



Creating jobs with 'Make in India'

Corporate India across the spectrum wholeheartedly supports the "Make in India" initiative of the government. The idea that manufacturing can have a very substantial impact on job creation and hence needs adequate focus is widely accepted today after years of a narrow-minded focus on IT and services. The part-1 series of the article discusses that while it is possible to increase low-end manufacturing in the country in an effort to create jobs for all kinds of talents, the window of opportunity for the same is narrow and hence requires decisive action today.



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The vision of "Make in India" is to facilitate investment (both domestic and foreign), foster innovation, enhance skill development, protect intellectual property and to build a best-in-class manufacturing infrastructure in India. Targets for this initiative have been clearly spelt out. Manufacturing sector growth should increase to 12-14% pa over the medium term,

manufacturing's share in GDP should increase from 16% to 25% by 2022, and 100 million additional jobs should be created in the sector in the same time frame. These targets are ambitious. Adding 100 million jobs, for example, means tripling current employment in manufacturing.

Enablers have also been identified. Unnecessary processes,

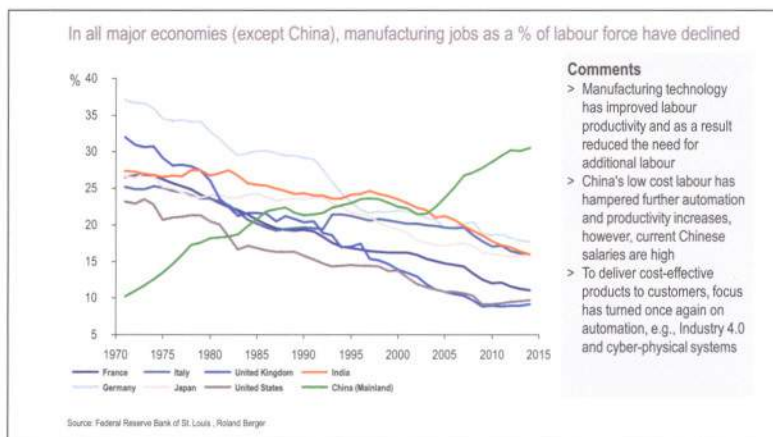


Figure 1: With a delayed effect, manufacturing jobs are seeing a drastically similar decline in % of people employed in most economies

laws and regulations will be eliminated. Time-bound clearances will be given to projects through a single on-line portal. Appropriate skill sets will be inculcated through quality education. The government will be made more transparent, responsive and accountable and we will increase domestic value addition and technological depth.

All these points are laudable and timely. Is it then just a matter of consistent execution that will allow India to leverage her "demographic dividend" and become another factory to the world similar to China? Can we capture the space that China seems to be vacating by moving from "Make in China" to "Innovate in China"? While it is possible to increase low-end manufacturing in the country in an effort to create jobs for all kinds of talents, the window of opportunity for the same is narrow and hence requires decisive action today.

Five major trends impact our opportunity to create the intended 100 million jobs by 2022:

- Competition from other low-cost countries eager to establish manufacturing footprints of their own
- Competition from established countries trying to re-industrialise and bring value addition and jobs back home rather than outsource them to China or an alternative
- Increasing pressure for environmentally friendly production not only in developed but also in emerging countries due to the latter's significant influence on global GHG emissions
- Need to invest in research and development to avoid creating knowledge gaps with competing economies such as China that turn out to be too large to be closed in a reasonable time frame

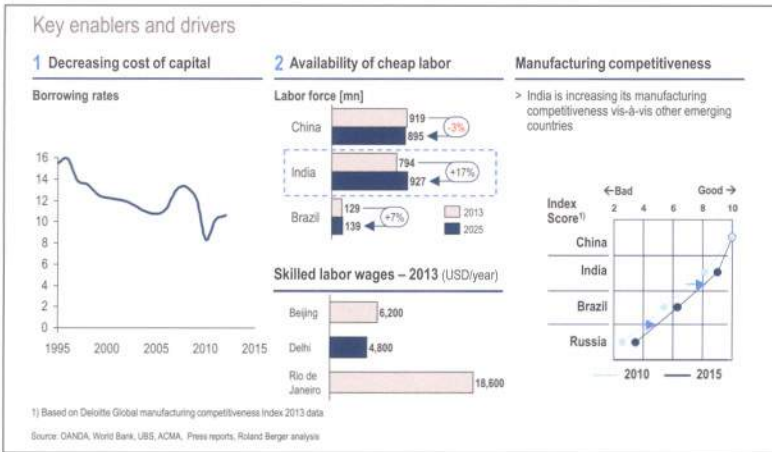
- Non-uniform capability of Indian companies to compete at global levels of efficiency and quality due to internal reasons as well as lack of a manufacturing ecosystem

In addition, globally manufacturing jobs have declined as a function of time as shown in Figure 1. The only exception here is China which has dramatically added jobs over the last few years as companies used low labor cost in China as an alternative to further investments in automation and productivity improvements. With relatively high salaries in China and a new focus on efficiency improvement in the Triad, this trend is likely to reverse itself.

Make in India – The background

Corporate India across the spectrum wholeheartedly supports the "Make in India" initiative of the government. The idea that manufacturing can have a very substantial impact on job creation and hence needs adequate focus is widely accepted today after years of a narrow-minded focus on IT and services. Overall factors are also in India's favour. Cost of capital has come down significantly since 1995 and is likely to reduce further. India's labour pool is set to be larger than China's in the mid- to long-term. Salary costs for skilled labour are already lower than Chinese labour costs. As a consequence, India's manufacturing competitiveness should improve v/s China as shown in Figure 2.

The current economic environment is also supportive. After two challenging years, the Indian economy shows signs of a modest recovery. Inflation has fallen to single digits (backed in particular by a global reduction of oil prices), GDP growth is



With the expected growth in economy and increasing competitiveness, Indian manufacturing is set to grow rapidly

inching up to a 7-9% range and interest rates are coming down albeit slowly. This revival of economic growth, if supported by consistent government action, should boost industrial activity, increase income and rekindle consumption led growth.

However, major challenges for “Make in India” remain. Poor infrastructure, a tedious bureaucracy, labour law complexities and corruption are some of the key investment risks in India. Due to capacity constraints at major ports and their low mechanisation levels, slow inland freight movement, lack of last mile connectivity, etc, India's logistics performance has declined over the last 7-8 years. India's Logistics Performance Index (LPI) is now 54 down from a rank of 39 in 2007. According to a Worldbank study, the ROS of heavily logistics dependent companies is 200 bps lower in India than in best-in-class countries. In terms of Ease of Doing business, India faces clear challenges in Enforcing Contracts, Trading Across Borders, Paying Taxes, Dealing with Building Permits and Starting a Business. Labor law complexities continue to drive companies to hire temporary rather than permanent labour. In many manufacturing companies temporary labour makes up 30-70% of the total workforce.

China created a virtuous cycle as the “world's manufacturing workbench” by, among others, leveraging cheap labour; creating world-class infrastructure; adapting and improving of technologies developed overseas; achieving cost reductions through deployment at scale and achieving incremental process and manufacturing innovation. While all these points can be achieved in principle, they require timely and consistent execution for India to follow in China's footsteps.

India's declining performance in key KPIs – Ascent of low-cost competitors

A major consideration of the “Make in India” campaign is the observation, that manufacturing wages in China have risen

and are now close to a factor 2 larger than corresponding wages in India. In principle, this opens up opportunities for India to enter manufacturing plays that are no longer viable in China. However, India is not alone. Manufacturing costs in Vietnam are 60%, in Indonesia 64%, and in the Philippines 67% lower than in China. In terms of labour availability, India leads the three other countries by a large margin, however, Indonesia and the Philippines trump India in terms of English speaking percentage of population. While India is the largest market among the 4 nations that we are considering, the internal market in Indonesia is also large and that of Vietnam and the Philippines is relevant.

A number of global indicators are cause for concern. In the global competitiveness report 2014-15, India scores a rank of 71 out of 144 countries compared with 34 for Indonesia, 52 for the Philippines and 68 for Vietnam. In terms of the Worldbank's Ease of Doing Business index, India is again last with a rank of 140 v/s 117 for Indonesia, 86 for the Philippines and 72 for Vietnam. In terms of the 2014 International IP index, India ranks behind Indonesia and Vietnam (Philippines have not been ranked) while its logistics performance index is such that India ranks 54 behind Indonesia (53) and Vietnam (48) but ahead of the Philippines (57).

Clearly, just because China is forced to vacate parts of the manufacturing space, it does not imply that India is the only or best alternative. As a consequence, the “Make in India” initiative needs to drive its agenda quickly in order to change key global rankings. The latter are important, as global companies do take them into consideration when evaluating their global manufacturing footprint and deciding on fresh investments.

Manufacturing is cool – The re-industrialiation of the Triad

In the wake of the global financial crisis, Western nations

Transformation to Green Manufacturing – Framework



Source: Roland Berger Product Development, Civil Economics Competence Center

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Manufacturing companies can address sustainability concerns by focusing on incremental measures covering the entire value chain

re-discovered the charm of manufacturing as a driver of innovation, employment and services. The US, UK, France, and even Germany with a still healthy industrial base all embarked on various initiatives to ensure manufacturing employment within their own national borders. Rather than going through all the initiatives currently underway, we will focus on "Industry 4.0", the German avatar of the re-industrialisation drive.

The basic premise of Industry 4.0 is that the introduction of intelligent machines, embedded cyber-physical sensors, collaborative technologies and networked processes will once again drive an efficiency revolution in industrial manufacturing. Initiated by the German BMBF ministry (Federal Ministry for Education and Research) and launched officially with a report "Securing the future of the German manufacturing industry" in 2013, Industry 4.0 aims to build the intelligent factory which is characterised by adaptability, efficiency and full digital integration. Some components of this factory are smart robots and machines, i.e. multipurpose, "intelligent" robots that are able to adapt, communicate and interact with each other and with humans. Big data will be leveraged via cloud computing, e.g. for mass customisation. Connectivity will reach a new level of quality via constant exchange of information between machines, work pieces, systems and human beings. Optimised production processes will ensure energy efficiency and allow for a decentralisation of plants.

European companies, in particular, are positive regarding the potential of Industry 4.0. Expected cost savings of 14% on average over the next 5 years would negate a large part of the factor cost advantage that countries like India enjoy today vs. developed nations (typically in the range of 15-30%). Efficiency

gains are expected to be even higher at 18% within the next 5 years. Industry 4.0 is a board room level topic for all European manufacturing companies with investments in the approach amounting to 3.3% of revenues on average. In comparison, a typical R&D budget of Western OEMs amounts to about 5% of revenue.

Established players in the EU are changing their organisations, processes and capabilities in whole or in part due to Industry 4.0. As freedom and flexibility of the production process increases, it will become possible to create products tailored for segment-by-one customer needs at relatively low marginal cost. Also, distribution processes for spare parts or not too complex consumer goods may get easier.

In terms of competition, traditional industry boundaries will become blurred as are the boundaries between industrial and non-industrial applications. Going forward the focus will be on industrial working methods, not only of products but also of services.

The value chain will be redefined as well. In a complex and intertwined manufacturing network, the roles of designers, physical product suppliers and the interfaces with customers will change. Supplier hierarchies and pecking orders are likely to change. New companies (e.g. Amazon, Google, Apple) are increasingly integrating all parts of the value chain to enhance their core service offerings.

In terms of skills, employees will need both enhanced social and technical skills. Corporate cultures with continuous training and development in the workplace will become a core competency.

Last but not least, the need for off-shoring work will reduce as will the number of available jobs in manufacturing overall.

Take Baxter, the world's first general purpose production robot as an example. Baxter's base version costs only \$25,000, can be taught any task due to its learning capability, is not limited to single-tasking, can work alongside humans due to a range of built in sensors, communicates with humans via a visual interface, and can recognise and dynamically adjust to work interruptions, wrong parts, etc.

The tendency to drive efficiency by leveraging intelligent software is not limited to manufacturing alone. In many service industries, software bots today are able to take over white collar, professional and creative jobs. Whether it is writing articles for newspapers, diagnostics of health problems, writing software or even writing of songs, software bots can replace human intervention quite effectively. Overall, experts believe that for a developed economy such as the US, 37% of all top 20 jobs can be automated easily. We will have to prepare for a future in which large sections of the population may be unemployable without any fault of their own. This trend has implications for job creation in India's software and engineering services industry as well.

The next industrial revolution is hence upon us and like its predecessors it will lead to the introduction of new products and of new means of producing existing ones, the disruption of the competitive status quo both on a company and country/region level, and new requirements for workforce and infrastructure alike.

Unfortunately, India's automation and digitalisation levels are not adequate. Opportunities to leverage the country's pool of well-trained engineers and IT professionals to drive an Indian version of "Industry 4.0" clearly exist and should be pursued with the necessary drive and investments. □

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