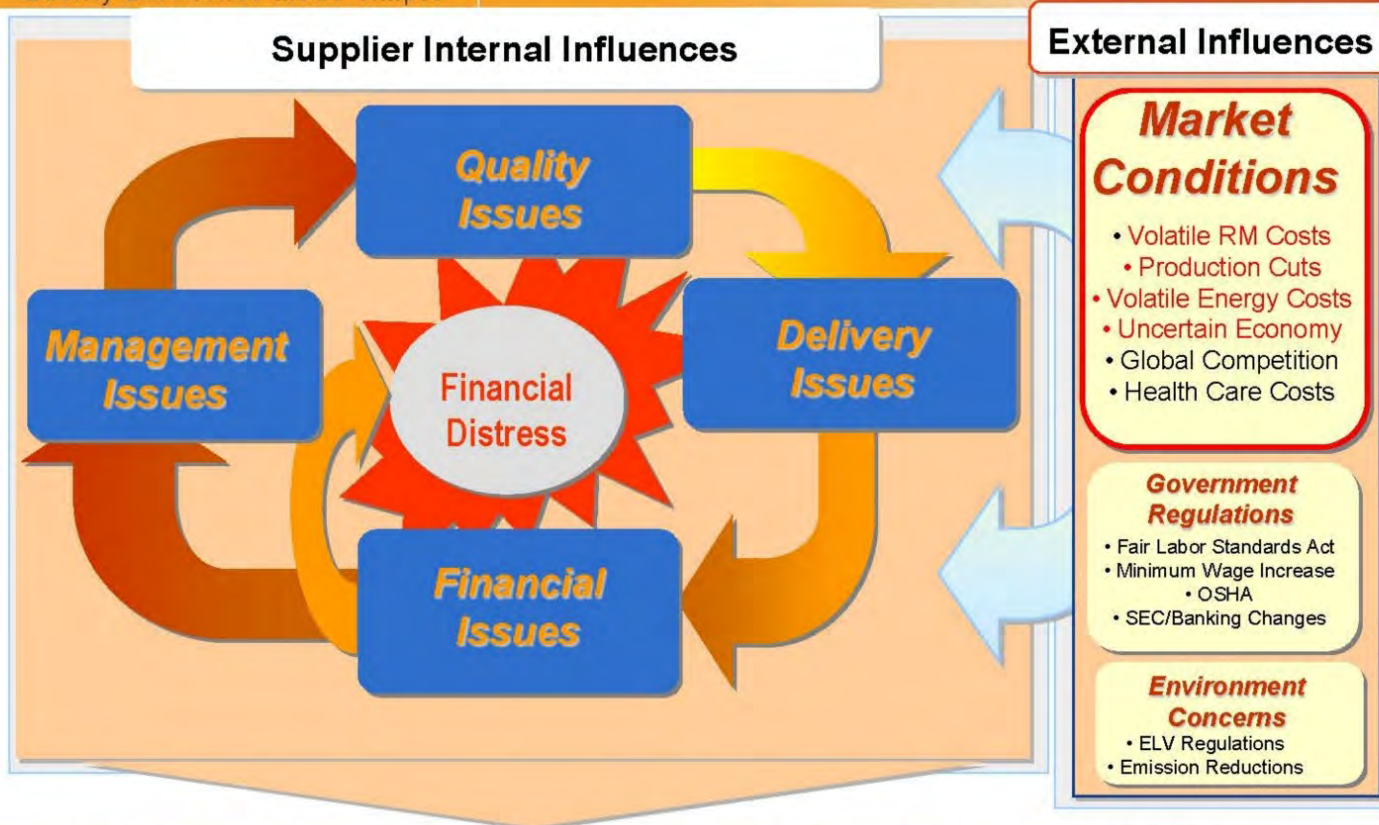


Example of more detailed supply chain mapping



16





Honda's patented Early Warning System is their process to identify potential distressed supplier situations

Early Warning Indicator Judgment Criteria

Category	No.	EWI	Measurement	Frequency	Judgment Criteria		
					Green	Yellow	Red
Financial	1	Aged Accounts Receivables (HTA)	Accts/Rec Past Due	Monthly	On-time	≥ 60 days	≥ 90 days
	2	D&B "Paydex" Payment History	Paydex Score (100-0)	Monthly	>56	51-55	< 50
	3	D&B "Supplier Evaluation Risk"	SER Score (9-1)	Monthly	≤ 6	7	8-9
	4	Financial Scorecard Assessment	Overall Rating	Quarterly	Financial Scorecard Rating		
Quality	5	Parts Per Million	3-month performance trend of rejects/million	Monthly	stable or positive	2 of 3 mos 1500 ≥ PPM	3M worse AND ≥ 500
	6	Index Per Million	3-month performance trend of index/million	Monthly	stable or positive	2 of 3 mos 1500 ≥ IPM	3M worse AND ≥ 500
Delivery	7	Parts Per Million	3-month perform. trend misdeliveries/million	Monthly	stable or positive	2 of 3 mos 6000 ≥ PPM	3M worse AND ≥ 1500
	8	Downtime	# of supplier-caused incidents /3 months	Monthly	No Incidents	≥ 1 incidents prior 3 mos	Downtime last month
Development	9	New Model Maturation	Target vs Actual (NM Evaluation)	As Available	Met most Targets	Missed some Targets	Failed most Targets
Management	10	Labor Issues	Level of Issue	Monthly	No Activity	Low Concern	High Concern
Sensing	11	Observations & Requests	Based upon weekly Sr Mgr Mtg input	Monthly	Per Review Meeting Discussion		

Sensing Sources



News Media

- News outlets (daily)
- Automotive Industry (monthly)
- Ward's Auto World (monthly)



Financial Services

- Dun & Bradstreet
- Workout firms
- Bloomberg



Industry Organizations

- MEMA/JAMA
- AIAG
- OESA, Conferences

Purchasing Sensing Opportunities



- Supplier Visits
- Supplier Meetings

What to Sense For Warning Signs:

- Request for cost increases
- Request for advanced payments on tooling
- Request for payment term adjustments
- Delay in providing financial information
- Customer / Model concentration
- Significant volume change or re-sourcing by other customers
- Idle Machines or Equipment
- Change in management or control
- Specific Supplier industry problems
- Banking relationship change
- Complaints from Tier 2 Suppliers

Be Aware of Warning Signs at Suppliers
Sensing Information Collected Together and Evaluated is Much More Effective

Indicators

Financial

Quality

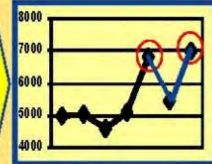
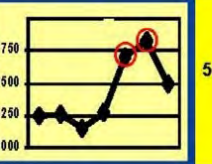
Delivery

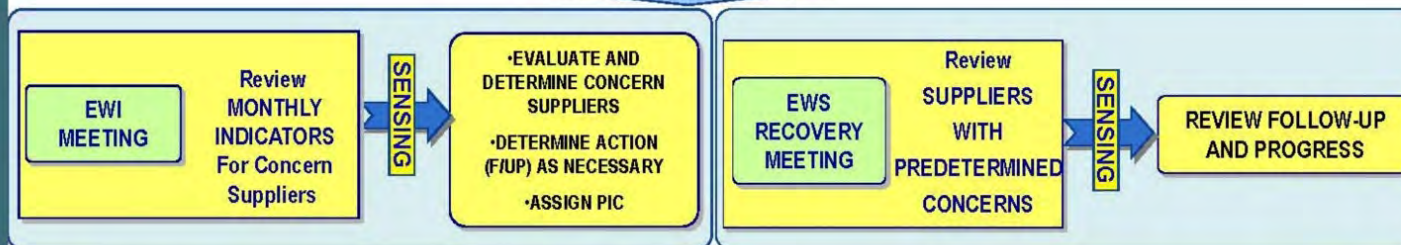
Development

Management

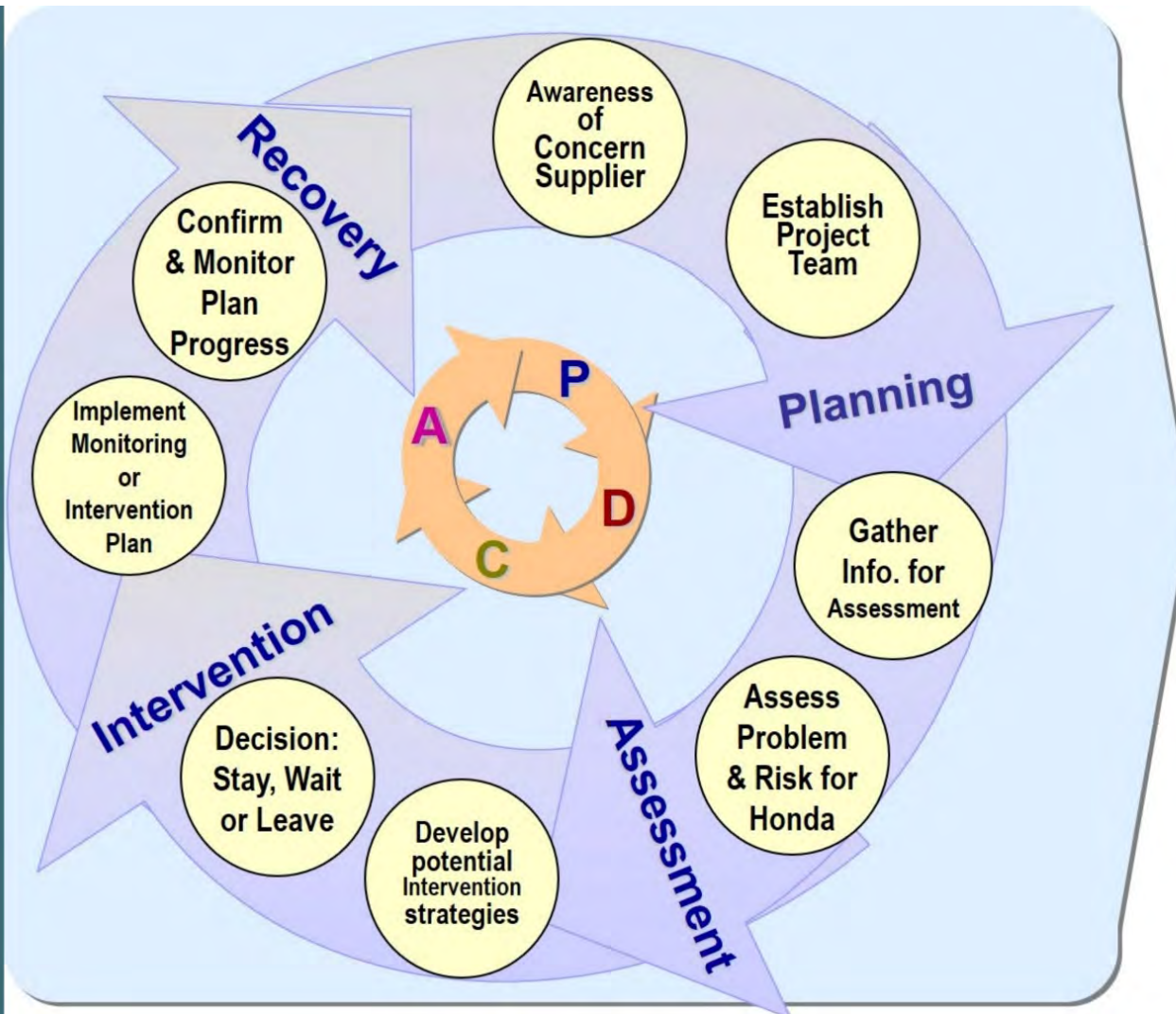
Sensing

Judgement Criteria

Warning Indicator Signal	Supplier Performance Condition			
	Delivery	Quality	Paydex	SER
Yellow Signal 			50-41	7-8
Red Signal 			≤ 40	9



Suppliers are evaluated with Top Management each month as part of EWS System



Honda's process oriented focus and continuous improvement philosophy allows for systematic treatment of difficult supplier situations.

Honda Lessons Learned

- Clarify roles and responsibilities to develop, implement, and operate an early warning system strategy
- Purchasing personnel do not recognize early indicators of supplier instability
- Lack of financial analysis awareness
- Once a problem is identified there was a lack of guidelines & systems to manage the recovery process. Establish system/procedure to address early warning indicators (step-by-step approach) & deploy throughout purchasing.
- Raise awareness of early warning indicators (establish "sensing function")
- Get all functions involved and communicating their input monthly for analysis and discussion
- Train employees
- React strongly to early warning indicators
- If a supplier indicates a potential problem, the problem is probably much more serious than the supplier recognizes
- Develop additional indicators for identification of concern suppliers

23

Honda Lessons Learned - Tier 2 Suppliers

Too many Tier 2 suppliers to monitor - Narrow the scope

- **Suppliers with identified concerns (financial, quality, delivery)**
- **Suppliers which would be difficult to change sourcing quickly**
- **Suppliers in a concern commodity based on industry business conditions**

SUPPLY CHAIN



Strategies



& Structured Approaches

Purchasing Strategy

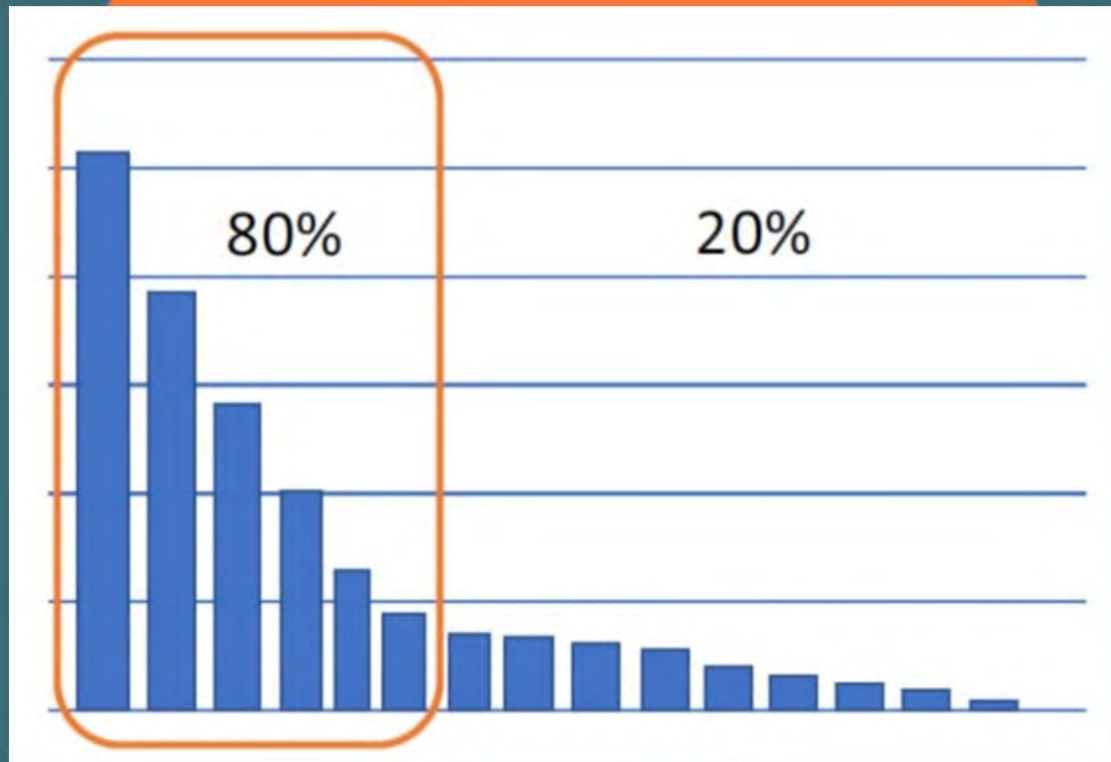
Culture

Monitoring

Insurance

25

Purchasing Strategy



26

Purchasing Strategy

Sole source strategies

- **Leverage - Long Term Agreements**
- **Share risks**
- **Inventory storage, additional locations**
- **Have them find backup sources**
- **Require comprehensive risk management programs**

Source-and-a-half

- **Qualify another source for >25%**
- **In another country or region**

Build a Risk Awareness Culture

Employees feel empowered to pass on bad news and lessons from mistakes

- openness environment to voice and deal with issues

Empower employees to react rapidly to external change and early signals

- Reaction plans in place
- Clear instructions what to do



Build a Risk Awareness Culture

Transparency from leadership on the company's risk tolerance

- Incremental cost impacts associated with risk mitigation
- What can be borne by the company, what requires mitigation
- Culture should allow for internal and external warning signs to be openly shared.

Alignment of company's risk appetite with employee's

Ongoing management involvement



Build a Risk Awareness Culture

**Internal Risk Awareness Training -
More than purchasing**

**Consistently Monitor Risk -
Sensing from multiple sources**

30

Monitoring Services - SCRM



avoid
shiny
objects

31

Monitoring Requires Visits

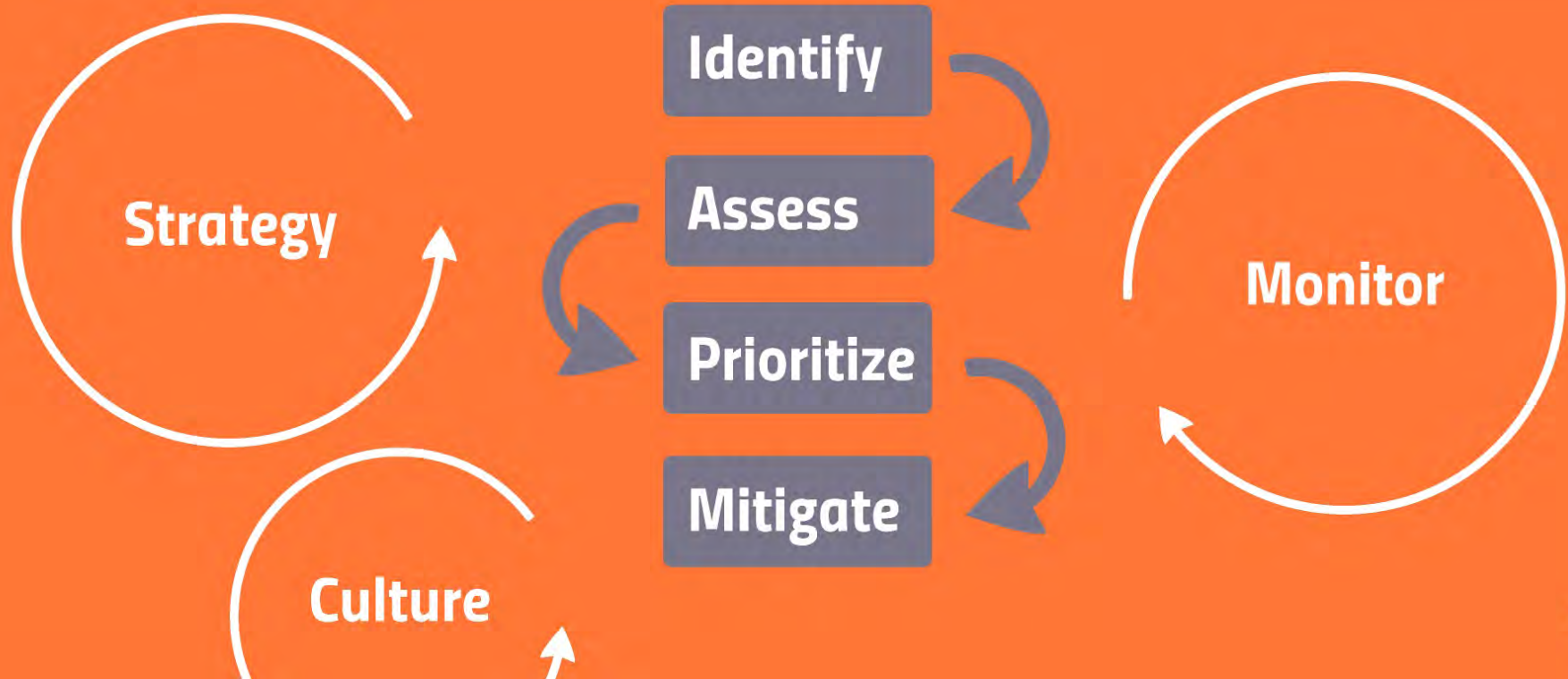




Start with your existing carrier

**Not just loss of profits from
critical supplier disruption,
cyber insurance too**

Proactive Approach to SCRM



33

Jim Lee

simple**QuE**



JLee@simplequeue.com



www.simplequeue.com



866-827-0402 ext 201



References

- Burke, A. - *Honda Supply Chain Risk Management* (PowerPoint from BGSU benchmarking meeting)
- Harrington, K. - *Cisco Systems Supply Chain Risk Management* (PowerPoint from BGSU benchmarking meeting)
- Bailey, T. and Barriball, E. (2019, March). *A practical approach to supply-chain risk management*. McKinsey & Company
- Alicke, K. and Strigel, A. (2020, January). *Supply chain risk management is back*. McKinsey & Company
- Marotta, D. (2020). *10 Supply Chain Risk Management Strategies*. Hitachi Solutions
- Kivett, L. and Pearson, M. (2017). *Understanding Risk Management In The Supply Chain*. Deloitte.
- Kunkel, M. (2017, January). *Best Practices In Supply Chain Risk Management*. LogicGate.
- Linton, T. and Vakil, B. (2020, March). *Coronavirus Is Proving We Need More Resilient Supply Chains*. Harvard Business Review.
- Dittman, J., Slone, R., Mentzer, J. (2010, February). *Supply Chain Risk: It's Time to Measure It*. Harvard Business Review.
- Rajagopal, A. (2019, February). *Cyber Attacks Top List Of Risks Impacting Supply Chain*. Cyber Security Hub.