

Sometimes, even the best laid plans can go awry. But a lean mindset can change it all.

♦ SANJEEV BAITMANGALKAR, STRATMANN CONSULTING

STRATEGY

Turnarounds with lean mindset

It was with great expectations Bridgeport USA and Texmaco Indonesia came together and set up a joint venture company (JVC). The project was headed by experts and a multicultural team from six countries. The land, building, machinery, and manpower were installed, the engineers and workmen were trained at the collaborator's factory in USA. But, five years since inception, with plant, machinery, people, and money in place, they had failed to produce even a single machine! Sometimes, even the best laid plans can go awry, as it happened in this case. Here's how a lean mindset changed it all...

The Bridgeport and Texmaco JV was setup to manufacture both conventional and CNC machine tools. In this article I will use the example of Bridgeport's conventional milling machine for simplicity and understanding.

Identifying the central problem

In five years, some castings and components were developed but never converted into a complete machine. Discussions revealed that the business process was not well-defined and conflicting views between marketing and operations had impeded progress. We

asked ourselves many questions ranging from strategy, policy, process, people, competence etc., and were in pursuit of a solution.

The main issues

The factors we identified as playing a role in the company not being able to produce a single machine in five years were:

- The frequent interruptions and incorrect discrete instructions from the local shareholder family members who played different roles in the group. These instructions often contradicted earlier decisions. It also questioned the authority installed to oversee this project.
- Indonesia was known for textiles and not machine tools. Our Chairman had told me that one of his dreams was to make Indonesia known for manufacture of engineering products. To do that we had to establish the manufacturing processes, supply chain, throughput times, lead times, and deal with cash cycles etc., all while contending with detractions from peers and discrete thinkers within the group management.
- Strategy for gaining market entries, breaking barriers, production, supply chain, and developing people were missing.

- Although the company was supported by technical knowhow from the parent company, a proper buyback arrangement was missing, because of which both sides had lost on potentially leveraging low-cost production opportunities.
- Target markets were not identified.
- Core competencies required to build this business were not identified. A good business process, sound philosophy and proper perspective were felt wanting.
- The pricing factor had probably killed the project. There was total disconnection between expectation and reality. For example, the prevailing thought was that the management wanted to sell a milling machine at \$10,000 per piece, while Taiwan sold similar machines for approximately one fourth the price. While Taiwan sold about 36,000 machines a year, Bridgeport's numbers were at best in triple digits annually.



- The casting factor: the group's own foundry was dictating the price, quality, and quantity of casting supplied. The foundry's expectation was a price of \$1.40 per kg of casting, which could otherwise be sourced from Taiwan at that time for thirty to fifty-five cents per kilogram of casting and in fully finished component condition!
- Since five years were spent without producing a single product, the accuracy and reliability of the equipment, tooling, and capability of the people were not proven and established.
- Lead times for various activities were not determined. Operations were not standardised and throughput times were not known.
- Milling heads were to be procured from the collaborator. The prices of these were not competitive and in fact, were exorbitant, thus making the product unsellable. The brand may have had its name, but customers knew alternate sources for similar machines. The opportunities in machining centers presented more excitement, but the collaborators wanted this to be a subsequent development.
- The strategic intent of the local partner was not clear—it lacked clear philosophy, principles, and value systems to govern this joint venture.
- The plant and equipment supplied by the collaborators were used and rebuilt machines; they were never put to test here and were never beaten for production. The capacity, capability and reliability of this line was not proven and established.

Formulating the strategy

The long-term objective was to develop a supply chain from within Indonesia that would include our group companies. But in the short-term we had to address market needs—the reputation of being a reliable machine tool

manufacturer. Considering the training and development time required within, we needed a strong short to medium-term strategy that could catapult us into the global markets and help understand the customer requirements and establish ourselves as reliable suppliers.

Considerations

Buy gears and castings from in-house group companies. We had to test our ability to produce all components in house. Could we develop them all simultaneously? Were we geared up for it? The milling head was a critical assembly and had intricate component machining, gear velocities, noise considerations, etc. Among the machinery installed, there was no machine available to finish machine high precision parts. The hardening facility for the spindle was not installed. A group company that had a gear shop could have been asked to supply gears, but they did not have proper equipment to produce gears of quality class IT-5 and 6. So, in our assessment, the factory was not ready to produce the 'milling heads' in-house yet. We had to either source the components or the assembly in the short to medium term.

The group foundry was ready to supply castings. They had received the patterns of parts other than the head from the collaborator and made some sample castings. Quality issues on casting prevailed but, these could be resolved and overcome. The foundry was selling the castings at \$1.40 per kg and wanted to be the final authority on price and salvaging standards! These factors would render us uncompetitive and hence was not acceptable.

The advantage of building the milling head assembly in house was obvious, and we wanted to get to this stage and bring in all

that value addition. However, in the beginning our priorities included customers, markets, channel partners, supply chain partners, working capital, etc. Thus, in the beginning, we were not equipped to produce everything in-house.

Sourcing from points of cost advantage without sacrificing quality, although cost-based strategy would have been the right approach, with the outsourcing thought the differentiation strategy may not hold out. We could source the parts or assemblies from India or Taiwan, but this singular approach would not help develop internal competence.

Concurrent strategy

The critical issue was that even after five years since inception the joint venture had failed to produce machines, bag orders, establish markets, and corner a share in the market place. Everybody was eager to begin production and deliver machines. The concurrent strategy was to set up two supply chains; one that focused on developing internal competence (long-term), while the other sourced parts from Taiwan until such time we had developed competence to produce parts of the required quality in the required time. This would give us the following advantages and help overcome all the in-between problems:

- We would commence manufacture of all components except 'milling head', and work on the supply chain, procurement cost and quality, manufacturing processes, cycle times, lead times, throughput times, standardise work, develop the ability to solve problems, process documentation etc.
- Initially, we would not be constrained by the results of in-house processes for component manufacture, but could respond to the market demands and fulfill those using outsourced components.
- One of the challenges was building in competencies, lean systems, and processes

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required. This was our top priority. The outsourcing strategy was to gain time to build in the Jidoka and Kaizen capabilities, knowledge of JIT tools and techniques, and while doing so not lose the present market, and to begin building a reputation and an image.

- Bring in the CNC machining centers and CNC milling machines. Our intent was not to lose out on present markets while quickly moving on to future ones. We knew that to gain a share of this market we had to compete with the quality low cost manufacturers from other countries; besides Southeast Asian countries are not known to be machine tool producers. To make money in this market one had to produce at low costs and high volumes; however, the sales volumes and contributions could only improve by enriching the product mix. The collaborator had a range of CNC machining centers and CNC milling machines. The



bigger opportunities, greater markets, and better contributions lay in these products.

Living the challenge of 'Possibility thinking'

The company had been in existence for five years, incurring expenses without generating any revenue; hence, it was net cash-negative, living on dole outs from the local parent. So, we had to setup a self-sustaining supply chain that would not demand upfront cash. Having done this successfully in my previous lean transformation, the mechanics were known, but there we had worked like a well-oiled human machine in control of time, process, and quality. That level of human capability was yet to be developed here, and we did not have the luxury of time. I put my trust in the people's capability even though unproven yet, and told them we have to work like a machine to get this going. Everyone was excited and ready. Alas there was going to be some action!

We carefully selected supply partners, agreed on lead times, quality, delivery and a thirty-day payment credit. We placed annual orders and indicated initial pickoff quantities that would self-convert into demand rates later. One supplier was nodal to the shipment of everyone's parts. We then picked a shipping company that best maintained schedules. It took seven days for the ship to dock in Jakarta, two days to receive the container at factory and two days to build the machines. So the machines were ready for delivery in fifteen days from parts' shipment. We shipped the machines, encashed the letters of credit and paid our suppliers on the thirtieth day. And that is how we managed it without having to borrow capital.

Our focus on low lead times and waste prevention brought a huge cost advantage in addition to the negotiated prices. Taiwan was the biggest seller of such machines; the challenge for us was to be more competitive

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than Taiwan even though we were sourcing from Taiwan. To give you a broad idea, the costs worked thus then: If Taiwan sold a machine at approximately US\$ 2,600 we could not price ourselves over this as it would hinder acquiring market and share.

We had to be on par or better to gain entry to various markets. We challenged ourselves to sell at US\$ 2,200 - 2,300 a machine. And the backward working on purchasing costs and lead times both for procurement and building the product began.

We procured complete raw material in fully-machined and ready to assemble condition at US\$ 1,180 per machine set. With internal fixed costs, painting, packing, and warranty at US\$ 350 per set, there was a clear surplus generated of US\$ 670 (or \$770) per set. This meant that at 100 machines per month we would generate a surplus in excess of US\$ 800,000 (or US\$ 925,000) per year! This was targeting to take a mere three per cent share from Taiwan. There was scope to take more market share and further consolidate revenues with the rest of the Bridgeport product range.

This was fantastic news for any factory that was struggling to produce its first machine for five years. Naturally as in-house production of components took over, the contribution would only increase. The advantage of this strategy was in being able to start up manufacturing and delivering with short lead times, enabling to establish a network of dealers and build an image.

The victory

From all the alternatives discussed above, the dual strategy action taken by us was perhaps the best. The ownership of the group and the management at first were divided on this issue. However, we went ahead as it was in the best interest of the company and its stake holders. Enacting the dual concurrent strategy, we



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quickly had the factory buzzing with activity. In about six months we had built processes preventing wastes, established sales channels in many countries, booked orders covered for the next year and a half, and received letters of credits towards payments.

What made this transformation happen? Lean thinking! As long as we were focused, thinking and acting lean, everything else fell into place.

Recognition

I was told that this was considered a prestigious US-Indonesia joint venture project. The previous five years had caused heartaches and disappointments at the projects' dysfunction. Six months from embarking on the lean turnaround journey, one fine equatorial day, we had an array of VIP guests disembarking from their helicopters that landed on our football fields. Ministers and ambassadors followed the Indonesian President visiting the factory to see this magic that had created the turnaround! I am sure they were as pleased with what they saw as was our Chairman showing it off to them. **IM**



ABOUT THE AUTHOR

Sanjeev Baitmangalkar is founder and Principal Consultant, Stratmann Consulting.