CASE STUDY

Contract manufacturing

Our initial operational diagnostic highlighted opportunities to optimize our client's footprint

Project drivers:

Most products have long lifecycles with commoditized manufacturing process

- Footprint should reflect lowest global labour and overheard rates

Product components are commodities

- Component spend is the largest cost element of production
- Vendor consolidation will drive downward price pressure through volume

Major questions:

How much, and what, should we outsource?

Who should our outsource partners be? Are we realizing the benefits of the vendors we have and the regions in which they manufacture?

We followed a comprehensive process to evaluate the firm's footprint options

Initiate external quotes and analyses

- **Identify alternate vendors**
- **Quote out sample product line packages**
- Identify component spend consolidation opportunities and conduct RFP

Conduct internal analysis

- Evaluate internal costs to develop RFI / RFP cost expectations
- **Analyze overhead cost take-out opportunities as production is outsourced**
- Calculate one time costs of workforce reductions
- Investigate potential for government incentives to remain in the United States
- Model potential distribution configurations and freight spend
- Evaluate real estate and other asset sale potential

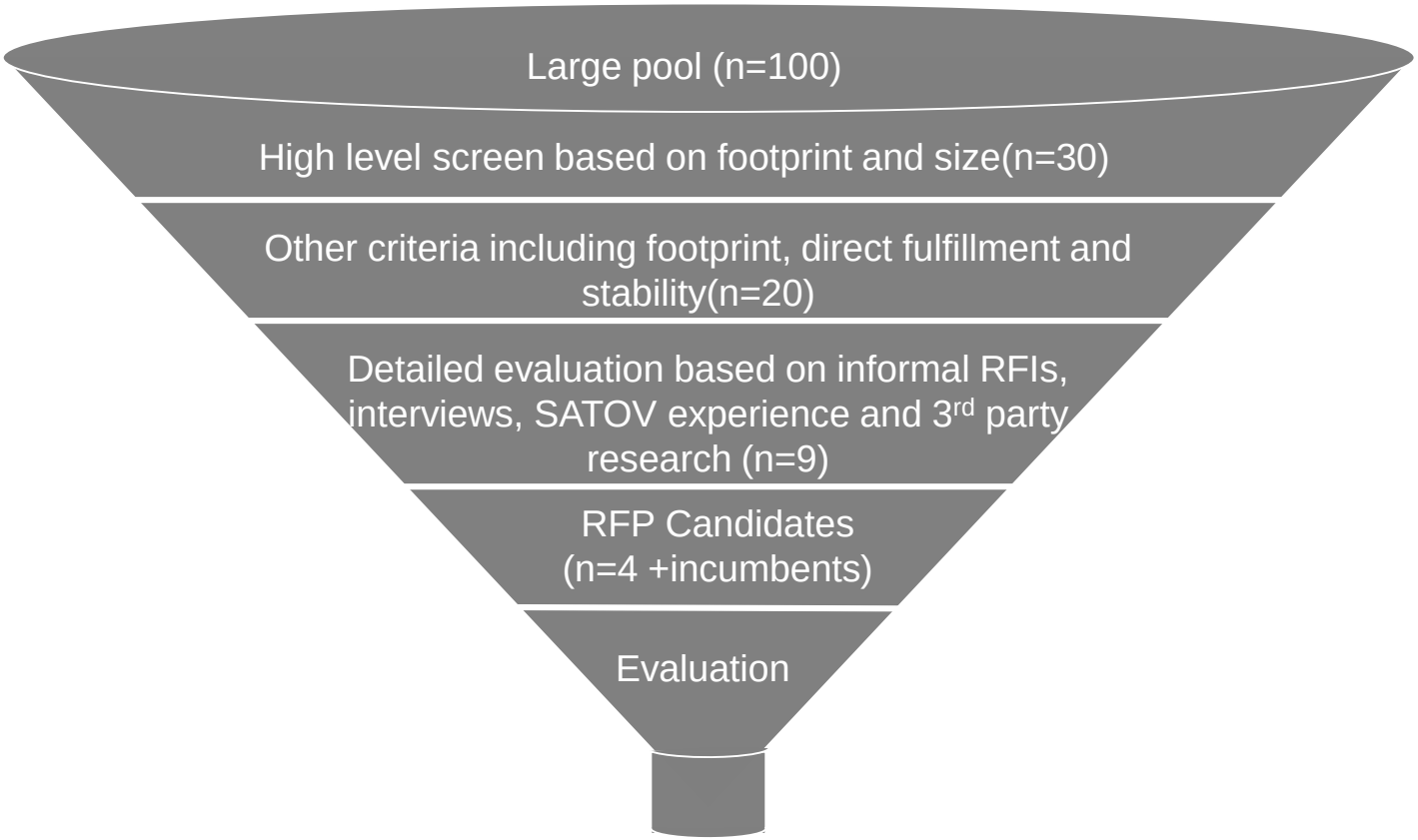
Synthesize

- **Evaluate all RFP responses**
- Evaluate new product introduction (NPI) capabilities for each potential vendor
- **Create consolidated scenario models based on all internal and RFI / RFP data**
- Integrate with Lean as necessary

Formulate strategy

- **Articulate future state of current facilities including scope of production, consolidation options, etc.**
- **Articulate target production destination by SKU**
- **Articulate distribution network / strategy**
- Develop high level implementation plan and timeline
- Developed detailed business case for implementation

We used several steps to identify and narrow the field of potential contract manufacturers



We evaluated potential contract manufacturers based on several criteria

EMS Supplier	Revenue	Footprint	Distribution	Stability	Focus	Technical Capabilities	NPI	Overall Score	Comments
CM 1	4	4	Yes	4	5	5	4	4.33	Heavily focused on xyz industry
CM 2	3	4.5	Yes	5	4	4	4	4.08	Focused on xyz industry
CM 3	2	5	Yes	4	4	5	4	4	Large, but broken down based on segments, regions
CM 4	3	4.5	Yes	4	3.5	4.5	4	3.91	Focus on abc and xyc industries
CM 5	3.5	4	Yes	3	4	3.5	5	3.83	Good footprint. Some question of complexity capabilities
CM 6	4	3	Yes	4	3	4	4	3.83	Ideal size and capabilities. Limited footprint beyond US & Mexico
CM 7	1	5	Yes	4	4	5	4	3.83	Tier 1 but has strategy of pursuing smaller customers
CM 8	3	3	Yes	4	3	3.5	4	3.4	Mexican manufacturing located in preferable region
CM 9	3	3	Yes	4	3	3.5	4	3.3	Good focus on xyz industry. Some questions about footprint
CM 10	3.5	3.5	Yes	1	3	4	4	3.16	Poor financial health
CM 11	3	2	Yes	3.5	2	4.5	3.5	3.08	EMS focused on xyz
CM 12	3	3	Yes	2	2	3	4	2.83	Customer concentration, xyz industry focus
CM 13	3	4	No	?	3	3	3	2.66	Poor distribution capabilities
CM 14	4	2	No	?	3	3	1	2.16	Poor distribution capabilities
CM 15	3	2	Yes	?	?	?	?	0	Unreachable
CM 16	4	3	Yes	?	?	?	?	0	Unreachable

Positive Neutral Negative

The RFP process had several objectives

Pick the best suppliers	• Which suppliers have the best capabilities? • Which suppliers offer us the best potential for savings? • Should we continue working with current partners or new ones?
Reduce costs from existing suppliers	• Use RFP for leverage with current suppliers • Use RFP to get ongoing cost reduction commitments
Determine whether to outsource	• What would be the total cost to outsource existing production?
Engage suppliers in a more sophisticated partnership	• Gauge supplier interest and capabilities in key areas: co-investing in Lean improvements, PPV sharing, cost reduction over time, NPI

We quoted out a representative sample of the SKU portfolio for vendors to bid

Product Type	Component	Product Type	Component
Product line A	50000001-xx	Product line F	20-xxx-0001
	50000002-xx		20-xxx-0002
	50000003-xx		20-xxx-0003
	50000004-xx		20-xxx-0004
	50000005-xx		20-xxx-0005
			20-xxx-0006
Product line B	50000006-xx	Product line G	20-xxx-0007
	50000007-xx		20-xxx-0008
	50000008-xx		
Product line C	50000009-xx	Product line H	20-xxx-0009
	50000010-xx		20-xxx-0010
	50000011-xx		20-xxx-0011
	50000012-xx		20-xxx-0012
	50000013-xx		20-xxx-0013
Product line D	50000014-xx	Product line I	20-xxx-0014
	50000015-xx		
Product line E	50000016-xx	Product line J	20-xxx-0015

Each supplier was evaluated on a comprehensive, prioritized list of criteria

Capability	Weight
Profile and financials	12
Manufacturing and quality	15
Technical Capabilities: General	10
Technical Capabilities: Product line	5
Planning	10
NPI	8
Distribution (direct to customer)	2
General pricing and terms	10
Product line pricing	28
Total response rating	**100**
Timeliness bonus	±10
Engagement & trust bonus	±10

- The weightings were based on the firm's priorities
- There are thresholds within each category that can rule out a player regardless of aggregate score
- Scenario modeling will be based on the lowest cost player and the best overall score
- We will not select solutions which raise our costs from current state

We negotiated lower prices from the current vendors

Incumbent vendor currently producing products quoted in the RFP*	Quoted product	Current Price	Quoted Price	Quote as % of Current Price
Current vendor A	Product 1	$100.00	$95.00	95%
	Product 2	$25.00	$23.00	93%
	Product 3	$20.00	$18.00	92%
	Product 4	$80.00	$73.00	91%
	Product 5	$25.00	$22.00	**89%**
	Product 6	$175.00	$175.00	100%
	Product 7	$155.00	$150.00	98%
Current vendor B	Product A	$35.00	$30.00	**80% / 93%**
	Product B	$16.00	$14.00	**83% / 91%**
	Product C	$19.00	$16.00	**83% / 88%**
	Product D	$28.00	$25.00	**86% / 96%**
	Product E	$9.00	$10.00	103%
	Product F	$50.00	$51.00	102%
Current vendor C	Product ABC	$64.00	$61.00	94%
	Product XYZ	$88.00	$85.00	96%

- The RFP process will drive cost savings even if no new suppliers are selected
- The new pricing is however based on larger volume expectations (can't count on all of if we don't consolidate the supplier base and outsource more

Supplier evaluation summary

Supplier	RFP process observations (timing, engagement, etc.)	High level supplier summary (pricing, capabilities, other observations)
Vendor A	• On time with all inputs • Pro-active in understanding RFP and working with our firm	• Reliable, flexible supplier and has full management attention • Pricing generally less advantageous than Asian suppliers • Small company with less capabilities than the others
Vendor B	• Late with responses / had to rework some elements of the quote • Poor communication but improved after a strongly worded communication	• Reliable current supplier • Less flexible and with less ability to deal with demand volatility but indicated willingness to work with our firm to implement Lean • May be understaffed in some key areas • Best pricing driven by labor cost and favorable profit model
Vendor C	• Generally good engagement and compliance with timelines	• Good capabilities and competitive pricing
Vendor D	• On time with all inputs • Very engaged and responsive	• Best capabilities (as expected) • High pricing, driven to a large extent by high profit and overhead charges • Expectation of best material pricing (scale buying) not demonstrated
Vendor E	• Struggled to complete all inputs on time • Very engaged throughout • Tried to manage timing by communication and phased submissions	• Strong capabilities and very competitive pricing driven primarily by low labor cost • Pricing of higher volume SKUs more favorable than lower volume (relative to competitors) • Strong contender to become the strategic back-up to vendor A • Need for due diligence on capabilities and pricing (ability to handle low volume SKUs and demand volatility are the biggest concerns), including site visit

We modeled financial impacts by rebuilding the firm's COGS using the new price inputs from the RFP

COGS

Manufacturing Expenses: Facility, Tooling, Depreciation, etc.

Labour: Direct & Indirect

Variable Costs:

Material cost by SKU

Model Impact

- As a result of new outsourcing, facility costs were scaled back as operations wound down
- As a result of new outsourcing, facility costs were scaled back as operations wound down
- SKU component costs were re-priced using new pricing inputs from the RFP analysis

The zero cost model reflected the transition of fixed costs (labour, facility, etc.) to variable through increased outsourcing activity

We developed a list of potential scenarios to compare to the firm's projected status quo for 20xx

	20xx Status Quo	**Scenario 1:** Consolidate Suppliers	**Scenario 2:** • Consolidate Suppliers • Outsource all non-configurable and NPI volume	**Scenario 3:** • Consolidate Suppliers • Outsource all production
Degree Outsourced	Status Quo No new pricing input	Status Quo	Marginal increase	Complete
New pricing?	No	Yes	Yes	Yes
Footprint change?	No	Yes	Yes	Yes
Cost takeout opportunity	No 20xx budget	No	Yes: Headcount Facility	Yes All direct labor All direct manufacturing facility
Final COGS	=	↓	↓	↓

We compared total COGs for each scenario to find optimal mix

We recommended a footprint strategy

The big questions	The recommendations	The reasons
How much, and what, should we outsource?	• **Retain only NPI production in the near term** • **Aim to outsource all production in the long term (5+ years)**	• …….
Should we produce anything at Facility B?	• **No: move NPI to Location A and outsource the rest**	• …….
Who should our outsource partners be?	• **Consolidate most production with Vendor A and Vendor B in the near term** • **Build up vendor D as back up Asian supplier** • **Aim to transition out of Vendor C within 3-5 years**	• ……. • ……. • ……. • …….
Should we outsource distribution?	• **No**	• ……. • …….
Should we change distribution locations?	• **No**	• ……. • …….
Should we consolidate operations in W76	• **Yes**	• …….