



DOING MORE WITH LESS

CONSOLIDATING FOOTPRINT FOR SUSTAINABLE EBITDA GROWTH

- TJ Sridhar and the Quantum Team

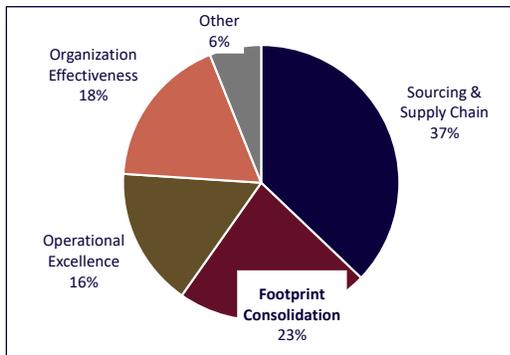
This article is based on Quantum's case experiences. Exhibits have been sanitized

Manufacturing, distribution, or back-office footprint consolidations are important levers for value creation. Done right, they can quickly enhance EBITDA, improve adoption of best practices, and align the organizational talent to its markets and opportunities. Done wrong, they can be a drain on Management's focus and can negatively impact business performance.

The opportunity

Over the last 5 years of transaction support for PE clients, we have seen opportunities for footprint consolidation in over 50% of our engagements. In fact, the number is consistently high going back a further 5 years. Footprint Consolidation accounted for 23% of the EBITDA synergies we have identified in our various diligences and assessments (Exhibit 1). But many PE firms are reluctant to pursue this opportunity as vigorously as they pursue the other sources of operational value creation.

Exhibit 1: Sources of Operational EBITDA Improvements from 30+ ODDs and Assessments



Represents % of EBITDA improvement \$ identified from 30+ operational diligences and operational assessments of Manufacturing / Industrials, Chemicals and Distribution companies

Quantum has a track record of delivering the savings identified during diligences / assessments

Usually the situations are:

- *Platforms ready to absorb more:* This is a simple description, but we have seen this in quite a few situations, where companies can acquire smaller competitors in their space or adjacencies and are able to simply absorb them within their existing footprint, sometimes with incremental capital investments. We have led several such consolidations in microelectronics, chemicals, and other industrials space.
- *Unintegrated roll ups:* This is typically the case in the lower middle market, as PE firms acquire multiple companies to build revenue and EBITDA and leave intact the management and facilities {Plants, DCs, Branch locations, HQs, etc.) of those companies. In some cases, the capabilities and markets do not sufficiently overlap to enable consolidation. But often these roll ups reach a point when consolidation can generate a jump in EBITDA and position the company for the next phase of growth. Smaller PE firms may prefer to leave this to the next buyer.
- *Excess capacity and low utilization at individual plants:* We have seen this for example, in the chemicals space in North America and Europe. Combine this with add on acquisitions, the excess capacity presents a compelling opportunity to consolidate manufacturing and distribution within and across geographies.

Understanding the opportunity

Footprint consolidation can be one of the biggest sources of synergies and can be over 50% of the synergy case in some add-on integrations. Understanding the opportunity starts in the diligence phase.

Operational diligence must identify with reasonable certainty the feasibility, risks, savings, timeline, and one-time costs from footprint consolidation. Such a thorough assessment will help build the investment thesis and enable PE firms to appropriately bid for the asset and to finance the acquisition. Quantum recently assisted a PE owned mid-market micro-electronics company to assess the footprint consolidation potential during the diligence phase (Exhibit 2). Post-close, Quantum led the PMO to implement the consolidation and fully realize the projected savings.

Exhibit 2 – Sample sanitized outputs from ODD highlighting footprint opportunities in a mid-market add on acquisition by a PE owned microelectronics company

Synergy Actions	Potential EBITDA Impact		Key Considerations
	Base	Stretch	
1. Consolidate Target's Plant M with Buyer's NJ & AZ sites	\$ 2,419,596	\$ 2,735,151	Service A and Service B to NJ; Service C to AZ
2. Consolidate Target's AZ operations to Buyer's, AZ Plant	\$ 132,862	\$ 185,348	Shift personnel at current wage rates to Buyer's AZ Plant
3. Integrate Corporate SG&A Organization	\$ 1,397,809	\$ 1,504,059	Org assumptions in discussions with Buyer's Management
4. Leverage Professional Services, Benefits and Insurance Spend	\$ 412,405	\$ 480,820	Consolidate benefits, insurance and professional services
5. Close Target's NE Office	\$ 43,632	\$ 43,632	Rent savings
6. Europe Synergies	\$ 355,627	\$ 355,627	Sales Integration, Miscellaneous
7. Consolidate Freight Spend	\$ 67,264	\$ 67,264	Create 1 UPS contract across all sites
Total Estimated EBITDA Synergies	\$ 4,829,195	\$ 5,371,902	

Note: Facility savings include fixed cost reduction, DL absorption / efficiencies, DL rates adjustments and Indirect & plant SG&A synergies

One Time Cost Assumptions	Cost \$
Severance for Plant M employees	\$ 311,234
Severance for AZ Employees	\$ 25,566
Severance - SG&A	\$ 511,299
Retention	\$ 100,000
New hire costs at NJ and AZ	\$ 168,960
Plant M equipment move and calibration	\$ 50,000
Customer qualifications	\$ 25,000
Operators on the job training for Service A	\$ 50,000
Plant M facility clean up and exit	\$ 25,000
AZ Moves	\$ 10,000
NE office move	\$ 5,000
Other	\$ 5,000
Program management (excluding consultants)	\$ 25,000
Contingency	\$ 131,206
Total	\$1,443,265

Quantum conducted the diligence and led the post-close integration to complete the facility consolidations on time and deliver the EBITDA savings

In Exhibit 2A, to estimate synergies, Quantum conducted capacity modeling for each work cell at the receiving plants to estimate incremental capacity and labor required to absorb the consolidations

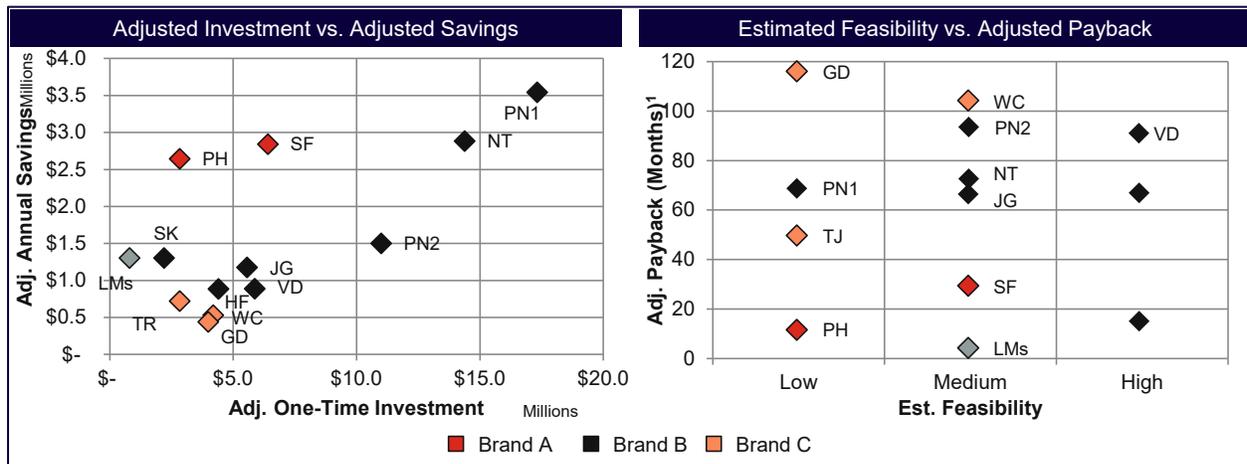
Exhibit 2A – Sample sanitized outputs from ODD highlighting footprint opportunities in a competitor acquisition by a PE owned industrial company

Operational Synergies	Synergy Potential (\$,M)		Considerations
	Base Case	Stretch Case	
1. Consolidate Target's OH plant with Buyer's OH plant	12.1	14.8	• Based on labor scaling scenarios and incremental indirect and SG&A costs • SKU rationalizations assumed based on workshops with Buyer's Management
2. Consolidate Target's MI plant with Buyer's PA plant	4.0	4.2	
3. Exit Target warehousing agreements and consolidate with Buyer DCs. Consolidate outbound freight to customers	0.2	0.6	• Savings incremental to Buyer integrated DC strategy and associated incremental costs/savings • SKU rationalizations assumed
4. Integrate Executive, Sales and G&A organizations	3.3	3.3	• Excludes cost decrease after carve out of shared services from Parent
Total	19.6	22.9	

During diligence, in many acquisitions with multiple consolidation possibilities, we develop scenarios of consolidation and pick the one that seems most feasible / conservative to build the EBITDA opportunity. This can be further developed and finalized post-close.

It is equally important during diligence to identify what is not possible. In an engagement few years back, our client a large PE firm had an exclusive look at another PE owned \$2B paper and plastic packaging company, with 35 plants of various sizes across North America. The sellers had hired a reputed consulting firm which projected savings of \$25M from footprint consolidation and product moves (through various projects). On a closer look during diligence, we identified that the nature of the business was inherently distributed (for market access), and the low fixed costs at the plants made some consolidations uneconomical. Considering revised economics and investments payback, we narrowed the opportunity to a short list of best fit projects that met the buyer’s payback criteria. The revised savings projections were \$8.5M vs. the \$25M seller estimate. (Exhibit 3). Needless to say, the potential buyer punted on the deal.

Exhibit 3: Diligence revealed that many of the seller proposed consolidation projects at a \$2B packaging company did not have acceptable paybacks



Executing footprint rationalization

Setting up a PMO – Detailed Planning

Executing a footprint consolidation is a cross-functional effort and requires sufficient and detailed planning and project management. Management of many companies, particularly mid-market companies can get overwhelmed by complex integrations and lose focus on delivering the business. We recommend outside help to de-risk. In any event, a structured PMO and detailed task planning and risk assessments would be critical for the success of the consolidation (Exhibit 4).

Each workstream should be assigned a lead, and she/he and her/his team should be tasked with developing project management tools such as Gantt schedules, milestones, critical path items, risk assessments, etc. This time invested in upfront planning and tools development will help the full team come to terms with the complexities of the integration. Many of the schedules get adjusted during implementation, but milestones remain important targets for accountability and communications.

Exhibit 4: PMO tools set up for a large and time-critical plant consolidation program at a Chemicals client

		Workstreams – Status of Tools Implementation										
#	Program Tools	Capital Projects	Prod. Mgt.	Product Transfer	Logistics	Production Transition	Plant Ops.	Plant Closure	HR	Comm.	Finance	PMO
	Leads Identified	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.0	Workstream Charters	●	●	●	●	●	●	●	●	●	●	●
2.0	Workstream Member Roles & Responsibilities	●	●	●	NA	●	●	●	●	●	●	●
3.0	Steps to Milestones	●	●	●	●	●	●	●	●	NA	NA	NA
4.0	Gantt Schedules	●	●	●	●	●	●	●	●	NA	NA	●
5.0	KPIs / Milestones	◐	●	●	●	●	●	◐	●	NA	◐	NA
6.0	Risk Assessments	●	●	●	●	●	●	●	●	NA	●	NA
7.0	Weekly Workstream Report & TOR	●	●	●	●	●	●	●	●	NA	NA	NA
8.0	PMO Report & TOR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	●
	Overall Status	●	●	●	●	●	●	●	●	●	●	●

Not Commenced
 Commenced
 First Draft Completed
 In Final Review
 100% Installed
 NA - Not Applicable

Customer qualifications

For companies with specialized products e.g., specialty chemicals, mil-spec suppliers, or similar highly engineered products, customer qualifications will be a critical part of moving production from the closing site to the receiving site. Having managed this for multiple clients, we believe that this process needs to start early in the integration planning, with reach outs to all major customers communicating the timeline and setting specific dates and targets for each customer to approve samples, trial batches etc. In preparation, internal qualification teams need to be geared up to build and test samples at the receiving site, before shipping to customers for qualifications. In some cases, such samples cannot be built until the appropriate equipment is moved over to the receiving site. Even with ample communications it can be the case that the company has to draw a line in the sand with some difficult customers to say that we will be accepting orders for product X only from its new location after a certain date. To allow for contingencies, the closing plant may build sufficient inventory of key products prior to closure to enable customer fulfillment.

Process transfer

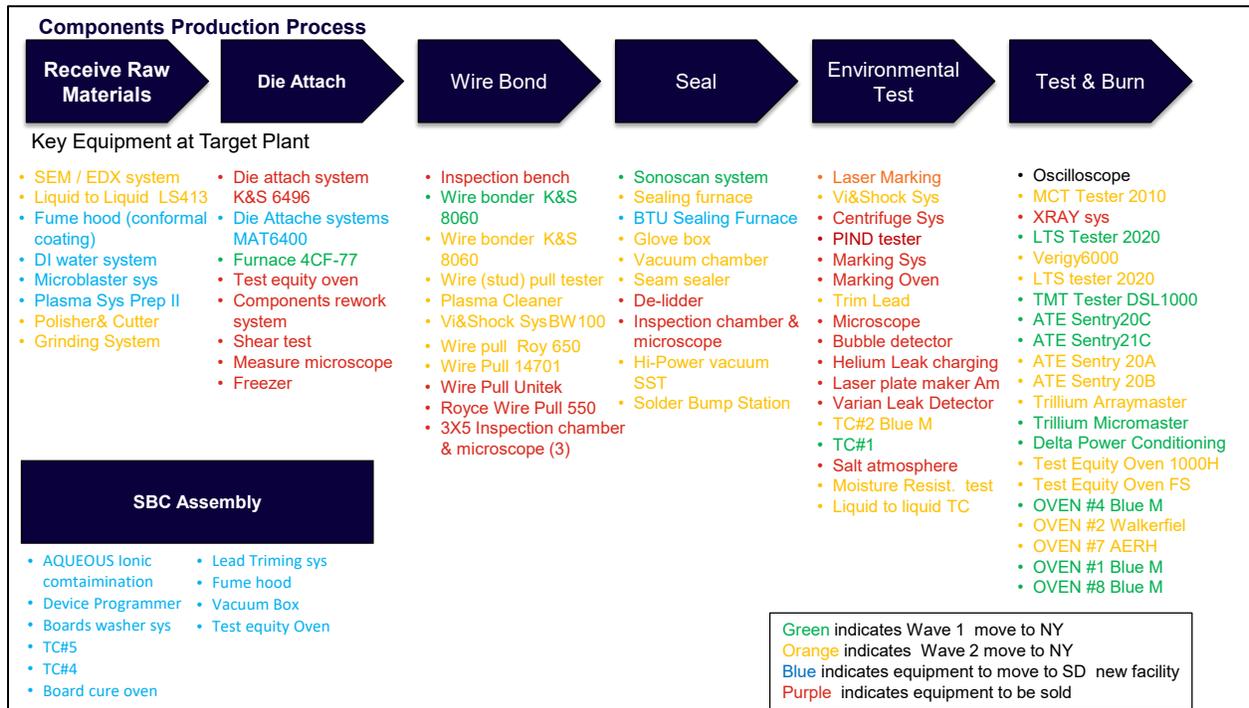
This includes setting up the customer masters, supplier masters, product masters, BOMs, travelers, quality programs, drawings, freight contracts, maintenance programs etc., within the receiving plant's systems and processes. EHS and regulatory reviews also need to be conducted to get the receiving site ready. While this appears to be a lot, these are typically routine and manageable by the functional leads. Key challenges will be to decide how to manage overlap customers, suppliers, and similar SKUs, in terms of sales contracts, pricing and relationship management.

Equipment transfer – Creating redundancies

Depending on the situation, the company may choose to transfer more or less of the equipment from closing site to receiving site. Sometimes it is better to leave everything intact at a closing site (e.g., chemical plant) to make it easier to sell the site to a non-competitive buyer. But in other cases, the

company can selectively move equipment to enhance capabilities and capacity. Whatever the case may be a detailed plan needs to be developed. Typically, the equipment would be moved in waves, so that duplicate capabilities exist at both plants during the transition. Equipment moves must also be staged to allow for the key equipment to be at the receiving site to develop samples to meet customer qualification timelines.

Exhibit 5: Equipment transfer plan for closing site A and moving production to 2 receiving sites for an electronics components add on acquisition

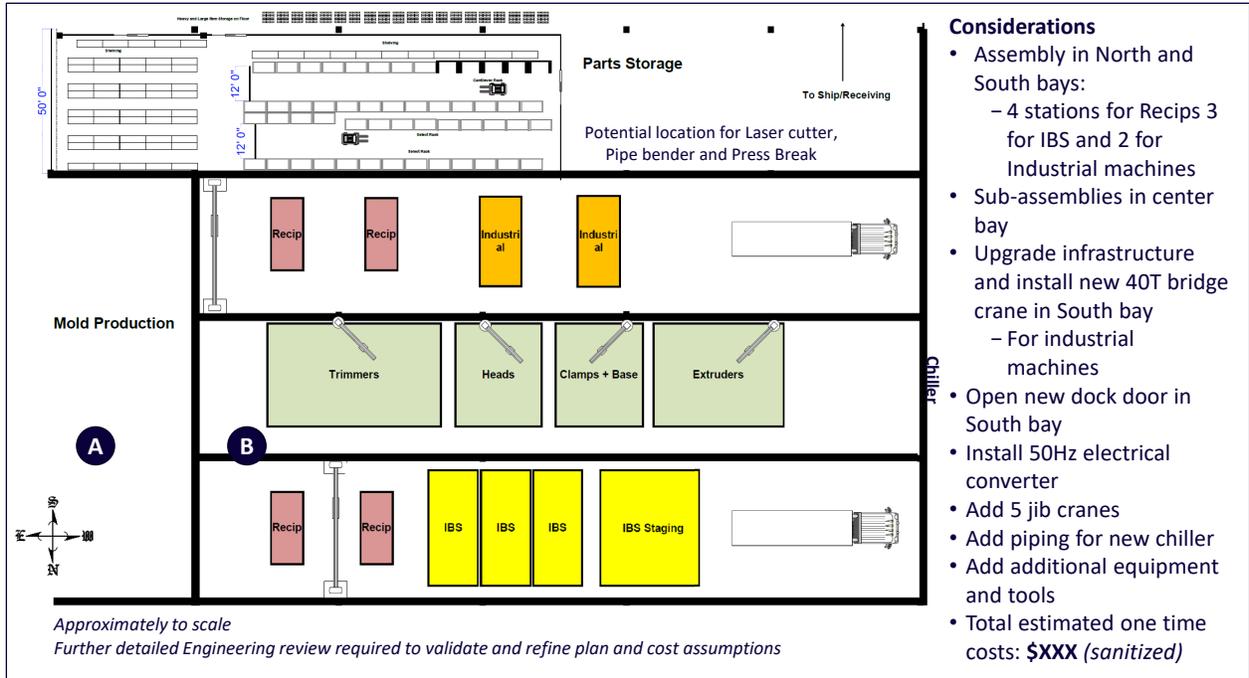


Re-layout receiving site

The receiving site may need to be re-configured or expanded to accommodate additional equipment, new production cells, increased material handling space, office space, etc. Space considerations and investments required must be estimated during diligence, with allowance for contingencies. Exhibit 6 shows a site layout for a carve out plant (at diligence phase) that absorbed all the carved-out production to one location. This is primarily used to assess feasibility and estimate one-time costs and timeline.

During implementation, any construction and capital investment work needs to report into the PMO. Contractor management and equipment commissioning in our experience can cause significant variability in schedules and need to be tightly managed.

Exhibit 6: Future site plan for an industrial carve out to consolidate production of all carved out products and parts distribution to one site (developed jointly with site team)



- Considerations**
- Assembly in North and South bays:
 - 4 stations for Recips 3 for IBS and 2 for Industrial machines
 - Sub-assemblies in center bay
 - Upgrade infrastructure and install new 40T bridge crane in South bay
 - For industrial machines
 - Open new dock door in South bay
 - Install 50Hz electrical converter
 - Add 5 jib cranes
 - Add piping for new chiller
 - Add additional equipment and tools
 - Total estimated one time costs: \$XXX (sanitized)

Capabilities transfer - Skills development and training

The receiving site needs to hire and train sufficient direct and indirect labor ahead of the production transfer. This should be managed very tightly to minimize downtime and underutilization. In some cases, the receiving plant does not have sufficient experience in the products being transferred in. In such situations, an appropriate training plan needs to be developed, if necessary, sending engineers and labor to train at the closing site. Exhibit 7 shows a recent case example where we used a skills matrix to train labor and transition capabilities from a closing site.

Exhibit 7: Skills matrix to train and transition capabilities from a closing site for a highly specialized product line

Product Groups		Production Steps	Plant B KPI	Trainees KPIs
20	SWMT	High temp solder	50	
20	SWMT	Bottom smoothing	60	
20	SWMT	Side smoothing	50	
20	SWMT	Initial set up	0-33	
20	SWMT	In process set up (weals)	40	
20	SWMT	Board components	35	28.0
20	SWMT	Set solder	40	1.0
20	SWMT	cut-off leads	60	1.0
20	SWMT	Flat-J form	70	4.4
20	SWMT	Sold-J final form	50	3.2
20	SWMT	use comparator for inspection		4.6
20	SWMT	Final inspection		3.3
20	SWMT	2nd solder	35	2.0
20	SWMT	Final inspection		
16	SWMT	High temp solder	50	
16	SWMT	Bottom smoothing	40	
16	SWMT	Side smoothing	40	
16	SWMT	Initial set up	0-33	
16	SWMT	In process set up (weals)	45	
16	SWMT	Board components	45	2.0
16	SWMT	Set solder	40	
16	SWMT	cut-off leads	60	
16	SWMT	Sold-J final form	50	3.0
16	SWMT	Sold-J final form	50	
16	SWMT	2nd solder	35	
16	SWMT	In process inspection		
16	SWMT	Final inspection		
4	BMNG	Initial set up		
4	BMNG	In process set up (weals)		
4	BMNG	Board components		
4	BMNG	Set solder		
4	BMNG	cut-off leads		
4	BMNG	Flat-J form		
4	BMNG	2nd solder		
4	BMNG	In process inspection		
4	BMNG	Final inspection		
4	BMNG	Initial set up		
4	BMNG	In process set up (weals)		
4	BMNG	Board components		
4	BMNG	Set solder		
4	BMNG	cut-off leads		
4	BMNG	cutting form		
4	BMNG	2nd solder		
4	BMNG	In process inspection		
4	BMNG	Final inspection		

Production transfer, Inventory build, Order fulfillment

If all the planning and preparation goes well, production transfer should be relatively simple. Inventory is built in advance if necessary to meet fulfillment needs. For build-to-order processes, it is usual to complete an order at the closing site and commence a new one at the receiving site. The PMO and Plant production team should actively manage the transition.

Exhibit 8: Production transition planning for a chemicals consolidation

Market	Product	Final Production @ Plant A	Start Production @ Plant B	First Shipment Ready By Date	Critical Path Production Date
Segment 1	A9670	11-Mar-19	3-Apr-19	8-Apr-19	3-Apr-19
	A9723	15-Feb-19	4-Apr-19	7-Apr-19	4-Apr-19
	A9780	15-Feb-19	12-Apr-19	16-Apr-19	13-Apr-19
	A9555	21-Mar-19	30-Apr-19	3-May-19	30-Apr-19
	A5068	11-Apr-19	24-May-19	28-May-19	26-May-19
	A5086	5-Apr-19	15-May-19	21-May-19	16-May-19
	A5319	29-Mar-19	23-Apr-19	26-Apr-19	24-Apr-19
Segment 2	B3780	15-Feb-19	24-May-19	31-May-19	27-May-19
	B3163	18-Apr-19	1-May-19	15-May-19 <small>(to trans-loader)</small>	6-May-19
Segment 3	C6770	18-Apr-19	1-Jul-19	15-Jul-19	15-Jul-19
	CE 125	16-Mar-19	1-Sep-19	15-Sep-19	TBD
Segment 4	D6850	26-Apr-19	4-Jun-19	15-Jun-19	30-Jun-19
	D6900	17-Apr-19	31-May-19	3-Jun-19	1-Jun-19
	D2484	22-Apr-19	3-Jun-19	N/A	4-Jun-19

Best Practices and Lean

Any consolidation of like processes or facilities is an opportunity to pick the best practices from both. It is useful to conduct a joint workshop with the key operators from both companies (typically during pre-close) to identify best operating practices and plan for adopting them. In a recent acquisition, the target site marked for closing, had significantly higher labor productivity and gross margins than the buyer's site. While we built the consolidation synergies, we advised buyers to hold off the consolidation till its site could adopt some best practices and improve productivity to absorb the target, without loss of margins.

In many cases productivity improvements and Lean initiatives at the receiving plant are a part of the consolidation synergy case to absorb incremental production and gain some scale efficiencies.

Costs and Synergies Tracking

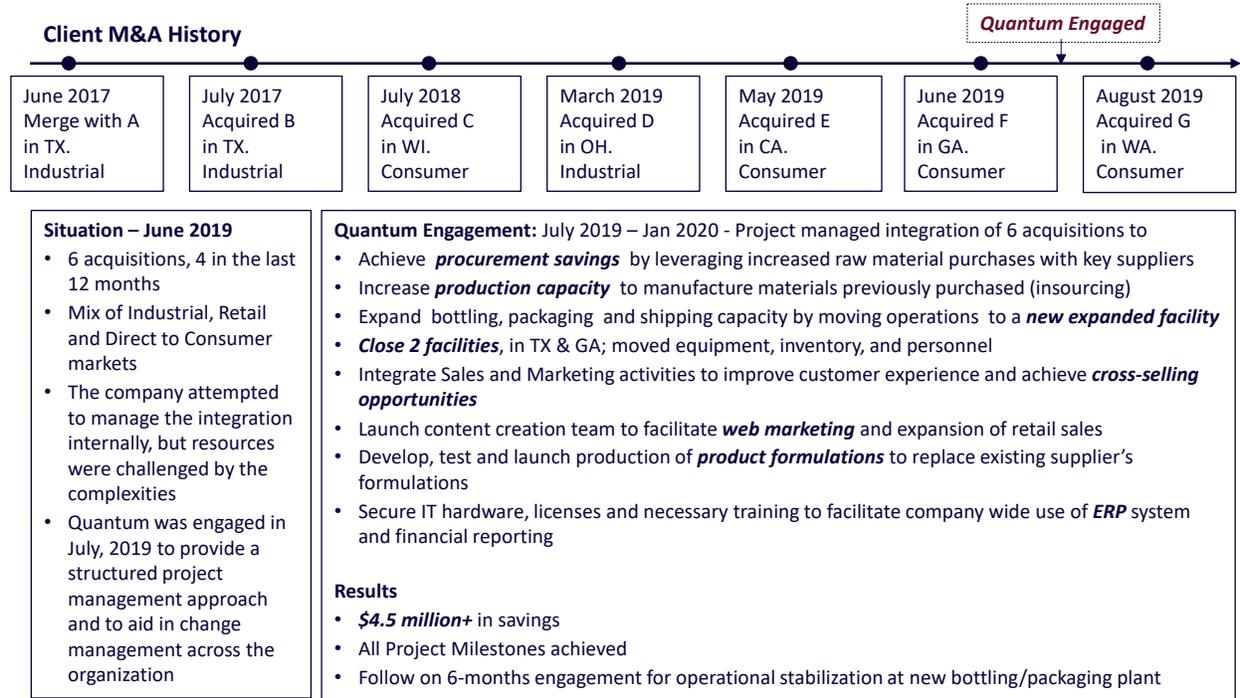
The Finance team needs to set up accounts and processes to separately capture the one-time costs incurred for all the activities including project management and report below the line (where appropriate). The EBITDA savings from consolidation can be fully captured after completion of the consolidation.

In many cases, a consolidation project is part of a larger integration that also includes other EBITDA savings initiatives. Synergies from these must be tracked by the PMO and compared to the planned synergy case on a monthly / quarterly basis.

Execution - External support

We have seen some examples, where a management team decides to take on consolidations on their own but become overwhelmed and lose focus on the business priorities. Many times, integration initiatives are left half done, as focus shifts to attaining monthly / quarterly business goals. We recently helped a mid-market industrials company which had business execution failures due to integration, get control of the processes and deliver a successful integration (Exhibit 9)

Exhibit 9 – Case example: Mid-market Industrial roll up integration and operations stabilization



Conclusion

Quantum has led multiple PE and corporate clients identify, plan for, and execute footprint rationalization successfully, and in the process helped them to realize significant EBITDA benefits and Lean operations. Some client testimonials:

“Your diligence was very insightful, particularly on opportunities in manufacturing efficiencies and footprint. Helped us value the deal appropriately”- Managing Director at PE firm considering investment in a \$2B specialty manufacturer

“You stepped into a very difficult leadership challenge in a difficult environment and had a terrific impact. Thank you!” - PE Operating Partner for acquisitions consolidation and operations stabilization

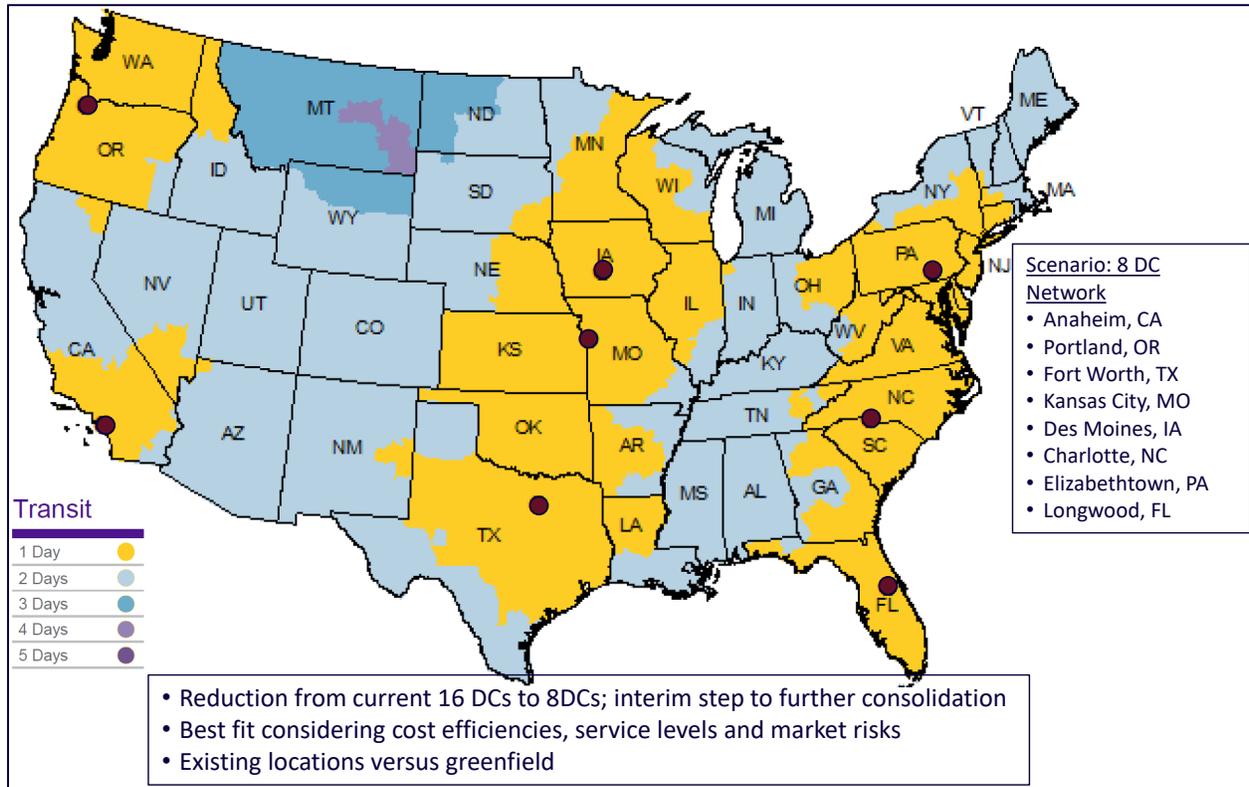
“You guys did a nice job” – COO of a global manufacturer on completion of a large integration

“Quantum has done an excellent job on the carve out planning and costs” - Managing Director at PE firm

Appendix: Distribution consolidation

If the acquirer and the target have a large and overlapping distribution footprint, there is likely to be opportunity to consolidate the network and rationalize inventory. We recently helped a PE owned hardware distributor which had gone through multiple acquisitions under a previous PE owner, develop a consolidated DC network.

Exhibit 10: Recommended scenario for DC consolidation at a hardware distributor post-acquisitions



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