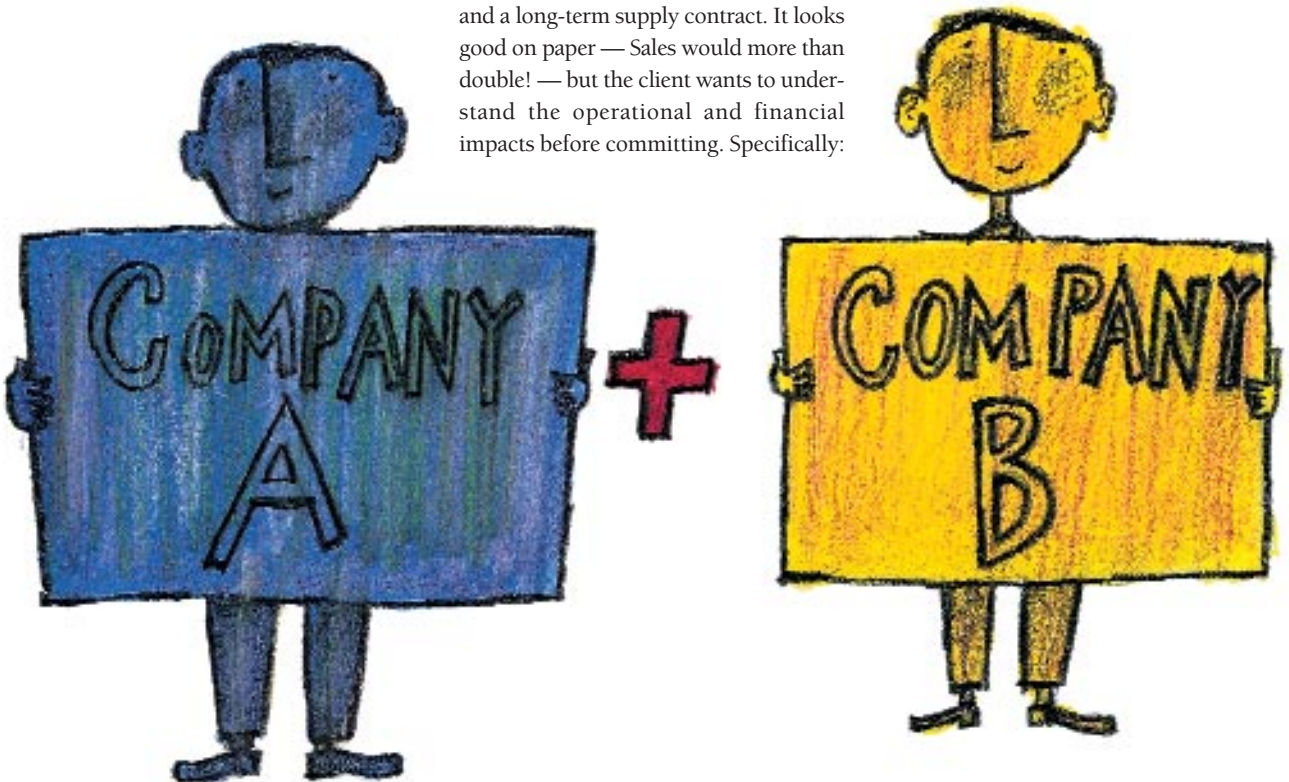


TO merge AND acquire

An IE presence is required
for companies to come
together successfully

BY MICAH R. KEE

Your client is a small division of a public company. Industry growth has been flat to declining for several years. Competition has been so fierce that several companies have already left the industry. Your division is approached by another company seeking to divest its manufacturing assets in order to focus on sales and marketing. The deal would include up to four manufacturing plants and a long-term supply contract. It looks good on paper — Sales would more than double! — but the client wants to understand the operational and financial impacts before committing. Specifically:



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How could adding volume and assets influence manufacturing efficiency? Would new assets in different locations affect distribution costs? How does transfer pricing on the supply contract change the deal's profitability and return on investment?

Opportunities like this arise on a daily basis. Unfortunately, the current system of conducting mergers and acquisitions is not conducive to delivering this level of analysis before the deal takes place, often resulting in a bad deal for employees and stockholders.

A nationwide study by PricewaterhouseCoopers found that companies involved in mergers and acquisitions failed to achieve their objectives more than half the time. Among the most sought after but least achieved objectives were those of reduced manufacturing and distribution costs. The reason for their failures: poor execution brought about by inattention to detail and a failure to plan for the overall complexity of the process.

Despite this fact, companies are turning to mergers and acquisitions to deliver revenue growth and increased profitability. But without addressing the root causes of these missed objectives, the results will continue to be lower profits and lower shareholder value.

This situation positions industrial engineers, grounded in the principles of efficient manufacturing and distribution and armed with rapidly advancing analytical tools, to play a major role in an area traditionally reserved for marketers, bankers, and accountants. There are three areas of the M&A process in which this is particularly true: due diligence, option generation and evaluation, and best value implementation.

Due diligence

Failure to ask the right questions, get key pieces of data, and understand how systems and people interact can spell an early death for a merger or acquisition. It is important to make sure the due diligence—essentially, a data collection process—is thorough and complete. Objectives going into this phase include identifying inefficiencies (that can be corrected via the M&A), synergies (that can be exploited via the M&A), and “showstoppers” (that would prevent the M&A from continuing). Companies will often exit this phase with

a letter of understanding, operating principles, and a timeline for completing the other phases of the process.

Due diligence usually involves time spent in two activities: data room investigation and site visits.

Data room investigation. The data room step involves sitting in a room for several hours or days gathering information via interviews with managers and reading printed materials. The information often involves marketing research and plans, financial statements, organizational structures, and operations. It is the area of operations in which IEs can lend the most help.

Operational information should be gathered on property, plants, and equipment regarding locations, scheduling, utilization, and cost. Differences among the parties regarding forecasting, staffing, planning, and scheduling should be of particular interest. These differences indicate potentially high transitional complexity. Information regarding number and type of products, working capital (inventory value), inventory turns, and sales and distribution patterns are important as well because these indices will reveal areas of potential cost reduction or need for capital infusion.

The information gathered will be verified during site visits, so data room efforts should concentrate on getting a broad baseline of information. As the volume of information available is often quite large, it is helpful to prepare and submit a checklist of desired data before the data room visit. And because companies often will not provide information electronically or allow you to leave the room with source documents, be prepared to take a lot of notes in an organized manner.

Because M&As often involve competitors, legal issues arise. This is particularly true with respect to conversations about pricing (products and raw material). To avoid getting into legal difficulty, make sure that corporate counsel apprises you of all potential issues. If you have any questions during the data room visit, seek legal guidance before continuing. Lawyers for all parties are usually available in the data room.

Site visits. Site visits involve auditing all sites that will be or could be involved in the merger or acquisition. Third-party suppliers should also be included if they serve as contract manufacturers or supply a significant portion of raw materials or services (labor, for example). As with

the data room visit, it is very helpful to prepare and submit a checklist of items and areas that you wish to see. At a minimum, site visits should include a review of all possible showstopper items: environmental issues (permitting, mitigation), health and safety issues (unsafe work practices), structural issues, and legal issues (land use, lease expirations). Assuming that the initial assessment reveals no such deal-breakers, you can turn your attention to the physical assets and their operation.

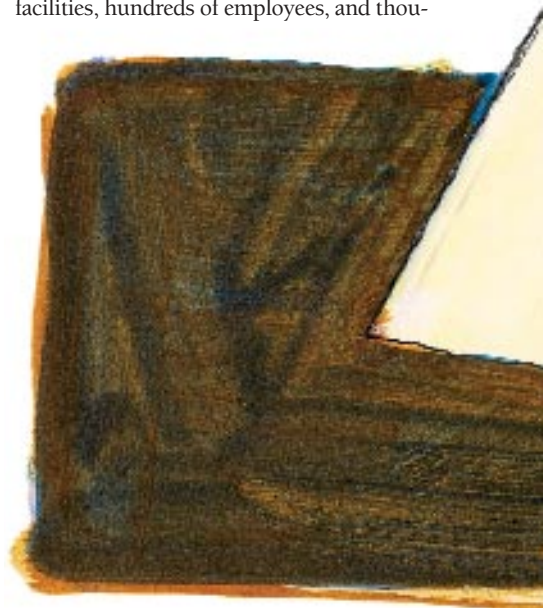
Regarding assets, understand the age, use, and capacity of each building and piece of equipment, paying particular attention to any item such as building repairs or utility upgrades that will require a substantial amount of up-front capital to remediate.

Additionally, learn how the site operates, which involves understanding people and material flows, organizational structure, and processes, just to name a few. Again, the goal is to determine each site's ability for sustained or increased integrated operations. It is also important to identify and address potential risks and problems between company cultures, procedures, and other operations.

Documenting your findings and assessments is as important as collecting the data. Information and conclusions must be presented in a way that is clear, concise, and quickly gives management a picture of operations, their potential, and any negative findings.

Evaluating options

A merger or acquisition involving several facilities, hundreds of employees, and thou-



Checklist

Data room checklist

1. Master list of all facilities involved in the merger or acquisition
 - Age and use
 - Size of buildings
 - Total site acreage
 - Zoning
2. Capital cost of property, plant, and equipment
 - Identify all expansions and modifications
 - Depreciation/amortization projections
 - If leased, provide lease contracts and payment structure
3. Operational overview
 - Current plant financials
 - Current site master plans
4. Current and maximum capacities of all property, plants, and equipment
5. Public utilities capacities and rate structures
6. Potential site issues
 - Flood plain
 - Seismic
 - Life safety
 - Environmental/FTA (prior use of land, etc.)

Operating strategy components

Any company contemplating a merger or acquisition should develop a comprehensive operating strategy before concluding a deal. Doing this will highlight outages in data, force managers to make conclusions and recommendations before committing money, and establish a clear action plan for implementing the project. At a minimum, an operating strategy should include:

- Key assumptions (including a five- to 10 year business plan)
- Demand strategy
- Supply strategy
- Inventory strategy
- Success criteria and measures
- Communication plans
- Renewal plans

Site assessment checklist

1. Total land area
 - In use
 - Available/undeveloped
2. Site constraints
 - Soil
 - Grading
 - Public/environmental concerns (wetlands, noise ordinances, etc.)
3. Operations
 - Inbound (flows, storage space, staffing, utilization)
 - Production/packaging (shift structure, planning, staffing, QAVQC, equipment)
 - Outbound (flows, storage space, staffing, utilization)
 - Support (offices, team rooms, lockers, cafeteria, staffing, etc.)
4. Utilities
 - Power
 - Water
 - HVAC
 - Boiler
 - Chiller
 - Gas/fuel
5. Business plans
 - Operating strategy
 - Site and facility master plan

Modeling data requirements

Detailed information about suppliers, plants, distribution centers, and customers is needed to build any type of model used in supporting merger and acquisition decisions. To avoid wasting time sorting through unhelpful data, put together a model basis that outlines the purpose of the model, questions and scenarios of interest, and success criteria. Before beginning design efforts, seek comments and gain alignment to the model basis from all members of the project team.

Below is a list of data collected for a linear programming model used to support a recent acquisition effort:

- Suppliers - location, products, product costs, delivery expense (to each plant)
- Products - SKU, material costs, total annual volume, selling price
- Plants - location, distance from suppliers, production capabilities, production rates (by SKU), production costs (fixed and variable), overhead expenses, operating hours (both production and shipping/receiving), inbound/outbound freight rates
- Warehouses - location, size, costs (fixed and variable), distance from plants, distance from customers, inbound and outbound freight rates
- Customers - location (zip code), demand (by SKU), purchase price (by SKU)



sands of products is amazingly complex. Add suppliers and customers into the mix and sorting it all out is an overwhelming task. The many potential paths forward necessitate strict control and analysis to determine

the best course of action. Decisions of such magnitude should be the result of careful analysis and data penetration, not an executive hunch.

Objectives during this phase of the process include identifying capital costs and savings associated with the merger or acquisition, designing an operational structure for the new company, and solidifying the underlying financials of the deal. Completing this phase usually results in a letter of intent between the parties, a risk assessment, an internal and external communications strategy, and a set of integrated financial statements (profit and loss, cash flow, balance sheet) explaining the benefits of the M&A in terms of revenue, profit, cash requirements, and return on investment.

The due diligence phase involved collecting information about each aspect of the supply chain — suppliers, manufacturing facilities, distribution facilities, and customers — and looking for manufacturing or distribution inefficiencies that the M&A might be able to correct. Now is the time to do something with that data.

Common options that arise as part of this phase include plant and warehouse rationalizations, integrating operations versus taking a hands-off approach, introducing new technology or products, and focusing capital investment to maximize benefits and return.

Rapidly advancing software tools in the simulation and linear programming fields can handle these problems with ease. Simulation and optimization tools may be used to drive out inefficiencies in manufacturing processes, integrate new product lines, or predict staffing requirements. Linear programming models may be developed to help in asset rationalizations and product allocations or to understand a new supply chain's optimum configuration. Most software packages these days are easy to learn, easy to use,



egy developed and issued prior to closing the deal.

It sounds simple enough, but to be truly effective, a good operating strategy must cover all aspects of the impending merger or acquisition, docu-

and relatively easy on the budget.

Experience has shown, however, that once there is a model, executives will want to add bells and whistles and look at every scenario they can think of. It is important to understand clearly the objectives and the project's success criteria before developing the model to ensure that the correct data is being collected, the correct questions are being asked, and the model can deliver against those objectives. Keep track of each scenario considered as well as its outcome. Staying organized will speed up the process and will help you avoid rework down the road.

Once necessary models have been developed and all desired options have been explored, a straightforward process should be used for evaluating the alternatives. In principle, the evaluation should be based on the success criteria used to develop the models and options. The option evaluation should also include a risk assessment that looks at major barriers to implementation and transitional complexity. Each option's evaluation should be compared to the risk assessment to determine the best value option.

Armed with the right data and appropriate tools, IEs can help facilitate the option generation and decision-making processes, ensuring a better outcome.

Best value implementation

We've discussed taming the detail and complexity associated with merging competing operations and products. Now, we must turn our attention to execution. In their book *Five Frogs on a Log*, Mark Feldman and Michael Spratt detail the consequences of poor execution: reduced market share, declining productivity, narrowing margins, and departing employees and stockholders. Implementation, they note, is lost in the media hype surrounding the deal and is ultimately left to overworked transition teams.

The solution is a detailed operating strat-

menting all key assumptions, detailing demand and supply strategies, and delineating measures against which successes and failures will be determined. In addition, the operating strategy must include a communication plan that ensures that all employees at all levels will understand what is expected of them, in transition and post-transition operations.

Because an IE has been involved in collecting and analyzing data as well as evaluating implementation options, he or she should play an important role in developing and executing the operating strategy. Participation in developing the supply and demand facets of the operating strategy is straightforward and should reflect the outcomes of the data analysis and modeling from the previous phase. IEs can also provide valuable insight into developing measures for evaluating the venture's progress as well as efficient communication methods for disseminating information.

Conclusion

The dismal success rate of mergers and acquisitions is attributed to poor execution, the lack of attention to detail, and failure to comprehend the complexity of change. Industrial engineers have tools and training to help in each of these areas. As companies continue to use mergers and acquisitions to grow revenue and increase profits, the IE community should look for ways to apply our knowledge and expertise to ensure that the projects are successful and deliver real value. Although the M&A community is considered a financial domain, IEs should step up and take a role in reversing the negative trends of the past.

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