

Supply Chain Part I: New Supplier Selection & Validation -Best Practices-

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Agenda



- Supplier Identification
- Supplier Communication
- Supplier Selection
- Supplier Evaluation
- Supplier Contracting Considerations
- Supply Chain Risk Management

Supplier Identification



Resources

Investigate the best resources to identify the most appropriate supply chain partner:

- On-line search (e.g. Thomas Net; Mfg.com)
- Tradeshows & expositions
- Consult economic development agencies
- Consult local Chambers of Commerce
- Consult with regional business incubators
- Engage Manufacturing Extension Partners (MEP's)
- FuzeHub – NY State MEP Network <https://fuzehub.com/>

Supplier Communication

Supplier Communication



Best practices

- Develop a supply chain strategy that aligns with your company's growth plan.
- Take the time to introduce your company, being honest about your stage of development and funding, and then explore their interest.
- Develop a list of questions for the supplier in advance to quickly evaluate if they have the capabilities to support you.
- Be prepared to engage with suppliers; come prepared with parts details (i.e. drawings and CAD files), product specification sheets, supplier request for quotation (RFQ), timeline, target pricing, and terms.
- Let the supplier know you want true strategic partners, someone you can rely on and grow with.

Supplier Selection

Supplier Selection



Best practices

- Think strategically when selecting a supplier.
- Work out a value proposition to present to the supplier (e.g. opportunities for future growth and understanding fit in business plan).
- Decide on answers to likely supplier questions before making contact.
- Develop a scoring matrix when evaluating suppliers.

If you fail to plan...you are planning to fail

Supplier Selection



Best practices (cont.)

- Develop your most important criteria to use for evaluating suppliers.
- Evaluate suppliers on many quality fronts, including: expertise, quality certifications (ISO, QS), internal processes including standard operating procedures (SOP), part inspection, revision control, part numbers and traceability, on-time delivery, and re-work.
- Evaluate suppliers based on familiarity with industry regulations, certifications, and standards.
- Audit the supplier's facility.
- Understand their capacity constraints – ask for volume quoting to anticipate your scaling needs and their limitations.

Supplier Selection



Best practices (cont.)

- Evaluate supplier's quote. How detailed is it? How progressive is it? Do they ask the right questions? Do they seem to understand the specifics of your product?
- Ensure that your volume is in alignment with the supplier's capacities and business model.
- Ensure that you secure multiple sources for each material and component to avoid shortage of supply. If possible, let the supplier find and manage second and third sources.
- Work out a value proposition to the supplier by creating opportunities to reward them for ensuring your commercial success.

Supplier Evaluation

Supplier Evaluation

Develop a scoring matrix for evaluation

Supply chain attribute	Definition	Level-1 metric
Quality & Reliability	Supply chain performance: delivery with correct product, quality, timing, location, condition, packaging, quantity, and documentation to the correct customer.	<ul style="list-style-type: none">• Quality Management System• Delivery performance• Fulfilment quality• Yield scrap rates
Responsiveness	The time it takes a supply chain to provide products to the customer	<ul style="list-style-type: none">• Order fulfilment lead times• Reply time to NDA, RFQ's

Supplier Evaluation

Develop a scoring matrix for evaluation (cont.)

Supply chain attribute	Definition	Level-1 metric
Flexibility	Supply chain agility in responding to marketplace changes to gain or maintain a competitive advantage	<ul style="list-style-type: none">• Product design changes• Volume scaling flexibility• Tooling adjustments / rework
Costs	The costs associated with operating a supply chain	<ul style="list-style-type: none">• How do they factor COGS• Warranty/rework processing• Amortize tooling costs

Supplier Evaluation


Develop a scoring matrix for evaluation (cont.)

Supply chain attribute	Definition	Level-1 metric
Asset management efficiency	The effectiveness of an organization to manage assets that support demand satisfaction. This includes management of all assets (ex., fixed and working capital)	<ul style="list-style-type: none">• Inventory days of supply• Tooling / asset management• Future asset planning

Supplier Evaluation



Develop a supplier evaluation scoring matrix

	SUPPLIER AUDIT WORKSHEET				
	Rating System: 5 = Best in Class 4 = Very Good 3 = Good 2 = Average 1 = Poor 0 = Very Poor				
Reviewer:	Review Criteria	Measure	Rating	Comments	
	Performance	Technical Capability			
		Appropriate Assets			
Review Date:		Technical Assistance			
	Quality	Quality System			
Supplier:		Quality Tracking			
		Quality Concern			
Supplier Location:		Failure Scrap Rates			
	Delivery Lead Time	Responsiveness			
Supplier Contact:		Delivery Time Guarantee			
		Lead Time Contingency Plan			
	Price	Price Quality			
Supplier Contact:		Price Flexibility			
		Quote Rewards/Penalties			

Source: SampleForms - 10+ Sample Supplier Evaluation Form
<https://www.sampleforms.com/supplier-evaluation-form.html>



Supplier Evaluation

Develop a scoring matrix for evaluation (cont.)

Attribute	Value	Supplier "A"	Supplier "B"	Supplier "C"
Management System				
Registered to ISO 9001	10	10	10	0
Registered to ISO 14001	5	5	0	0
Documented Internal Audits	5	3	3	2
Established Objectives and Improvements Programs	30	15	20	25
Cost Reduction Program	30	15	15	20
Preservation of Product	20	15	15	15
Stock Rotation for Shelf Life	15	15	11	0
Customer Notification of Changes to Product and Processes	30	25	15	5
Total	145	103	89	67

Attribute	Value	Supplier "A"	Supplier "B"	Supplier "C"
Design				
Use of Design Objectives	30	20	18	17
Use of Finite Element Analysis	20	16	12	16
3D Modeling and Rapid Prototypes	20	0	10	5
Failure Mode and Effects Analysis	10	7	10	5
Design Validation Test Plans	30	30	30	30
Design Validation/Qualification Test Reports	30	30	30	30
Test Lab (or supplier lab)	15	15	15	15
Product Specification vs. Test Reports	30	30	30	30
Design Reviews	30	25	15	10
Total	215	173	170	158

Attribute	Value	Supplier "A"	Supplier "B"	Supplier "C"
Manufacturing				
Tool Design Capabilities	20	15	5	0
Tool Construction Capabilities	15	10	0	5
Production Part Approval Process	20	15	15	10
Supplier Management	30	20	25	15
Evaluation of Raw Material	20	0	5	15
Evaluation of Supplier Components	25	25	25	25
Production Equipment Condition	30	5	25	25
Inspection and Test Data	25	25	20	15
Control of Nonconforming Product	20	15	20	10
Use of Lean Manufacturing & 5S	20	15	10	5
Total	225	145	150	125
Grand Total	585	421	409	350

Supplier Contracting

Supplier Contracting

Best practices

- Develop a supplier negotiating strategy before quotes come in!
- Calculate the effects of alternative procurement terms (e.g. cost, volume, delivery time, quality yields)
- Establish payment terms that support your working capital and cash flow strategy
- Include lead time guarantees
- Develop clear ownership of quality issues (e.g. product yield, rework, warranty), specifically manufacturing failure versus design failure responsibility
- Establish who pays for poor quality, re-work or missed deadlines
- Establish quality and performance requirements, quality management process, quality controls, quality tracing
- Standardized work procedures and special handling requirements
- Specify workforce skill set, training and safety requirements
- Incentives or penalties for not meeting obligations

Supplier Contracting



Best practices (cont.)

- Ensure IP ownership terms on tooling and manufacturing process innovation is covered (you, them, or shared)
- Develop supplier contracting documentation ahead of time (e.g. service agreement, purchase orders, payment terms and conditions)
- Explore areas of mutual gain:
 - Can sub-contractors provide services in the form of equity, debt, or supplier exclusivity?
 - Are there incentives I can offer for performance, quality, or delivery time?
 - Consider revenue sharing and buyback contracts based on performance

Value to the Supplier

What matters to suppliers?

Supplier's Success Criteria	Total Cost Impact to Supply Manager (1 - 5 scale, 5 = high)	Perceived Value With Supplier (1 - 5 scale, 5 = high)	Net Concession Value (In rank order of impact)
Using supply manager's company name as a reference in advertising	1	5	4
Payment terms of Net 10	1	4.5	3.5
Initial payment received by end of quarter, ahead of product delivery	1.5	5	3.5
Weekly forecast updates provided to supplier to optimize inventory requirements	1.5	4	2.5
Limitation of liability capped to contract value for direct damages	4	5	1
Ownership of new IP developments	5	4	-1

Supply Chain Risk Management

Supply Chain Risk



Common mistakes and misconceptions

- Overlooking global supply chain dynamics
- Not paying attention to policy, regulations that can impact supply chain
- Customization in product design limiting the number of suppliers available
- Relying on one supplier; failing to line up multiple sources for components

Supply Chain Risk

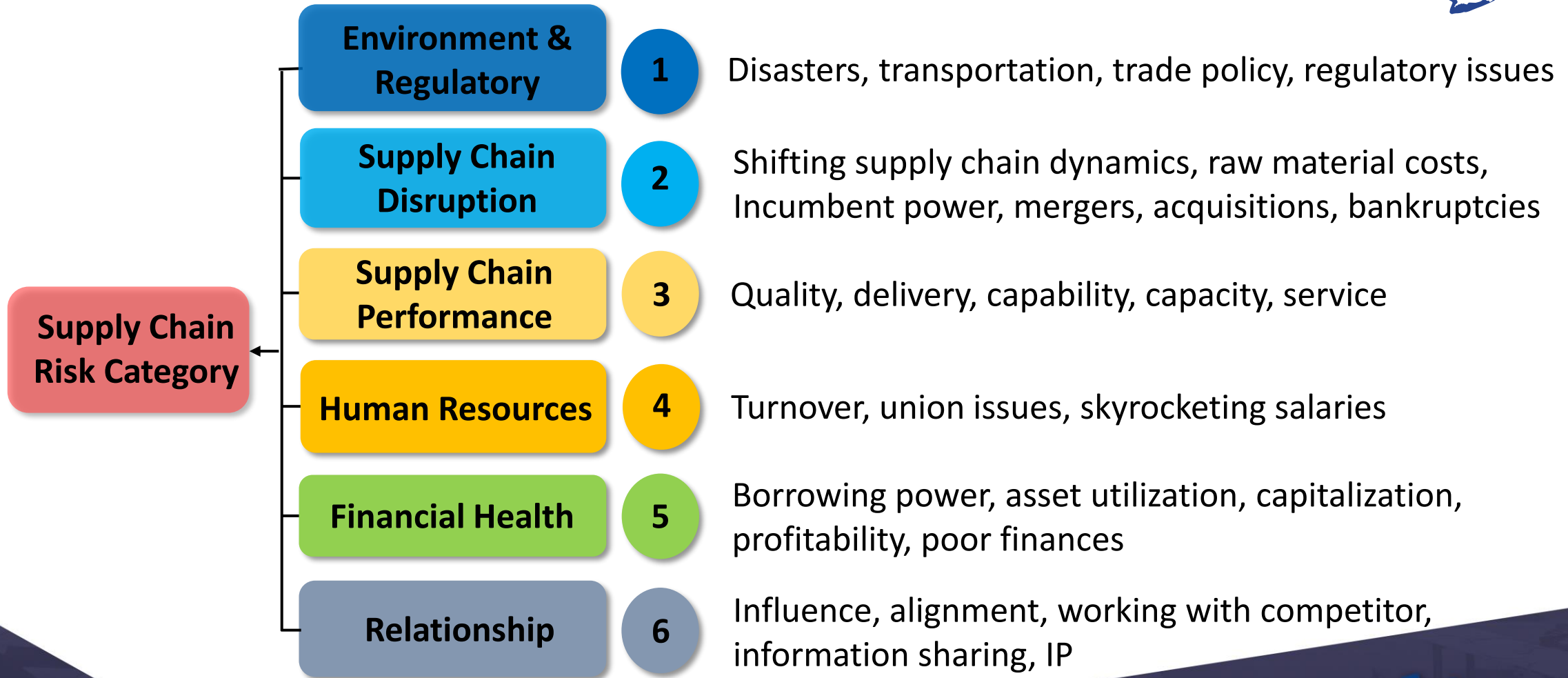


Common mistakes and misconceptions (cont.)


- Allowing suppliers to own and control tooling and component drawings
- Poor supplier documentation and parts tracing
- Always selecting the low-cost supplier without carefully evaluating quality
- Trying to bleed your suppliers of margin

If they fail, you fail!

Supply Chain Risk Categories



Supply Chain Risk Assessment

 MANUFACTURING REIMAGINED <small>PLAN PIVOT PREPARE</small>	SUPPLY CHAIN RISK ASSESSMENT WORKSHEET							
	RISK TYPE			INHERENT RISK EVALUATION			CONTROL/MITIGATION PLAN	
Risk Description	Risk Type (Quality, Cost, Lead Time, etc.)	Is Risk Internal or External?	Risk Information Variables	Risk Impact Severity (Low, Medium High)	Likelihood (Low, Medium High)	Existing Ability to Mitigate (Low, Medium High)	Control Description/Action	Contingency Plan
Part 1: Battery Module	Lead Time	External	Sources from China	High	High	Low	Expand Inventory	Find Domestic Source
Part 2:								
Part 3:								
Part 4:								
Part 5: Packaging								
Quality Tracing								
Lead Time of Components & Materials								
Raw Matierials								
Equipment (tooling)								
Facility								
Working Capital								
Safety								
Regulation								
Fulfillment								
Distribution								
Shipping & Transportation								

Supplier Selection



Remember...

*You are selecting the best strategic partners,
not just the right suppliers!*



Thank You



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