

Should foreign players bring manufacturing BestPractice to their plants in China?



How flowerpots
can beat Chinese producers



STAUFEN.

Everyone is looking for an edge in China's increasingly competitive economy, but not everyone is going about it the same way. Having squeezed all they could out of cheap labor, Chinese companies have caught the automation bug. They're busy investing in upgrading factories and equipment to increase productivity.

Foreign companies, meanwhile, are racking their brains over how to counter rising costs for labor and other inputs, and the renminbi's appreciation against other currencies. Some are even moving factories to Vietnam or India.

“Chinese companies have caught the automation bug - they change their strategies as production capacities rise and costs increase.”

What most foreign companies in China and almost all Chinese companies have not realized yet is that the key to enhancing productivity lies in lean manufacturing. Chinese producers are upgrading product quality and improving productivity through more modern, automated production processes. InterChina Consulting, together with Staufen AG, believes that this offers an opportunity for foreign manufacturers to gain an edge by applying BestPractice production principles. The strategy of maximizing value while minimizing waste, otherwise known as “lean manufacturing,” is a concept originally developed by Toyota Motors Corp. Amazingly enough, many foreign companies in China do not apply these principles.



Lean manufacturing empowers workers and operators, an approach seldom applied by more autocratic Chinese producers. A western factory in Suzhou sought to cultivate that sense of empowerment by giving each machinery operator a potted plant to nurse. A part of the workers’ annual bonuses depended on how well they cared for their flowers during a one-year period. In general, Chinese employees tend not to take good care of equipment and do not want to be responsible for maintaining machines, equipment or any other assets that do not belong to them. They generally expect other employees to clean and maintain the equipment and tools they use. The flower-pot exercise helped to nurture the workers’ sense of responsibility, encouraging them to take more care with tools and machines. It’s an approach that does not require adding expensive equipment to boost productivity and reduce waste.

Until recently, Chinese manufacturers generally have sought to avoid professionalizing the production process. The average mindset was focused on “low investment with the highest possible quick return” – a tendency reflecting the uncertainties in a fast-changing economy. “Who knows if the market for my product will still exist in one year or the whole industry in five years?” one small Chinese sanitary products maker told us. Such manufacturers have tried to minimize investment risks by avoiding spending on advanced equipment, relying instead on a more flexible resource – cheap, unskilled labor.

This approach contrasts with classic western production philosophy (TABLE 1). But Chinese producers are now changing their strategy, largely due to rising labor costs (TABLE 2). We see this trend in several major industries. Over three-quarters of Chinese food producers that InterChina has visited in the past year have recently doubled or tripled their production capacities. To boost output and improve quality, they are installing automated equipment. Other examples include cigarette production (Shandong Tobacco’s factory features fully automated processes) and photovoltaic cell production (for leading players like Suntech or Solarfun, economies of scale are paramount).

This obsession of Chinese producers with upgrading equipment will merely enable them to automate and expand production, improve product quality and ensure greater consistency. But this is no “silver bullet.” The down side is that they may lose the flexibility they relied on in the past. Companies that apply lean manufacturing will gain an advantage over those that rely only on automation because they will be able to maintain higher levels of flexibility.

Why the change of heart among Chinese producers?

1. Dealing with rising labor costs. Many Chinese factory bosses now realize that machines are easier to manage than people. With the new Labor Contract Law (effective since Jan 1, 2008), access to cheap and replaceable migrant workers on flexible terms has become more difficult and costly. Such workers require at least a yearly contract, including employment benefits. In some regions or industries, the cost of labor for Chinese factories is rocketing by up to 30% a year, motivating Chinese factory bosses to seek higher automation levels.

2. Aiming at less waste. Besides labor, other input costs (e.g. oil, chemicals, plastics, steel, etc.) have risen, too. Chinese producers are now more anxious to minimize scrap. In the past, "high quality" was achieved by sorting out bad output units by hand; this waste has now become painfully expensive.

3. Targeting quality markets and export markets. Export-oriented Chinese producers

(e.g. households/white goods, TV sets etc.) recognize the need to upgrade production quality to successfully compete on an international level. Automation helps them to improve consistency and secure the confidence of overseas customers. Chery's auto factory in Anhui province features a fully automated plant with a modern building, spacious work environment and the most advanced production equipment to target quality markets. However, only the production steps which are crucial for product quality are upgraded. Other steps are handled manually. A leading wafer company uses scrap wafers to produce solar-grade wafers and has over 1,000 people to select and clean the scrap wafers. For more quality-critical production steps, only a few hundred workers are used.

4. Complying with government standards and regulations. In most industries in China, factories range from small, dirty workshops to state-of-the-art facilities. Tightening governmental standards can have a significant impact.

For example, the Chinese government's pursuit of high quality standards for drug safety means that new investments by Chinese drug manufacturers resemble plants built in the West.

5. Affordability. Some factory owners can now actually afford to invest in production upgrades – these are typically cash-rich companies of a certain scale (i.e. private first-tier automotive component producers). Many smaller Chinese producers suffer from meager cash-flow and thin margins. For them, an upgrade to automated production remains prohibitively costly and is also perceived to be way too risky. With the recent worsening of the credit situation in China in the recent months, bank loans come at indecently high interest rates, making machinery investments financed by loans almost impossible. Such players may cling to the "classic," short-sighted Chinese production model while grappling with shrinking margins and, eventually, consolidation of production capacities in their industry.

Differences Western and Chinese Production Methods and Investment Decisions

TABLE 1:

| | Classic Western Production Philosophy | Lean Manufacturing | Production reality in China |
|-----------------------------------|--|--|---|
| Market Demand/ Environment | <ul style="list-style-type: none"> > Standardized > Predictable > Large volume of same unit | <ul style="list-style-type: none"> > Customers expect customized products > Modular design reduces amounts of variants and helps to reduce order fulfilment complexity | <ul style="list-style-type: none"> > Chaotic > Unpredictable and fast changing > Relative small volumes of same unit |
| Production System | <ul style="list-style-type: none"> > Batch orientation with functional organization > Applying of single methods instead of an integrated system | <ul style="list-style-type: none"> > Process orientation of organization and plant layout > Lean production system (TPx) partially on a high level | <ul style="list-style-type: none"> > Process orientation of organization and plant layout > Lean production system (TPx) partially on a high level > Batch orientation with functional organization > No standardised system > Minor awareness for waste within processes > Extensive Inventories |
| Machine park (example) | <ul style="list-style-type: none"> > Fancy expensive machining centres for mass production > Excessive automation | <ul style="list-style-type: none"> > Flow orientation > Decentralise machining concepts > Smaller, more flexible equipment | <ul style="list-style-type: none"> > 5 semi-automatic lines, grouped by technology (job-shop layout) > Low output efficiency per line |
| Investment per machine | <ul style="list-style-type: none"> > Huge Investments for production equipment and manufacturing lines > Long-term-oriented | <ul style="list-style-type: none"> > Medium > Mid-term-oriented | <ul style="list-style-type: none"> > Low > Short-term-oriented > Considering upfront investment costs only |
| Quality | <ul style="list-style-type: none"> > High – but with high efforts and costs > Focus on "inspecting the quality" (centralized inspection) | <ul style="list-style-type: none"> > High > Efficient use of raw-material > In-process self-inspection by workers > Focus on producing quality > Line inspection | <ul style="list-style-type: none"> > Low quality output > More raw materials are used > Considerable amount of scrap / waste is produced, which is then sorted out manually > Centralized inspection department (No line inspection) |

Where do Western producers stand in China?

Can foreign-invested producers beat local competition by applying the same automation strategy? In our view, probably not. Foreign manufacturers will always have a higher cost base. An European automotive industry manufacturer estimates his structural cost disadvantage (both homemade by investors and local, basic conditions) can easily add up to 30% of his total costs.

Foreign producers must cut costs (e.g. by switching to locally sourced products). But this alone will not give them a real edge against fast-growing Chinese competitors who are improving their quality day-by-day. For many foreign producers, their technology advantage was their China market entry ticket – and this advantage is now at risk. They may react by introducing more expensive equipment to the plant – and undermine any cost advantages initially gained.

At the same time, foreign producers can be quite satisfied with 15% growth in production sales year-on-year. Foreign production managers have their hands full dealing with this level of growth, not realizing that the overall market (and especially the Chinese competition) is actually growing at a rate of 25%. The typical reaction to this is to flirt with targeting medium- or low-quality segments to get in on that fast growth. Unfortunately, if not done well, such tactics can be disastrous.

“Foreign producers in China will always have a higher cost base than their Chinese competitors”



TABLE 2:

| | Foreign-invested, Western producers in China | Local, Chinese companies |
|---|--|--|
| Location | Expensive coastal area – around expensive megacities; higher expectations for quality standards boosts building and staff expenses by 50%–200% | “Unknown” provinces and cities with cheaper land, buildings and people. |
| Management / Staff qualification | High requirements of investor lead to higher and longer pay-role (e.g. just the requirement for “English language skills” raises costs by 20%-30%!) Staff expect higher wages/ salaries from an FIE | Organization is built around the “owner” Staff qualification requirements are lower and the salaries are cheaper From time to time, social insurance is not paid Controlling function is not common |
| Purchasing costs | Suppliers will add an “FIE surcharge” which can easily reach 5% - 25% (after negotiations)! Focusing on the already developed “premium class” suppliers in China = higher costs | The total supply base is bigger The payment terms are more “flexible”. “Payment in cash” without taxes further reduces costs |
| Corporate Governance | All official requirements will be followed and will increase costs. | Expensive legal requirements often bypassed through good “local guanxi.” |

Prescription for Western producers in China: Performance leadership through excellent operations management

Hoping to survive on the low end or medium market segment is like gambling with a determined, undesirable outcome for your investment in China. The only long-term successful strategy for Western producers is striving for performance leadership with proven market acceptance for the delivered cost/performance ratio.

Many foreign investors or managers in China mistakenly compare the costs of their China plants with Western countries' cost levels. However, a better approach is to compare China investments and costs with those of Chinese competitors. Only with that approach can managers fix the right benchmarks.

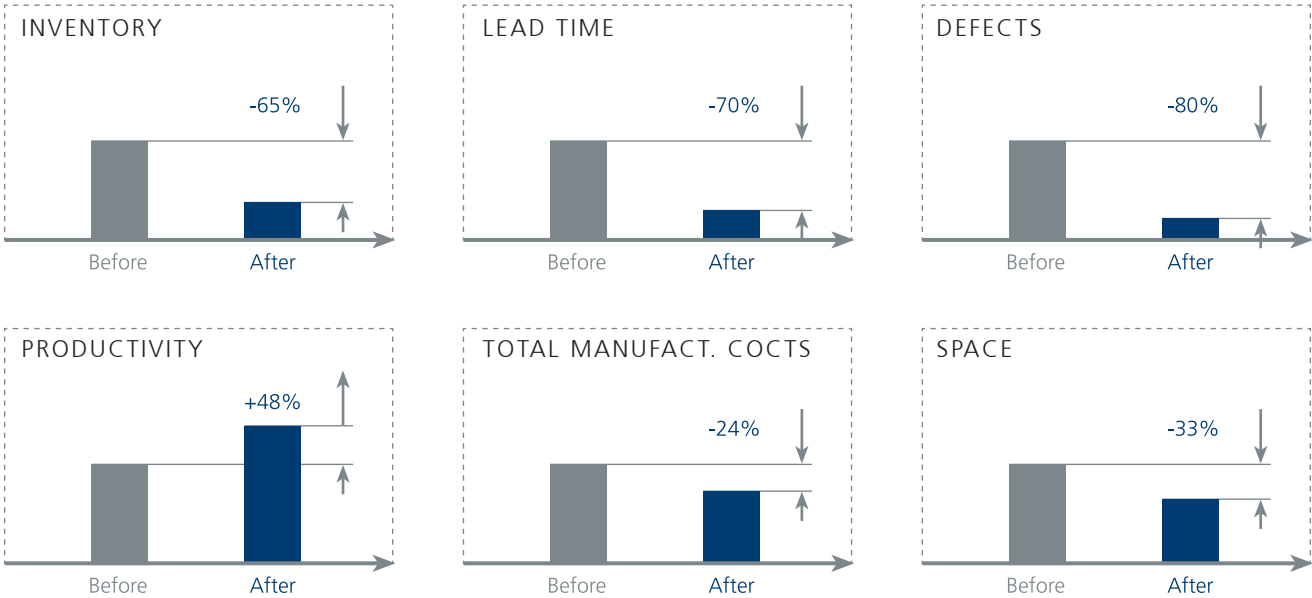
Operating a factory by the same principles and methods as local competitors will never help you recoup your cost disadvantages. The only solution is to provide better products of better quality and good, flexible service, manufactured with an excellent, lean production system.

The potential impact of implementing a lean-production system on costs and flexibility of Western factory operations in China is tremendous (see chart page 5). It is not always necessary to invest in the latest technology or fully automated factory equipment. Installing, organizing and operating a factory according to smart, lean principles is the key.

Globally, the "lean approach" has generated plenty of success stories over past decades. A lean manufacturing culture is neither Japanese nor Western. Interestingly, European and American production managers tend to shy away from applying BestPractice production principles, while Japanese companies never hesitate – they apply the same lean manufacturing management in their Chinese plants as in their Japanese operations.



Typical Results from the Application of Lean Implementation Projects in



“Lean Manufacturing Culture is a global concept – it’s neither Japanese nor Western or Chinese”

How can Western producers achieve this?

Keys to succeeding in implementing lean production in China

The implementation of a dynamic lean manufacturing system could easily take three to four years in China. Therefore, it is crucial to set out with the right strategy and milestones.

SUCCESS-FACTOR 1

Rethink your strategy

Do you really know how your Chinese market works? The market and consumers are different from your country, so products have to be adjusted to local Chinese standards. Otherwise, you'll end up spending too much money and time on marketing. Make sure your product fits local market demand, and ensure your headquarter will buy into adapting your product or product portfolio to local needs. This discussion can be time consuming and difficult.

A German-based machine tool equipment MNC initially tried to penetrate the Chinese market with the top selling machines from Europe. Although it succeeded in localizing production and setting up its supply chain, sales figures showed the company miles behind plan. Only after urgent demands by the local general manager for a "China-adapted product," and hard talks with the company's Product Marketing, R&D and Group Management was he able to get a product to match market demand. The adaptations were mainly aimed at simplifying the product by removing fancy cost drivers. The machine was also re-enforced to stand up to rough local operator behavior. Today, this company is one of the most successful machine tool manufacturers in China. The morale: Ensure that local customer expectations are incorporated into your product strategy.

After the necessary adaptation of your marketing mix, the focus turns to operational excellence – especially given the fore-mentioned higher cost base in China.

SUCCESS-FACTOR 2

Define the mission & vision for your Chinese operation

You have to develop an operational vision for your Chinese factory by communicating both with your employees and with management at the parent company headquarters. This should outline the factory's role in the domestic order-fulfillment and in its global group production network for the next three to five years. Where do you want to be with your factory in 2011? If this helpful question is answered and jointly discussed with your local management, it will be relatively easy to map out how to get there. An "Operational Roadmap to Excellence" will provide proper guidelines for your management and staff in China. The resulting continuity and long-term basis for the daily decisions and actions will be greatly appreciated by your Chinese staff.

SUCCESS-FACTOR 3

Implementation of a lean production system

Lean manufacturing cannot be implemented in the blink of an eye. Lean is a marathon, not a sprint. The transition from the so-called "batch and queue" mind-set to the flow-oriented Lean approach takes around 3-4 years. It is important to stick to the Lean-principles throughout every step of the implementation.

TABLE 3:

Best operational processes follow a strict 4-step sequence – Before going further, manufacturers in China should focus on reliability and flow

| Implementation Sequence | Phase | Characteristics |
|-------------------------|-------------|--|
| 1 | Reliability | <ul style="list-style-type: none"> > No unplanned machine downtimes > Standardized and documented work-flow > Visual management as on-site instrument of control > Qualified operators |
| 2 | Flow | <ul style="list-style-type: none"> > Transition from job-shop manufacturing (functional layout) to flow production (process layout) > Interlinking of neighboring processes |
| 3 | Rhythm | <ul style="list-style-type: none"> > Sales and production planning is precisely coordinated > Products are produced according to customer takt time > Short tool changeover times |
| 4 | Pull | <ul style="list-style-type: none"> > The demand of downstream processes sets the pace from upstream processes > The right part at the time in the right amount at the right place |



“Expatriates in Chinese operations should get out to their shop floor level instead of hiding in meeting rooms”

SUCCESS FACTOR 4:

Management and leadership as an accepted role model

“Go to the Genba!” “Genba” is a Japanese word meaning the place where something happens. We believe most managers in China spent too much time in fruitless meetings and avoid visiting the Genba, or factory floor, where the real action occurs. “Go to the Genba” can be described as “Go, see, support & solve” and it’s a highly effective principle for communication, problem solving and getting to know what’s going on at the shop floor level. Expatriates in Chinese operations should get out there instead of hiding in meeting rooms and offices.

SUCCESS FACTOR 5:

Reduce waste within your operation – daily, step-by-step

A core responsibility for all employees should be the identification and reduction/abolishment of waste (See chart). To begin with, it is helpful to focus first on improving the reliability of all of your processes, which reduces one or many of the “7 Wastes” simultaneously. The second phase of Lean Implementation also known as flow reduces the amount of inventory, which shortens the manufacturing lead time. Ensure everybody is aware that overproduction and excess inventory is considered as the “root of all evil” regarding a wasteful manufacturing operation.

| The „7 Wastes“ in manufacturing | |
|---------------------------------|-----------------------|
| 1. Defects | 5. Inventory |
| 2. Overproduction | 6. Motion |
| 3. Transportation | 7. Processes |
| 4. Waiting | +1: Unused creativity |

SUCCESS FACTOR 6:

What are the China Challenges when implementing a Lean production system?

The guiding principles of lean manufacturing are worldwide the same. Three indicators – quality, cost, and service level – always determine overall performance. Therefore is it not necessary to revamp production systems to suit Chinese realities. The basic structure and inherent logic of all the methods used remains the same.

A German-based multinational auto parts and drive automation company with several production centers in China faced the critical question: Does the European production system fit China’s environment or do we need a different manufacturing model? The company decided to use its proven lean manufacturing system with slight changes. It was amazingly successful. China is of course in many ways different from Europe or the US but the principles for running successful lean manufacturing are generally the same. Lean manufacturing has been the best and most successful way to run a factory for the past 40 years.

At the same time, managers must make adjustments. This is the first “China challenge”. For example, when it comes to structured problem solving, the ability of local workers and managers is generally very low. This means that the group brainstorming approach often used in western companies to drill down to the root cause of a problem is virtually impossible in the typical Chinese factory setting. Carrying out “lean” or other improvement projects requires teaching not just special skills but also basic skills like group discussion. Equally important, everybody involved must be given multiple opportunities on-the-job to apply the freshly learned skills in a “safe environment,” where employees will not be penalized for making mistakes.

The strong hierarchical structure of Chinese companies poses another challenge. One powerful element of lean production is the interlinking of neighboring processes. This means that autonomous departments will suddenly have to work closely together. In such a setting, a department manager often will have to compromise his own departmental objectives for the sake of overall performance. This is a completely alien approach for Chinese managers. For example, the manager of a computerized numerically controlled milling workshop would seek to keep the utilization rate for his expensive machinery high, despite unstable downstream demand, resulting in unnecessarily large inventories of semi-finished goods. In a hierarchically structured company, the CNC milling workshop manager will fight hard to keep production high while the logistic manager will fight for smaller warehouses and higher inventory turnover. Now, the voice of a third manager, the assembly line head, comes into play. He suffers from huge amounts of rework due to the miserable quality of the milled parts. All three of them, together with all others involved, have to work together on a solution that will optimize the entire process, not individual departments.

“To interlink neighboring processes and to compromise his own departmental objectives are alien for a Chinese manager”



Conclusion

Lean manufacturing is the key to success for foreign producers in China

China has become too expensive for Western producers to compete effectively without BestPractice principles at a time when Chinese manufacturers are becoming more productive and automated. The distinction between Chinese production quality and Western production quality is starting to blur.

Western producers don't need to sink money into the latest and most expensive production equipment. Instead, BestPractice principles can create a distinct and hard-to-copy advantage for Western producers. Before considering a move into a remote area of China or to other, less developed countries like Vietnam, they should try lean manufacturing.

InterChina Consulting

InterChina



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Leading Consultancy: InterChina is a boutique management consultancy specialized in strategy, corporate and human resources services for companies doing business in China. Since being founded in 1994, InterChina has emerged as one of the leading consultancies in China, and half our project volume is accounted for by clients choosing to return to InterChina when new consultancy needs arise.

Comprehensive Services: InterChina supports clients along the sequence of challenges faced when entering or expanding in China, and our 3 specialized consulting practices combine to provide a suite of comprehensive and complementary services:

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InterChina's **Corporate Practice** supports our clients establish and expand corporate structures in China.

And InterChina's **Human Resources Practice** helps our clients recruit executives and other key positions in China.

Differentiated Approach: We deploy consulting methodologies developed in China for China. Our strategy solutions are practical, since we often support clients implement the strategies we recommend, and our corporate solutions are always oriented towards strategic objectives. We involve our clients in the consulting process, transferring understanding and receiving feedback, enabling our clients to better adapt to the Chinese environment and ensuring continuity following the project.

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Local Presence: InterChina has three operations offices in China, located in Beijing, Shanghai and Shenzhen, supported by liaison offices in Europe, located in Madrid and Milan, and North America, located in Washington D.C.

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Staufen and InterChina

Strong partners on your way to BestPractice.

Staufen AG is an international Lean Consulting company with head office in **Germany** and branches in **Switzerland, China, Poland and Italy**.

Staufen qualifies management and employees in implementing modern Lean-Concepts and Methods.

Practical know-how for Practice.

Besides providing stated and excellent know-how, we also have the necessary "do-how" for practical implementation. This is the reason why you will find us at the scene of action for the most part: in production halls, in workshops, on coaching....

For your Lean Success it is vital to observe the following four key factors:

1_Lean-management of value added processes.

The systematic and persistent application of individual Lean Methods results in a continuous lean management of all value added processes.

2_Establishment of an improvement organisation.

The training of your own Lean Experts and their release is the basis of the sustainable ability to manage change in your company.

3_Development of a Lean-management-culture.

The kind of cooperation is decisive on whether an improvement culture will materialise. Create your target process in a way which aims at and demands the competence of creating excellent processes.

4_Development of a Lean-management-system.

Orientation on the value stream gives your company the agility which is necessary to react quickly to changes in the market environment.

We made it our task, to implement the worldwide successfully proven Lean principles and methods at our clients in China, too.

Adaptations to Chinese particularities, main focus on implementation and parallel qualification of the Chinese leader-team are our factor of success.

Our Chinese team is made up of Chinese and European Lean- and Sourcing experts. This cultural mix provides international methods experience as well as deep expertise on Chinese culture and particularities.

We work out and implement robust, lean processes in your Manufacturing- and Order-Fulfillment processes. Our China Sourcing experts come from Chinese practice and ensure quick results in your localisation project.

A strong involvement of your employees during the development of target processes and implementation ensure sustainable optimisation.

The qualification of the employees is a key topic in our Academy-Program.

Local Presence: Staufen has two operation offices in China, located in Beijing and Shanghai, supported by our offices in Europe.

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