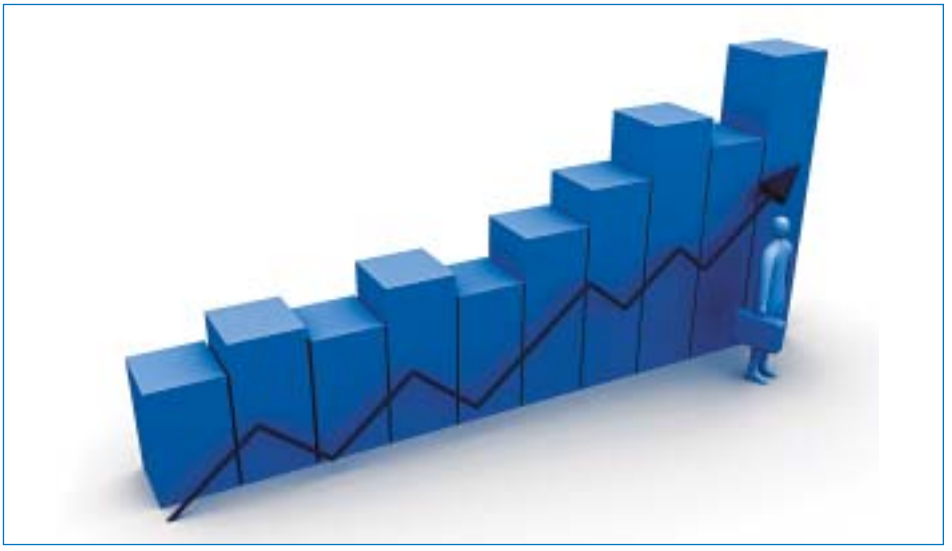
Means to sustain growth

Inspite of its infrastructure woes, India has succeeded in wooing investors and investments by serving as an excellent low cost strategy option. The manufacturing sector has never had it better in the last few years. To learn about the strategies not only to sustain the growth momentum, but also to remain profitable in the face of competition that is yet to come, read on...

The perpetual doubt of whether Indian companies will be able to defend their markets against the invasion of foreign global players is a hot topic for debate. There is a strong view point that foreign competitors will not only go after the high-end market in this country, but will also target the middle and lower segments. But the vital question is that can the Indian companies develop strong global brands? The main defense for India will be in developing stronger skills in innovation, differentiation, branding and service.

It is presumed that global economic integration will continue and trigger significant changes in the manufacturing sector. The knowledge economy will transform manufacturing, and providing the best value to the customer will become increasingly important to the manufacturers. Regional and local industry clustering will intensify and nanotechnology will change the nature of manufacturing and provide expanded opportunities for economic growth. The manufacturers, in turn, will continue to examine their value chain to maximise their company's advantage and core competencies. As a prelude to this, they have already started investing in automation, where process variability is of concern. Manufacturing is evolving from a single-focussed mechanistic model into a system model driven by feedback loops and self-improving networks.

The Olympic motto of '*citius, altius* and *fortius,*' which if you translate these Latin words mean 'swifter, higher and stronger.' Similarly, manufacturing sector



Sanjeev Baitmangalkar is the CEO of Stratmann Consulting. He has expertise in the areas of lean manufacturing, BPR and turnarounds, supply chain management, industrial marketing, machine tools and product development.

has seen trends of higher cutting speeds, greater precision and geometric accuracy, higher process reliability and dependability, faster travel and feed rates on machines for faster machining, faster throughput times, better performance and reliability, and enhanced life. Markets are experiencing trends like disruptive technologies, customer empowerment and mass customisation. These trends have made products cheaper, better and more customer centric, and have changed the way of conducting business. World-class companies today introduce new products with extremely low lead times and shorter life cycles. Today's businesses are characterised by fluctuating demand levels, wildly varying market share, just-in-time (JIT) supplies and annual price reductions. All these trends are here to stay.

Talking about the global market, the overseas perception is that in India there is more emphasis on product engineers rather than marketing and branding, and yet many organisations struggle to either be competitive or sustain their profits year after year. Today, the challenge in marketing is to get your preferred price, while that in manufacturing is to enhance profit margins by eliminating waste and increasing productivity.

Talking about past to present, old business models that worked for scores of years do not work effectively any more. Some may not even be relevant today. This scene is as true in the manufacturing sector as it is in the airline industry. Look at Captain Gopinath's Air Deccan; the low cost airline has thrown the conventional airlines in disarray. The up-market end will have to retain its share only through superior quality of service and giving the customer a better experience or value-added product. Kingfisher, for instance, is trying to toe the line. In the net equation the customer benefits, be it price or service. Thanks to the competition, these trends are forcing almost every company to revisit its business strategies and processes to find innovative ways of continuously delighting customers by offering products and services that exceed their expectations in areas of features, quality and price. This is the only way to gain and retain the competitive edge over competitors. This should not be a one-time effort but a continuous activity that results in a permanent and ever-increasing value to customers.

The essence of competitiveness, using the differentiation or cost strategy, is raising the bar or improving the existing processes. Bringing down cost of production by eliminating wastes from the value stream has become a long and short-term objective for all organisations. The lean manufacturing system is the most effective winning strategy to sustain growth by continuous improvement in productivity through eliminating wastes and reducing costs. The main goal is to deliver what the customers want, when do they want and in the quantity they want, using minimum human effort, minimum inventories, minimum floor space, and at the highest possible response speed.

The principle that Taiichi Ohno first pronounced after decades of work is known to the world today as the 'Toyota production system.' Womat and Jones called it 'lean manufacturing.' General Motors calls it 'global manufacturing system.' One can also call it 'adaptable manufacturing.' Whatever the name, it perhaps offers you the best option to find strategic solutions and competitive advantages to sustain growth and momentum. The success of Toyota production system or lean manufacturing is no secret in the manufacturing world. Every CEO and senior management talks about it, and yet if you went around the country, you cannot see more than a hundred and fifty companies actually practising the 'lean thinking.'

The strategy begins with knowing your customer. The dominant force in the seller-customer relationship has changed since the 80s. We are no longer in the sellers' market. Sellers no longer have the upper hand, buyers do. Customers now tell suppliers what they want, when they want, how they want it and what will they pay for it. This new situation is unsettling to companies that are only comfortable in either mass-market or protected environment. In reality, mass-market never existed, but this idea provided manufacturers with useful fiction that their customers were more or less alike. Mass-market suppliers in India had few competitors; they offered very similar products and services. Customers were not dissatisfied, but for the lack of options, they didn't know there was something better. Now that they have choices, customers have shred the herd mentality. They demand products designed for their unique and particular needs. 'This' customer has replaced the notion of 'the' customer, the one with whom the seller is dealing at this moment and who now has the capacity to indulge in personal tastes. The mass-market has broken into pieces, some as small as a single customer. The balance of market power has shifted from the producer to the customer. Knowing what, when and how of your customers' wants will help you strategise your value creation and addition.

In most organisations, the level of inventory is usually much higher than what it really ought to be. Take an example of an auto-component company manufacturing pumps. Ideally, the throughput time of the pump should be less than an hour using the single piece flow technique. For convenience, one may say a day. This means, one can have an inventory turn of at least three hundred. But if your inventory turn is in a single digit, then you know that you must revisit your strategy, otherwise it will diminish your profit

The main goal is to deliver what the customers want, when do they want and in the quantity they want, using minimum human effort, minimum inventories, minimum floor space, and at the highest possible response speed.

potential as you are over burdened with inventory and people. The JIT goal is 'add value, not cost'. Counting, moving, storing material, searching, decontainerising, accumulating, and inspecting employ a lot of people and resources because of legal and financial reporting. The task of material movers, stock keepers, material clerks, expediters, and data processing support people is a negative one. Their task of managing the waste, delays, and errors in the system depends on failure to make what is needed on time. These activities add cost and not value. Lean manufacturing will help you focus on single piece flow, reducing unwanted work in process and stocks, either as raw material or finished goods.

There are many believers in the zero defect goal and it doesn't matter if it can't be achieved. The number of believers in zero lead time as super ordinate target is small but growing fast. Lead time reduction is a true measure of efficiency. Lead times drop when problems are solved. It drops faster when problems are solved fast. The overall cycle time reduces and efficiency increases, thereby reducing costs. Lean thinking helps in reducing lead times.

Small batches promote small set-up and small changeover times. How do you see the set-up time? Does the skill lie in developing a set-up or in simplifying it? Are set-up technicians and engineers needed to lead the projects, or should operators lead with the help from technicians and engineers?

Should the operator watch the machine run or should the operation be a well-timed routine while the operator is busy thinking about the next improvement? Why are assembly jobs simplified? Is it so that unskilled labour can perform them? Or is it because assemblers can acquire multiple job skills such as data collection, diagnosis and problem-solving? These days the most important type of work-study is changeover and set-up time reduction. Changeover times are a measure of your flexibility and efficiency; they help you work with small or just-required inventory. Lean thinking is instrumental in reducing set-up and changeover times.

Everybody wants to grow, and growth is not a problem. The problem is more-of-the-same approach to growth. And this is where most organisations are unable to improve their efficiency. Growth must be accompanied by a transformation to preserve speed, and to avoid stop-and-go production. What tools and techniques make shop transformation possible? At the top of the list is a set known as just-in-time techniques. The dominant precepts for correcting imperfect flows are - the smaller the lot size, the better (JIT principle), do it right the first time (TQC principle), and maintain the equipment so often and so thoroughly that it hardly ever breaks down or misperforms during a production run (TPM).

Ability to increase make-deliver frequency for every item is a true measure of productive efficiency. A world class manufacturing (WCM) precept is to produce some of every type, everyday and in the quantities sold that day. If a WCM effort fails to make it easier for marketing to sell the product, then something is wrong. At Mysore Kirloskar Ltd (MKL) in Hubli, where they strictly produced to orders, some machines had to be produced as one piece or one number only. They had evolved a methodology to produce one as fast as they produced a batch by the use of JIT techniques. Even where they had continuous orders, their production was on an everyday mix of models to be delivered to customers. They achieved this by shortening the batch sizes and delivery times. In the words of William J. Bennett, "Give yourself an even greater challenge than the one you are trying to master and you will develop the powers necessary to overcome the original difficulty." Lean manufacturing aids in reducing throughput times.

Organisations today are trying to grow by coping with the growing demand. They are able to do this by increasing their outsourcing resources, the vendors. What will such companies expect the vendors to do once the market equation changes? Xerox Reprographics reduced suppliers from 5,000 to 300. GM in Canada sole sourced 99 per cent of components. Twin City Disc reduced from 900 suppliers to 250. MKL in Hubli reduced supplier numbers from 178 to 33. IBM TW division reduced suppliers from 640 to 32.

Stories like these sure strike fear in the

hearts of suppliers. Would this mean that a large number of supplier companies bite the dust? The answer is in negative. If supplier reduction runs its course then the results should be: a typical supplier plant sells in much larger volume to much smaller number of customers than before. Long-term contracts replace short-term purchases. Supplier receives training, advance planning information and some times even financial assistance. Some of the contracts may provide for delivering to a daily rate rather than irregular demands. Buyer takes over making the freight arrangement. Supplier development means making the supplier a part of the family. The rationale for supplier development is 'quality goes up and price goes down.' Too many suppliers mean too little attention to each of them; supplier development starts with supplier reduction. Reduce the number of suppliers to a few good ones.

If you are an original equipment manufacturer, consider all the possibilities to standardise and rationalise your designs and processes. Cut the number of part numbers. If you are a machine tool factory, perhaps you can derive inspiration from the MKL Hubli case study where 1,400 parts replaced 15,000 to produce 27 models in place of the earlier five. They did this by putting together an effective concurrent engineering team from marketing-design-manufacturing. The buying company should not be motivated by benevolence, instead contractual agreements should be tough, so as to drive the supplier into a mode of continual and rapid improvement, and embracing lean manufacturing will show you how. The designs should be so made that the manufacturing process can control the process variations with available equipment. There is always the argument of adding equipment for processes required. The organisation must take a balanced view on the cost effectiveness.

Arrange the work place to eliminate search time. This reduces the throughput time and improves the output. Cross train and multi-skill the work force. Multi-skilling the workforce builds flexibility, optimises the number of the workforce, overcomes line stoppages for want of an operator, and improves operation efficiency. Record and retain the production, quality and problem data at the work place, as it helps to measure improvements and the rate of improvement, and to identify the areas that need to be improved on. Learn from past actions and results. Take corrective actions but avoid pitfalls. Identify training needs and areas where skill needs to be upgraded in order to improve processes.

Give the line-people the first crack at problem solving. A problem is best solved at the place it originates. The data, information and feel are best available at the line-level, unless there is a different technology needed to solve problems. Data can be best collected at the functional level - from operators and line supervisors. For example, if you have a defect or process deviation on the shop floor, that's where the problem must be solved and by those very people. Don't try to do it elsewhere. Building quality circles is a practice used to achieve this. This acts as a motivator as well. Lean manufacturing has amazing problem solving techniques and six sigma is just one of them.

Improve existing equipment and work orce before thinking of new. When qualitative and productivity improvements have to be achieved, some organisations think of investment as a route. Sure, you may have to invest based on an assessed need. But you should first give your best shot of improving your existing equipment using preventive maintenance or productive maintenance techniques. And by training and retraining the workforce build a better appreciation and commitment into the workforce of 'why' this is necessary. If they understand the 'why', they will do the 'how' that you will coach them. Look for simple, cost effective and movable equipment. Equipment should be suitable to match your requirement of daily rate. Today's technology can give you a great degree of sophistication if your process and part design requires it. Small batch producers find the flexibility and ease to set up stand-alone CNC machines. Continuous manufacturers still find simple and dedicated machines cost-effective. The process of continuous improvement also involves frequent layout changes. So having machines that can be easily moved around in the case of layout changes is a huge advantage. Having multiple workstations is an advantage too. Automate only to eliminate process variability or to improve productivity.

The critical success factors here are the knowledge of lean methodology, top management support and employee involvement. Among the key principles are - doing things differently, being assisted by a first-hand experienced teacher (Sensei), believing that change is continuous, accepting that the leadership needs to get some training and learning and be equipped with the knowledge necessary for lean transformation, and building the lean culture across the organisation.

Implementing lean manufacturing system is a breakthrough improvement programme that would touch every aspect of the working of a business and calls for major readjustments. Such a programme can only succeed with active and visible involvement of the top management. Besides the activities directly linked to lean implementation, lean initiative should be elevated to the state of company level strategic initiative. The organisational responsibilities should

The principle that Taiichi Ohno first pronounced after decades of work is known to the world today as the 'Toyota production system.' Womat and Jones called it 'lean manufacturing.' General Motors calls it 'global manufacturing system.'

be rearranged in such a way that shop floor managers would be responsible for the value streams, instead of conventional departments. Lean metrics should be made an important part of the annual performance appraisal for the executives directly involved in production and those required in supporting it.

Involving the employees who will have to work in the lean environment right from the start up of the project is essential. The objectives should be clearly explained and their ideas for improvements must be solicited and seriously considered. If explained properly and if there are no hidden agendas for the management, the employees will normally be happy to participate in the improvement process.

Lean manufacturing system is always implemented with the help of a Sensei - a lean teacher (someone who has successes to his credit). In majority of cases, lean principles are applied to improve the existing manufacturing systems. A good option for lean implementation can be to create a model cell, perfect the implementation methodology and deploy the learning horizontally across the entire factory. This will allow ample scope for experimentation with different concepts without any major disruption to the business. The results achieved in the model cell will motivate the implementation team and will help in convincing the skeptics and non-believers about the benefits of lean manufacturing. Suitable option can be chosen after a review of the current manufacturing set-up. The rate of change is directly proportional to the willingness of the companies and their managements to change. Usually, implementing lean manufacturing is done over a period of time. However, companies begin to see the benefits of change from the first year itself.

Turnover or profit is not the only super ordinate component of growth, although profit is what pays the dividends and bonuses, and boosts the stocks. Growth is a multi-dimensional measurement. Growth must be measured everywhere in the value stream such as - new markets acquired, market share, customer share, growth by numbers sold, added value to the customer, new products developed, reductions in throughput times, number of inventory turns, productivity improvement, quality improvement, customer rating, response time, personal growth of people, technology absorption and lean measurement of processes. These are the foundations to an everlasting empire. If the focus is on getting these fundamentals right, profits are sure to flow in. Lean manufacturing system is perhaps the best-known strategy today. Go for it and you too will be a winner in the global market.