Edelweiss Capital

CII MANUFACTURING SUMMIT 2003

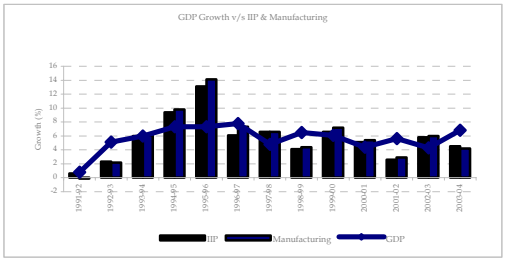
EXECUTIVE SUMMARY

Backgrounder

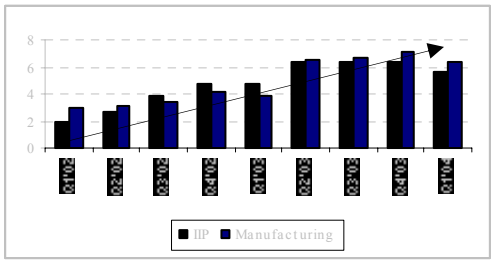
Oct. 30-Nov. 1, 2003

Revival of the Indian Manufacturing Sector

After half a decade of industrial slowdown, the growth momentum has returned in the domestic economy over the last 12-18 months. GDP growth is expected to easily surpass the 6.0% mark, led by the near perfect monsoon and the strong performance by the industry particularly the manufacturing sector.



Source: CMIE

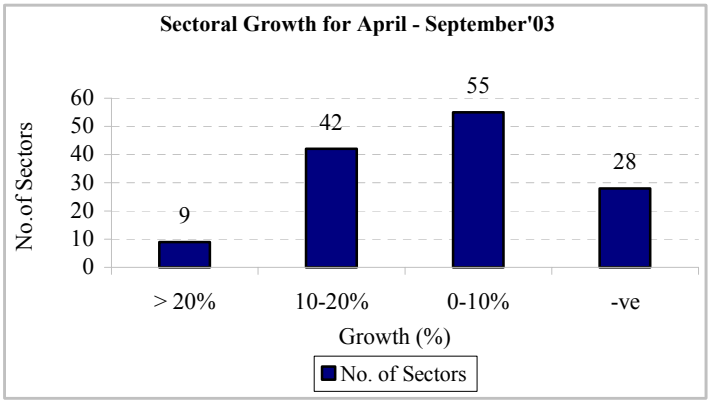


Source: CMIE

With rainfall estimated to be 3.0% above average, monsoons have set the tone for accelerated growth in consumption demand. With rural incomes strongly linked to agriculture, the stage is set for a substantial rise in rural demand with concomitant effects on consumer goods - both durable and perishable.

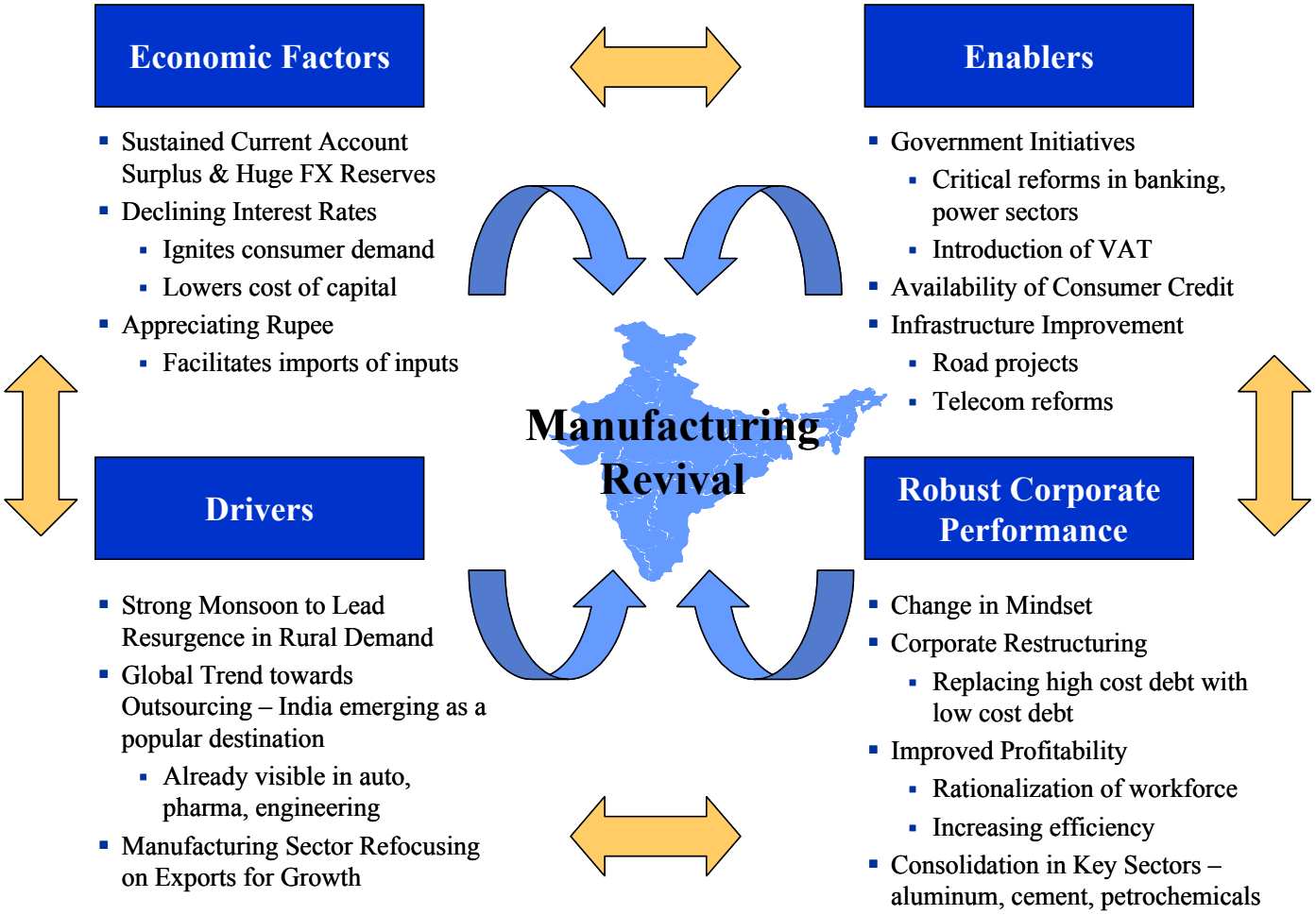
The strong rupee has led to a significant decline in input costs, particularly oil. Further, the steadily falling interest rates have allowed companies to restructure high-cost debt and accelerate investment and this is reflected in the improved performance of the manufacturing sector. In addition, the Industry is also doing well on account of greater capacity utilization (more than 75%) and availability of consumer credit generating demand.

Corporate India has reported impressive numbers for the first quarter of the new fiscal year 2003-04. While most sectors look good, traditional ones like power, refineries, textiles, steel and auto have come up with positive results.



Source: CII-Ascon

As per a recent quarterly survey (July'03) by NCAER, the Business Confidence Index (BCI) has touched its peak since mid-1995 - up 12.0% qoq and 23.0% yoy. The increase in BCI has been across sectors, regions, the overall economic conditions, investment climate, financial position of firms and capacity utilization.

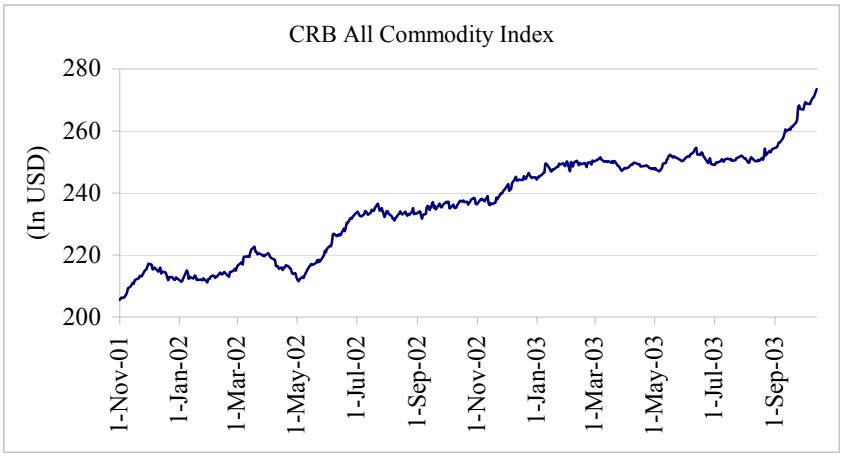


Source: Edelweiss Capital

The Catalysts of Change – Key Drivers of this Transformation

Several favourable external factors such as the turnaround in the global commodity cycle and good monsoons are responsible for this transformation becoming noticeable today. We, however, believe that there are three fundamental elements that have been working in the background driving this transformation in general and in the manufacturing sector in particular:

Global Commodity Cycle



Source: Bloomberg

- **Change in Mindset leading to Self-Belief**

  Liberalization has had its impact… the earlier mindset of seeking protection from imports has been replaced by a new confidence to compete with the best globally. Further, the slowdown in the domestic markets acted as a catalyst in bringing about an attitudinal change of focusing on global markets.

  This change in the mindset of Indian corporate managements' has resulted in significant improvements in the manufacturing sector over the last five years. Indian companies have rationalized workforces, modernized and upgraded shop floors, consciously focused on quality standards, taken steps to enhance productivity and invested in international markets for business development. This significant change in management attitude has enabled Indian companies to become competitive in the world markets.

- **Government Initiatives**

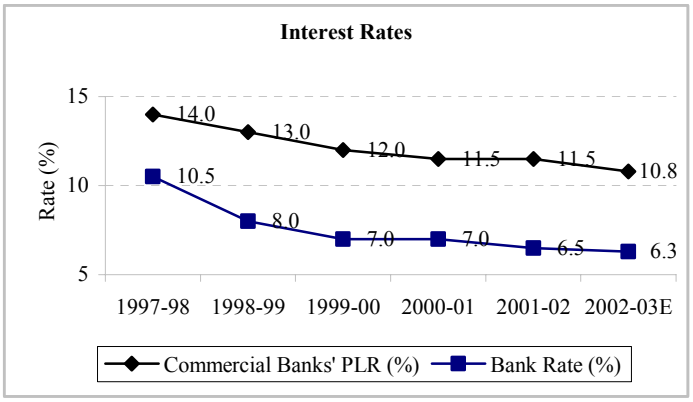
  In the last few years, the government has undertaken a number of reforms and initiatives that make it a facilitator rather than an impediment to business. This has brought about a fundamental change in the business community's perception of government's role - and with it the confidence that the reform process is irreversible and the fact they could operate in a reasonable hassle free environment.

  - Significant infrastructure investments (ports, telecom, roads) have been undertaken. Further, new projects such as the Golden Quadrilateral project and the North South East West Corridor are likely to have a multiplier effect on the manufacturing sector
  - Setting up of Special Economic Zones (SEZ's) and simplification of procedures (goods are cleared at ports within 24-48 hours against 14 days earlier)
  - Electricity reforms initiated will considerably bring down the power costs for the manufacturing sector (currently power costs account for about 6.0 % of the cost of production and are more than twice the costs in China)
  - Ongoing reforms in excise, customs and sales tax duties – gradually moving from a multiple tax rate regime towards a uniform rate tax regime, introduction of VAT to replace retail sales tax

- **Financial Sector Reforms**

The last few years have seen striking financial sector reforms – capital market reforms (introduction of rolling (T+2) settlements, derivatives trading, increasing role of SEBI as a regulator, buy back of shares, dematerialization of securities, screen based transactions, opening up of domestic markets to global investors etc.), increasing emphasis on transparency and corporate governance, stronger accounting systems, allowing the setting up of 100% subsidiaries by MNCs, easing of overseas investments norms, etc. All these factors have contributed towards making the investment climate positive in India.

Further, steadily declining interest rates have reduced the cost of capital, enabling Indian companies to become globally competitive. Over the last four years, India has seen a decline in real and nominal interest rates. Corporates can now borrow at 8.0-9.0% compared to 14.0-15.0% four years ago. Besides, over the last few years, borrowing in foreign currency has also become relatively easier. This access to low cost capital is mitigating the problems Indian corporates faced while competing internationally and has further given companies an impetus to invest in corporate capital expenditure, which will help industrial recovery to gather momentum.



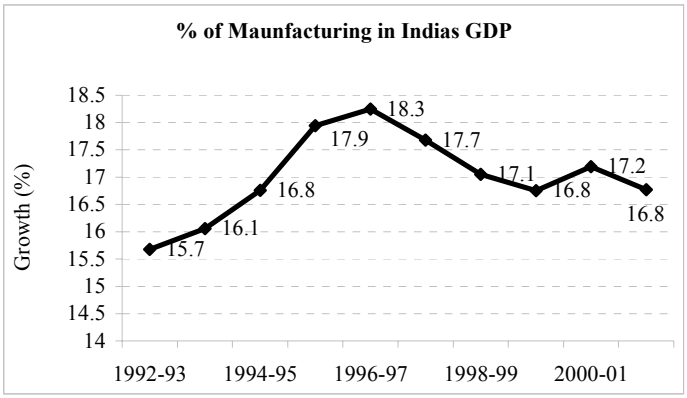
Source: RBI, CSO

Indian Manufacturing: The Road Ahead

In theory, at early stages of development, a country would have a higher role for the manufacturing sector (>20% of GDP) due to two factors – the higher share of manufactured products in the domestic consumption basket and setting up of export bases in such countries because of availability of cheap labor. As per capita income increases, manufacturing's share drops below 20% and the share of services grows.

However, this relationship between development and role of manufacturing in the economy does not strictly hold in all cases. Consider the example of South Korea and Japan which continue to be competitive exporters of manufactured goods. Manufacturing's share of GDP is increasingly a reflection of the export competitiveness of the manufacturing industries in the economy, rather than the share of manufactured products in the domestic consumption basket.

This tells us that while in the past 30 years, Indian manufacturing has contributed about 15.0-18.0% to the GDP and can expect to continue growing at the rate the economy grows, the real opportunity to improve manufacturing's share lies in exports.



Source: CSO

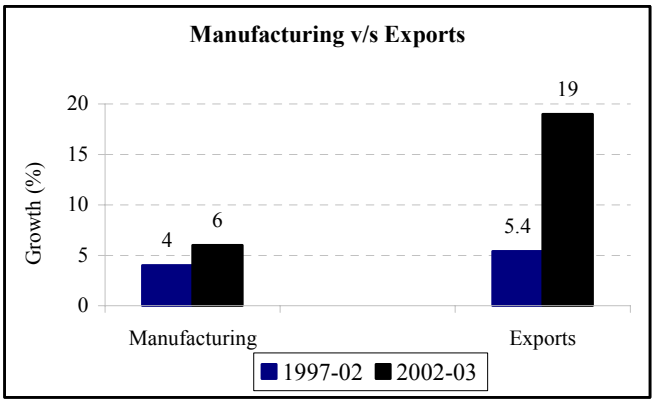
Although contribution of manufacturing in India's GDP has remained static, a lot of qualitative changes have taken place during this period. Cost competitiveness has been achieved in several industries through scale, supply chain development, reduced import tariffs, redesigning plants & automating processes, rationalizing workforce, streamlining vendors' networks and enhancing quality. Companies are also focused on exports for growth and are now spending more on increasing visibility and developing & nurturing international markets. All this is expected to translate into an aggressive growth phase going forward.

Evolution of Manufacturing Industry in India

	Phase 1	Phase 2	Phase 3	Phase 4
Period	Pre 1985	1990– 1998	1998– 2005	The Future ?
Markets	Domestic	Domestic	Domestic & Export	Global Markets
Sourcing	Imports	Domestic ("Import Substitution")	Primarily Domestic	Global Sourcing
Value Addition	Assembly ("Screwdriver Technology")	Re-engineering, Manufacturing & Assembly	Re-engineering, Manufacturing, Assembly, Quality Control, & SCM	Design, Manufacturing, Assembly, Quality Control and SCM

Source: Edelweiss Capital

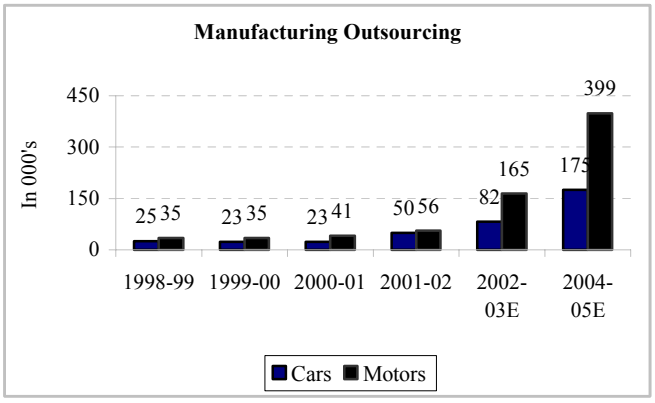
The manufacturing sector grew at a 4.0% CAGR during FY97-02 and 6.0% in FY03. The growth in FY03 has been primarily led by exports which grew at 19.0% in FY03 compared with a 5.4% CAGR between FY97-02.



Source: Edelweiss Capital

Manufacturing outsourcing is already visible in the pick-up in auto, auto components, engineering and pharmaceuticals exports. During the last three years, pharmaceutical & engineering industries reported a 15.0% and 14.0% CAGR in export revenues respectively whereas overall exports have grown at 9.0% CAGR. Some prominent examples of increased momentum in outsourcing are Kawasaki's plan for outsourcing motorcycles from Baja Auto, Rover's deal with Tata Motors for supply of Indica cars for the European market, Hyundai India and Maruti Suzuki supplying cars for their parents' businesses for various overseas markets. Shashun Chemicals successfully leveraged its strengths in cost competitive manufacturing & process development skills to build supply relationships with global players such as Eli Lilly, Austin Chemicals and Eastman Chemical. The textiles industry is also expected to see significant outsourcing opportunity especially as the current quota system is removed in 2005 under WTO agreement.

Manufacturing Outsourcing pick-up in Auto, Auto Components



Source:

(CHART TO BE UPDATED FROM SIAM AND ACMA FIGURES)
Indian manufacturers offer a combination of high quality components and vehicles, high productivity and logistics management. The favorable policies and improving infrastructure are luring MNCs to set base in India for catering to global requirements. Today, India nearly exports USD 2b worth of cars, trucks, SUVs, two - wheelers and auto components across the globe. Over the last five years numerous MNCs have opened dedicated procurement offices in India to identify and expand their sourcing operations. Ford Motor has decided to source about USD 120 -160m worth of components over the next two years.

Major MNCs having sourcing offices in India

Volvo	Delphi
General Motors	Cummins
General Electric	Toyota
Hyundai	Unilever
Daimler Chrysler	Clariant
Ford	Tecumseh

Source: Edelweiss Capital

Learning from the Success in Software Services

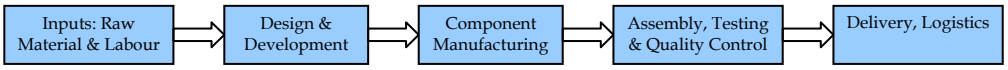
The software services industry has grown at an average annual rate of over 50.0%, from almost nothing in 1991 to sales of almost USD 10 bn in 2002 and employment of around 400,000 people. It makes up 15.0% of India's exports. NASSCOM predicts that by 2008 India will export USD 50 bn-worth of software and allied services, and employ 1.1m people.

Whether selling software or other services, India can offer the same deal… work done to global standards, at a faster pace, at Indian costs. Indian software houses proved themselves by sorting out western companies' millennium-bug problems, and then went on to win bigger, longer-term and more demanding contracts. Today, India is universally recognized as the Backoffice of the World for software services and BPO.

We believe that many of the same factors that contributed to India's software success can be leveraged to craft a similar success in Manufacturing.

Opportunity for India to emerge as the Integrated Manufacturing Hub of the World

We define Integrated Manufacturing as the ability to conceptualize, design, develop, manufacture and deliver a product in a globally competitive cost, quality and time-frame.



<scale up chart>

We believe India has certain core advantages in each of the elements of the diagram represented above plus the expertise to tie these all together so as to offer a complete solution. We have identified these core advantages and explained how they interact and combine together to create a fairly unique value proposition.

- **Availability of Skilled Manpower**

According to "The World Competitiveness Yearbook" published by the International Institute for Management Development (IMD), India ranks first in the availability of engineers (score of 8.5 points followed by Brazil) and second in the availability of skilled labor (score of 7.4 points, the first being Germany with 7.5 points). India has the second largest pool of scientific talent in the world adding 0.14m engineers and 1m polytechnic diploma holders every year.

Availability of Skilled Labor (in 2000)

Country	Score
Germany	7.5
India	7.4
USA	7.2
Brazil	6.4
Mexico	6.3
China	4.8

Survey results 1=low, 10=high

Availability of Qualified Engineers (in 2000)

Survey results 1=low, 10=high
Source: IMD

Country	Score
India	8.5
Brazil	7.5
USA	7.4
Mexico	6.6
Germany	6.6
China	4.2

Source: IMD

Lower cost of skilled labor reduces employee expense as a percentage of revenues, making Indian companies cost competitive globally.

E.g. OEMs that have been buying from Bharat Forge are now entrusting it with the task of designing critical engine components.

- **Strong Domain Skills in Design, Manufacturing Systems and R&D**

The ability to provide design services is a significant value-add to the customer and significantly enhances positioning as a solutions provider. The product design process includes (1) determining customer needs and functional requirements, (2) evolving the concept and system design, and (3) engineering design, analysis and prototyping. A complex product such an automobile or aircraft comprises several assemblies, sub-assemblies and components, and requires several hundred engineers who may be working on different components or sub-systems in parallel. A high degree of collaboration and mechanisms for design conflict resolution are necessary to achieve compatibility between different sub-systems and overall optimization in terms of cost, quality and lead- time. The success of Tata Motors's *Indica* and Mahindra & Mahindra's *Scorpio* clearly bring out India's capability in these areas. Rico Auto, a USD 100mn foundry company, won its first order from General Motors (GM) on a build-to-print basis. In the second order, GM involved Rico in the design process and in the third order GM developed this component together with Rico.

Indian companies have traditionally demonstrated an ability to absorb Japanese and American best practices and technology and modify them to suit Indian conditions with exceptional results. Godrej & Boyce has leveraged its relationship with GE to imbibe and adapt GE's global benchmarks on quality and productivity with outstanding success.

India's strength in R&D is best demonstrated by the pharmaceutical sector - a host of Indian pharmaceutical companies are successfully demonstrating India's abilities in chemistry and manufacturing, where R&D led growth is becoming a fact of life. As the pharmaceutical model matures, Indian companies will be doing a whole range of activities from new drug discovery to molecular synthesis and contract manufacturing. India today has the largest number of US FDA approved manufacturing facilities in the world, outside the US.

- **Component Manufacturing and the Supply Chain**

A component manufacturing industry is very essential to the concept of integrated manufacturing, since they bring in specialization, innovation and financial flexibility to any value chain. India's history in developing SMEs has helped create a healthy component industry and this is best observed in the auto and home appliances sectors, where the vendors are well integrated in the supply chain with the ability to respond very effectively to demands of the end customers. With the export market opening up, component manufacturers will also be able to expand overseas to achieve global scale.

Clusters can play a significant role by reducing developmental bottlenecks to a significant extent and generating significant external economies. The success of the software technology parks in various parts of the country is a case in point. Another example is the setting up of SEZ's such as SEEPZ in Mumbai, catering to the gem and jewellery industry. Successful clusters include Meerut for sports goods, Sivakasi for fireworks, Ludhiana for woollen knitwear and Tirupur for hosiery units.

- **Availability of Metal Based Resources**

India is endowed with rich natural resources, a major plus for a number of metal-based industries. Using India's rich iron-ore and aluminium resources and applying technology and best manufacturing processes and practices, Indian companies like TISCO and Hindalco have emerged the lowest cost producers of steel and aluminium respectively.

- **India's Strength in IT**

  A somewhat special characteristic of IT is that it is a "general purpose technology" (GPT), distinguished by pervasiveness, technological dynamism and innovational complementarities. In this case, IT is one of a special few technologies: other examples of GPTs include steam and electricity (both advances in power delivery systems) and synthetic materials. IT is unique in its impact on growth; IT plays a special role in the process of innovation, because it affects the rate at which potential new ideas are converted into additions to the usable stock of knowledge in ways that nothing else can.

  India's strong Information Technology skills are the key to creating a total value greater than the sum of the parts. The capability to integrate automated and manual processes and tie various systems/elements together enables Indian manufacturing to capture greater value in the value added chain. Indian software firms have already gained significant expertise in designing and implementing integrated software solutions to the largest and best companies worldwide and this can now be tapped within the country.

  International customers expect a very high level of adherence to delivery schedules. For Indian manufacturers this is a function of both the evolution of their manufacturing systems as well as their logistics capabilities. Investment in IT is a necessity as companies need to be integrated within the organization (ERP, MRP) with their supply chain (SCM) and to the customers (CRM). The effectiveness of logistics will also depend on the transportation and infrastructure, an area where India is making significant strides.

  In summary, manufacturing in India thus far has only been a sideshow, with a few glimpses of real potential coming through. However, India possesses significant advantages that can be exploited to create a global manufacturing powerhouse. But in this endeavor, as in anything momentous, to take center-stage the essential requirement is to be world class.

Becoming World Class

Firms everywhere have some inherent advantages and disadvantages. However, successful firms in these environments design technological and managerial interventions to develop other competitive advantages that overcome these inherent disadvantages. What kind of clear competencies would Indian manufacturing companies need to develop to become globally competitive?

It is difficult to arrive at a single inclusive definition for 'World Class'. However, any definition of world class in a manufacturing context is likely to incorporate one or more of the following:

- Lowest cost producer worldwide
- Zero defect producer
- Zero customer complaints
- Low on working capital usage
- Short product development life cycles
- Continuous improvement
- Profit is a by product of excellence
- Global sales at least 30% of turnover
- Company that drives innovation
- Is in relentless pursuit of skill development
- Employer of first choice

While the need for international competitiveness is quite obvious, sustainable competitiveness will stem from productivity / business efficiency. This will increasingly require maximization of value relationships between quality, service and price. The goal of successful enterprises will be to find the optimum position in the "better-faster-cheaper" competitive triangle.

The ability to emerge as a low cost high quality manufacturer will ultimately be the differentiating factor amongst successful companies. Creativity and innovation determine a company's competitive strength leading to continuous improvements, reductions in the cost structure and enhancement of quality. Scale of operations, competitive pressures within an industry and acceptance of best technology and practices encourage a firm to strive for greater efficiency.

One of the first requirements of becoming world class is to create and interact within a world class environment, i.e., use global standards in work practices, equipment & tools, quality & safety etc. Firms have opportunities to learn about best practices from global suppliers, consultants, customers and even competitors. Competing with global competitors helps in establishing contemporary technical and managerial benchmarks and practices. It is not uncommon for world class firms to track progress, investments, strategies and practices of their competitors with care. Contract manufacturing is one way of interacting with world class firms to learn and develop capabilities, particularly for smaller/medium sized firms.

Investment in generation of intellectual property in the product, process and practice domains creates sustainable advantages. Attracting talent to manufacturing - hiring people with advanced degrees and ensuring that technical expertise is financially rewarded at par with managerial expertise in the organization, providing intense technical training on advanced disciplines, focusing on process R&D on the shop floor (as this is less easy for a competitor to copy), improving imitation capabilities, and including number of patents filed as an important performance measure for the plants will help in this direction. Once such a regime sets in, implementing programs on innovation and productivity improvement will become easy.

Apart from constant process improvisations, timely delivery of defect free products with strict adherence to quality will be key drivers of global competitiveness. Companies with strong

internal processes, systems and quality control checks in place ensure consistent high quality service delivery. [The number of QS certified plants in the country has gone up from virtually zero in 1991 to around 8,000 in 1999 (what is the number today?) number of FDA approved plants, Deming prize winners, SEI-CMM certifications] Indian auto component suppliers regularly feature as winners of quality awards instituted by global car manufacturers. E.g. Sundaram Fasteners has been a regular winner of annual "Best Suppliers Awards" from General Motors.

Responsiveness means that the designed product meets customer requirements, not only when the product is launched, but for several years after that, and maintains a lead over competing products. Further, the product should reach the customers in the shortest possible time, well before the nearest competitor, to establish a lead and grab a larger share of the market. Providing good after sales service and prompt redressal of consumer complaints go a long way in establishing a satisfied and loyal clientele – one of the key parameters for judging a successful company.

Global firms focus intensely on their suppliers. This is where new models exist in integrating small and medium suppliers successfully in a firm's operations. Whether it is intervention in shop floor practices or investment in technology or early discussions during product development, any support to suppliers yields compounded returns to the manufacturer in terms of reduced variability in quality and delivery, higher precision, lower costs etc. And this includes paying suppliers in time, which otherwise is likely to negate all the good efforts of the manufacturer towards the supplier. Once the supplier side intervention is linked with good decision support systems (i.e., computer based models to help make decisions) within the plant and in managing distribution network, a firm can be on its way to becoming world class.

Investment in IT facilitates management and flow of information across different activities, supply chain and sectors. Many manufacturing firms have successfully adopted IT for all activities – design, production and supply chain management – to establish a clear competitive edge over others. Use of IT enables elimination of intermediate tasks and automation of routine tasks. Virtual storage and digital movement instead of physical storage and movement greatly reduces the cost and increases the speed of activities related to information and knowledge management. It also enables concurrent participation of team members and facilitates better and faster decision-making. All this leads to dramatically higher competitiveness of manufacturing firms. Software programs help automating process planning and manufacturing resource planning functions to a great extent, usually by drawing upon previous plans stored in a database. It is possible to coordinate the detailed plans of different units within the factory to achieve a smooth flow of products while maintaining a high level of resource utilization.

And above all, world class competitors have a Strategy-Practice-Execution Plan (SPEP) that helps dynamically plan manufacturing strategies, design managerial practices to achieve performance targets, and finally execute them effectively. Absence of SPEP means less than optimal returns. Becoming a world class competitor is as much about planning to become one as it is about making it happen.

<Case studies to be juxtaposed with the text in the integrated manufacturing hub and world class sections>

Case Study I – Essel Propack – "Opportunist to the Core"

Essel Propack Ltd (formerly Essel Packaging), promoted by Essel group is the world's largest manufacturer of laminated tubes, enjoying a 70.0% share in the Indian & Chinese markets and a 30.0% share in the global market (more than the share of its two biggest competitors Cebal and Betts put together). With fifteen manufacturing locations across ten countries, Essel services MNCs such as Unilever, Colgate-Palmolive, SmithKline Beecham, Procter & Gamble, Kiwi TTI / Sara Lee, Revlon, Oriflame etc.

Back in 1983, Essel realized the potential for plastic laminates for India. With tough initial years and losses that almost wiped out its equity capital, by the 1990s it conquered the Indian market and went global by setting up its first overseas plant in Egypt and then moved into China. While most companies feared the high tariff barriers and Chinese competition, Essel saw it as an opportunity (1.3 bn Chinese using toothpaste!). By 2001, Essel was the 2nd largest manufacturer in the world and post its acquisition of a Swiss firm Propack, Essel emerged as the No.1 player in the world.

Right from start, Essel catered to the demanding needs of MNCs such as Colgate and Lever, who insisted on high quality to safeguard their global reputations. With tough initial years, Essel serviced their Indian operations successfully and tapped the opportunity to serve their global operations.

While other Indian companies constantly faced labour laws and productivity issues, plastic laminates being a capital intensive product using minimal labour, acted as a growth propeller. Lastly, Essel's constant R&D efforts placed it in competitive position enabling it to diversify its product range.

Producers of plastic products (luggage, pipes, etc...) found themselves undercut in price by small-scale units that escaped both labour laws and taxation issues. Their quality was poor, but Indian consumers typically valued price over quality. During this phase, Essel undertook severe cost cutting measures at the same time without compromising on the quality front. This mind-set prepared it for the global market.

Case Study II - Gland Pharma – "Focus on Quality"

Established in 1978 as an exclusive facility for Small Volume Parenterals (SVPs), Gland Pharma has come a long way (expected to have revenues of INR 700 m in FY04) and the company today has leadership position in the manufacture of injectables in the country. The company has pioneered the Heparin technology in India and is a leader in GlycosAminoGlycans (GAGs) range of molecules. Gland Pharma offers a complete range of solutions from formulation development, analytical method development and validation to actually manufacturing and delivering the product.

During the various stages of its evolution, Gland Pharma faced many challenges, key amongst them identified as - strict adherence to international quality standards and lack of world class manufacturing facilities. The company successfully met these challenges and today these very areas are its key strengths, differentiating it from its competitors.

The company realized early on the importance of having the highest quality standards in play, specially, in the field of injectables. Leveraging its learnings from the various quality audits conducted by its clients and after performing several self-inspection tests, the company's quality standards today meet international requirements.

Gland Pharma entered into a technological collaboration with Vetter Group, Germany and set up a world class and world-scale (250,000 sq feet) facility for injectables – the single largest location for in the world. The alliance with Vetter provides Gland Pharma a technological edge in injectables, specially, in Pre Filled Syringes.

The company has also been pre-emptive to changes - with the domestic market facing a slowdown, the company decided to focus on entering the regulated markets. Exports have picked up in the last 3 years and are expected to contribute around 35.0% of revenues in FY04. Further,

integrating its strengths in GAGs and Pre Filled Syringes, the company has launched many niche molecules.

The company strongly believes that its world class manufacturing facility and stringent quality standards have been primarily responsible for its success.

Case Study III- Precision Automation & Robotics India (PARI)

PARI, incorporated in 1990 by highly qualified technocPARI , incorporated in 1990 by highly qualified technocrats Mangesh Kale and Dr. Ranjit Date, provides automation solutions primarily to the home appliances and auto sectors. The company was the first to enter this space in India and is the largest and most successful player in this area.

PARI was the first to spot the fundamental transformation taking place in Indian manufacturing with its focus on automation as a route to greater productivity. However, it was not smooth riding: on the one hand, it faced significant challenges in convincing customers on product adoption and price expectations and on the other, it had to compete with established large multinationals on the product quality front.

And for a company that has designed, developed and built the technology ground-up in India, success has not been restricted to India. PARI boasts of a satisfied customer base of over 60 major customers from various different industry segments - more than 10 global automotive OEMs, 20 Fortune 500 clients, Philips, Godrej, Telco, M&M, Hero Honda, Bajaj, ordnance customers such as the Ministry of Defence, CSIR, DRDO etc. The company also outsources ergonomics components to its US partner, Knight Industries as well as components and entire systems to Fanuc, a world leader in robotics.

PARI has been successful because it provides an integrated solution to its customers - from application engineering, equipment design, manufacturing, assembly, testing, system integration and software to turnkey execution and training. India's strength in IT is also advantageous as software is a critical component of the automation solutions.

While most automation providers remained content with delivering what they know, PARI looked for opportunities to handle customized automation solutions for special applications. These challenges required a novel solution to be imagined, conceptualized then engineered and deployed. Such solutions included non-standard configurations of robots, special control systems, custom end-of-arm tooling, remote operated systems, hazardous area operations, high precision, high payload or high speed applications, in short problems that challenge practicality of conventional thinking.

Case Study IV: Auto Components

The auto ancillary industry has benefited from being part of an integrated manufacturing environment, comprising of OEMs like Leyland, Telco, M&M, Hindustan Motors, Maruti etc. When international auto companies came into India in the 90’s with some import substitution commitments, they began looking towards the local ancillary units to support some of their requirements. With strong capabilities in R&D and some investments in quality and processes ancillaries were soon establishing a foothold in international markets through the Tier I and Tier II vendors.

Bharat Forge (BFL) is a much discussed success story of the auto component manufacturing sector. BFL had invested in a state of the art forging facility with two automatic 16,000 ton press lines – and is among the few companies in the world with these facilities. Having achieved scale the next objective was to optimize the utilization of these assets by focusing on international customers in addition to domestic ones. BFL added customers aggressively across diverse markets – US, Europe and even China.

With its in-house design capabilities, BFL won over many new customers by helping them achieve faster time to market through rapid turnarounds (from design to finishing) of products at

a very competitive cost. It leveraged IT investments to create a strong operations environment to effectively deliver end products on schedule.

In an effort to improve the value to the customer, BFL expanded its machining capabilities. During FY 03 machined components accounted for about 49% of turnover. With about USD 150 m in sales (FY 03) the company grew at an impressive 45% over the previous year and notched up record profits. The growth was achieved by a buoyant domestic markets (commercial vehicles grew at 17% in 2003) and a thrust on exports which contributed to about 40% of turnover. Today the customer list includes over 24 international names such as Daimler Chrysler, Volvo, Renault, Toyota, Arvin Meritor, Honda, Cummins, etc.

The success story does not end with the bigger players with the capital resources to make large investments. In case in point is Super Auto Forge in Chennai. The company, which has been around since 1974, specializes in cold and warm forging of aluminum and extruded steel components. Cold forgings are a more capital-intensive industry compared to hot forgings and are ideal for applications requiring high quality surface finishing. Typically smaller parts such transmission and steering and suspension components use these.

Developing world-class competencies: SAF has from the beginning focused on OEM customers, which account for about 90% of its product offtake, through Tier I and Tier II vendors like ZF Lemforder, Bosch, Component Speciality etc. This necessitated a strong quality orientation. The company also built R&D competencies such as 2D / 3D CAM / CAM software as well as metal forming simulation, which helped it offer a higher value to customers and accelerate new product and process development. SAF has also invested in design, forging, machining, heat and surface treatment, and testing facilities allowing a range of integrated operations within the same facility. It has been quick to adopt concepts such as dedicated cell layouts high volume parts to maximize asset utilization.

Looking outward: SAF focused on exports from the latter half of the 90's and this strategy has paid rich dividends. Today it exports nearly 60% of its turnover to markets in North America and Europe. It received ISO 9002 and QS 9000 certifications during the late 90's even when exports were a not very signing with respect to sales. Exports have grown from less that USD 1 m in 1997 to about USD 7 mn in FY2003.

SAF looked to Russia for low cost capital equipment and Russian armament factories that were closing were an attractive source. In the process it developed networks in Russia that resulted in the company investing in a JV in Russia with partners of Indian origin. The company expects believes to help it target East European markets from Russia far more effectively than from India.

Super Auto Forge is a classical success story of a small company making it big in the auto components business. It has adopted differentiated strategies companies to achieve its current unique position.

National Manufacturing Policy

Translating vision to reality – steps that government and industry need to take

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