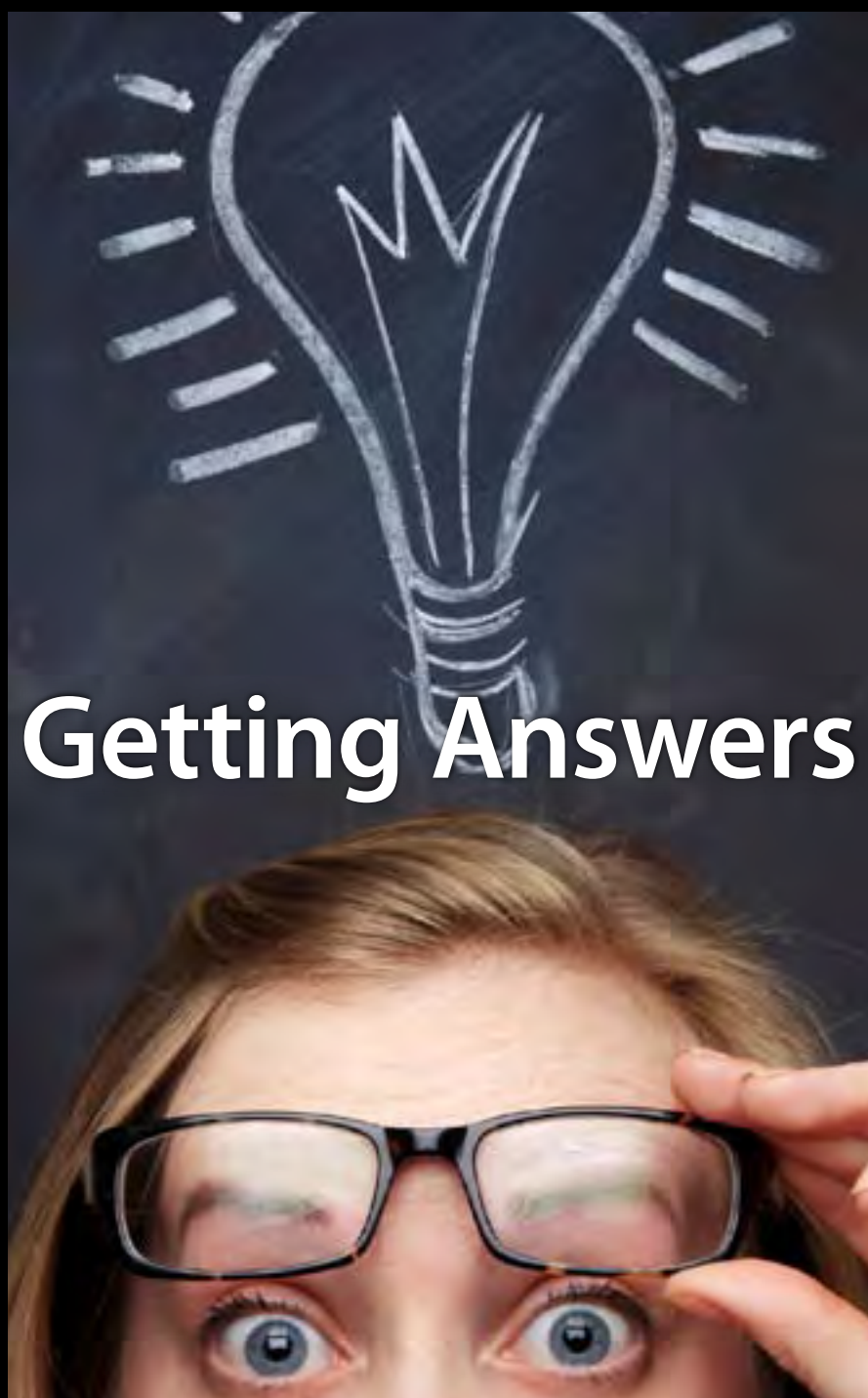


# CHINA SOURCER

BY THE CHINA SOURCING INFORMATION CENTER



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## PROJECT MANAGEMENT

# Lean Manufacturing - Turning the Tide of China Sourcing Cost Increases

By Tim McLean, Founder and Managing Director of [TXM](#)



Efficiency leads to better sustainability.

It has almost been a sourcing certainty over the past 10 years that, whatever it is, “you can make it cheaper in China”. While there have been exceptions and problems (Intellectual Property Protection, Quality etc.), overall the past decade has seen a huge transfer of the world’s production in to China.

However, if you have been watching closely over the past two years things have changed. The next two decades looks like the ones where we will see a change in China’s position from the low cost factory to the world to a developed country and major market in its own right. This process is not new, we have seen it on a smaller scale in Japan, South Korea and Taiwan. However this change has profound implications for buyers across the world.

Based on our management of buying projects in China, TXM has done some analysis of a “typical” engineered product sourced in China. We assumed that the ex-works cost of the China product was 40% below the cost of the western-sourced product. Beyond the ex-works unit cost of the item the buyer needs to consider “below the line costs” including:

- Shipping cost.
- Working capital costs including interest and risk of obsolescence.
- Inventory storage and handling costs
- The cost of poor quality
- Supplier support costs (the China purchasing office, travel etc.)

In our analysis we assumed that the quality for local and Chinese supply sources were the same, however the cost of quality for China is greater due to the greater amount of inventory likely to be affected by any quality problem. The table below shows the break up of costs in this theoretical product.

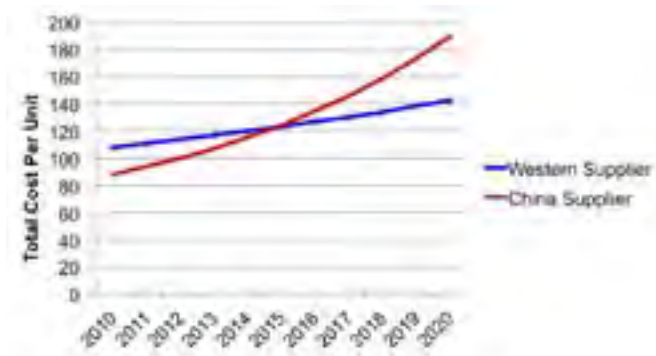
2011 Cost Break-up	Western Supplier	China Supplier
Material	40	40
Direct Labour	30	5
Overhead	20	8
Margin	10	6
Subtotal Ex Works Cost	100	60
Sea Freight	0	6
Inventory Holding & Storage	2	7
Cost of Poor Quality	5	10
Supplier Support Costs	1	5
Total Cost of Ownership	108	88

For this product, the decision to source in China still seems vindicated, because even on a total cost basis, the Chinese product is still around 20% cheaper.

We then researched likely cost trends over the next two years and predicted the likely future costs of this item. Much of the information about Chinese cost increases is well known. We made the following assumptions:

- Chinese general inflation rate of 4% (currently 5%)
- Western inflation rate of 2% (currently 0-2%)
- Chinese annual wage increases 10% (currently 20%+)
- Chinese currency to appreciate 5% per year against all western currencies.

The impact of these relatively conservative changes is startling as the graph below shows.



With 5 years our cost advantage in China has disappeared and the total cost of sourcing from China is actually HIGHER than the Western sourced product. Considering that the actual current rate of cost increase is higher than the assumptions I have used, then the risks facing any buyer with a heavy investment in China are obvious and considerable.

The first reaction of many buyers is to look beyond China, to South East Asia or India. However the challenges and risks in these other economies are considerable, including poor infrastructure, rampant corruption (worse than China), bureaucracy, unfavourable labour laws and political instability (especially in Thailand). There is also the issue of the one off cost of changing, which can be considerable, particularly if manufacturing plants or assets in China are owned by the buyer. Finally relocation out of China right now risks your business dealing itself out of what will be the largest market in the 21st Century, China.

So the answer is to try and reduce costs in China. Fortunately, as many of our customers have told us, the opportunity to do this is obvious from the moment they step in to their Chinese Supplier's factory.



*Primitive and Inefficient Factory Conditions such as these are Common Across China and provide a huge improvement opportunity.*

As the photograph above shows, the focus in China over the past 10 years has been on growth, not efficiency. As a result many (but certainly not all) Chinese factories are highly inefficient, with poor usage of labour, high levels of material waste,

high levels of internal defects (the quality you receive often relies on 100% inspection), long lead times and high levels of inventory and obsolescence.

In addition, poorly designed supply chains to the west with dramatic demand fluctuation, variable ordering patterns and quantities and frequent expediting mean that the Western buyer often contributes further to the problem and, eventually, to their own purchase cost.

Fortunately the solution to these problems is well established, tried and tested. When Toyota realised in the 1970's and 1980's that its famous "Just in Time" system of production could not function correctly with the poor levels of service and quality that suppliers were providing, it sent teams of specialists to these suppliers to teach them the Toyota Production System. The spread of the Toyota Production System (or Lean Manufacturing as it is commonly known) across all sectors of manufacturing in the past 30 years has been one of the major drivers of productivity improvement in developed-world manufacturing. Low labour costs have meant that there has been little focus on rolling these proven methods out in China and other low cost economies. TXM is now working with major companies in China to change this and to bring Chinese manufacturing thinking in to the 21st Century.

## Get Your House in Order First

The first step to reducing cost for your China sourced product is to look at the things your business may do to increase those costs. Start by looking at your own ordering and forecasting process so that your demand on your supplier can be as stable and predictable as possible.

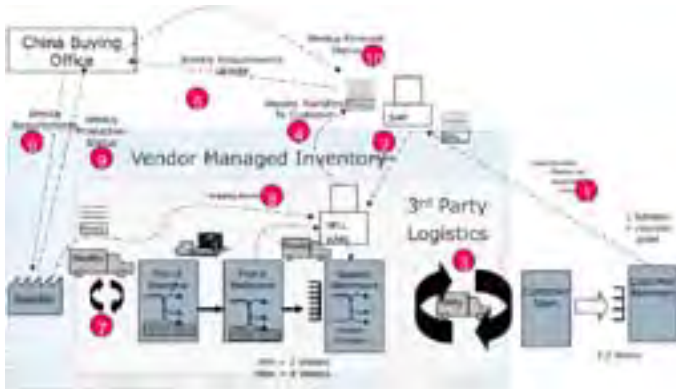
Develop a regular ordering cycle. This should be as frequent as possible. We find that a weekly order cycle works very well. Order on a regular day to meet a regular shipment out of the Chinese port. By building your supply chain around these shipping schedules you minimise unnecessary port and shipping delays.

Apply an "every part every order" approach to your highest volume items (A items). Filling up a container with one part number is an incredibly risky approach as the loss or delay of this container will lead to a certain stock out. By ensuring that every common part number is included in every (weekly) shipment then the risk of shortages are minimised since deliveries are only a week apart. This approach also means that inventory at your end can be dramatically reduced because you are only looking to cover weekly demand variation rather than monthly. We have helped suppliers establish pull systems so that weekly usage out of the warehouse in the destination drives replenishment orders on the Chinese supplier the following week eliminating the issue with inaccurate short forecasting (since you are replenishing to actual usage).

Finally you need to provide suppliers with the best forecasts that you can. On a recent project we found that a major buyer was routinely over-forecasting by between 50% and 300%. This approach inevitably leads to the supplier's resources being tied up making stock you don't need (to meet the

overstated forecast) rather than the stock you need. Focus on giving the supplier a good monthly forecast to enable him to plan his capacity, long lead-time materials and resources to meet your demand.

From the supplier's perspective what this change will mean is that he is now receiving regular orders every week for a regular mix of products. He will have clear expectations as to when he receives an order, when he has to ship and will be working to a lead time that he can achieve. He will also have an accurate view of the medium term outlook so that he can plan to make sure that he has sufficient capacity and material to meet seasonal demand peaks and promotions. In short, you have made his life easier and more predictable and typically that will lead to an immediate cost saving in inventory and expediting.



*Value Stream Map for Supply of Sheetmetal Components from China to Australia for a TXM Customer.*

The figure above shows a supply chain that we established for an Australian high technology manufacturer. In this case we negotiated that the Chinese supplier would own the inventory until it was delivered to the door of the plant in Melbourne. We also used a single third party logistics provider to manage the supply chain from the suppliers door to the factory in Melbourne. This supply chain has operated for almost four years with minimal issues and a six week lead time from order to delivery. Inventory in the supply chain is limited to around four weeks in store plus a further 3 weeks in transit.

## Next Step – Improve the Supplier's Factory.

Starting out by listening to your supplier and assisting him with a more predictable and straightforward supply chain will hopefully make the next, somewhat more confrontational step easier. Starting a conversation about the need for a supplier to improve efficiency is always going to be challenging, particularly in China where maintaining "face" is an important issue. It is best to present it positively as an opportunity or a shared problem (of cost increases) rather than directly telling the supplier that his factory is inefficient

In terms of resources, various approaches are used. Some very large companies have their own in-house supplier improve-

ment specialists, however most will rely on external lean specialists such as TXM. Many lean "consultants" in China are actually just trainers who run standardised lean workshops. In our experience this approach leads to little or no sustainable improvement. The TXM approach focuses on coaching where our consultant works alongside the client to develop and implement improvements. Most buyers will want the supplier to pay fully for the lean support. It is important to remember in this model that the consultant will then have an obligation of confidentiality towards the supplier, and the supplier would be justified in expecting to hold on to any cost savings rather than pass them through to the buyer. The Toyota model is to provide the assistance free of charge, but to expect that 100% of any savings made will be passed back to Toyota (the supplier can then benefit if the savings translate to other customers). We think that a middle ground of sharing the cost may be beneficial where benefits are shared and there is a free flow of information between the parties. Needless to say, given the poor state of many factories, the payback period on an investment process improvement is usually measured in weeks.

The start point of any improvement effort at your supplier will usually be a value stream map. This is a map of the end to end process of manufacturing your product including both the flow of product from raw materials to the shipping dock. This process map initially highlights the key areas of waste in your supplier's process. The next step is then to develop a future state map in order to identify and quantify the level of improvement that can be achieved and the key steps needed to achieve this. In our experience, development of the future state map in order to get maximum value is a complex process and one where the skills of a highly experienced lean coach is essential. The TXM approach will then be to support the supplier over an extended period (usually 6-9 months) while they implement the future state for their business. This will involve practical coaching on some of the lean tools needed to reduce waste and improve flow such as kanban systems for materials, improvement of plant layout and design and implementation of work cells for key products and subassemblies. In parallel to this we will coach the supplier to put in the foundations of a sustainable lean production system. This includes:

- Improving workplace organisation and housekeeping using a technique called 5S,
- Establishing shop floor and plant level metrics to track the improvement process,
- Implementing simple problem solving techniques to overcome day to day issues in quality, machine performance or material supply.
- Coaching front line production leaders in basic techniques to manage their teams in the new processes.

While some companies will feel comfortable using a western consultant or in-house specialist to do this work, we believe that for cost and cultural reasons it is better if the majority, if not all of the support is provided by local Chinese consul-

tants, such as those employed by TXM, working in their own language.



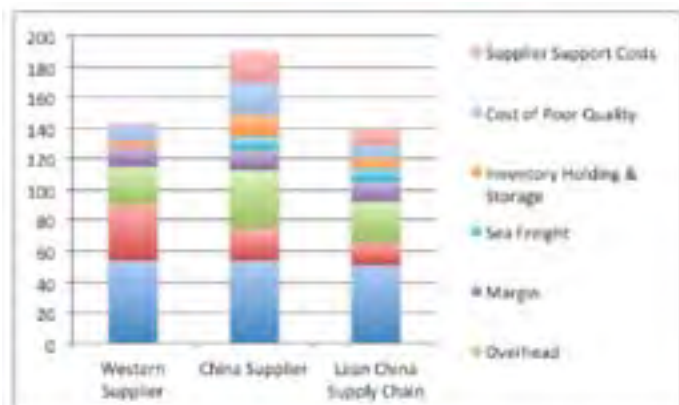
TXM Senior Consultant Tim Zhang (right) coaching a major electronics industry supplier in running daily shop floor process improvement meetings.

### What are the Benefits?

Implemented the right way, with coaching support, the lean approach can have spectacular benefits. Working with suppliers to the electronics, automotive and high technology industries in Australia, Malaysia and China, TXM has seen sustainable improvements including:

- Lead time reductions of over 50%,
- Supply chain inventory reductions of 50%
- Productivity increases of 15%-30%
- Capacity increases of 30%
- Reduction in internal defects of 75%
- Reduced supplier support costs

The result of these improvements is to tip the competitive balance back in favour of the China supplier, enabling us to build our operations in China as a gateway in to the most exciting market in the world as well as a competitive supplier of products to our home markets.



Comparison of forecast total cost of supply in 2020

About TXM: TXM is a leading Australian-owned Asia Pacific manufacturing consulting company with offices in Melbourne and Shanghai. TXM can help you take action on the operational issues facing your business using proven Lean Enterprise techniques and by managing major change projects. At TXM we are passionate about manufacturing. Our team are experienced and successful manufacturing professionals first, consultants second. We understand what is like to try to grow returns in an environment of ferocious global competition, because we have all experienced it first hand. This means we have a practical and realistic approach. We will bring to your business considerable manufacturing experience from a wide range of industries as well as deep understanding of lean enterprise. You can find out more about TXM, including case studies at our website, [www.txm.com.au](http://www.txm.com.au) or contact us at [info@txm.com.au](mailto:info@txm.com.au).



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Tim McLean is the founder and Managing Director of TXM. Tim has a 20+ year experience in manufacturing, first learned Lean and Six Sigma principles as Process Improvement Engineer in the late 1980s. Tim went on to manage operations in a range of industries as an Operations Manager and General Manager before establishing TXM in 2004.

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