

China – a changing country

Chris McKellen recounts his early experiences setting up of a new facility in Shanghai and how China has changed.

In the mid 1990s, China – the country with the largest population in the world was opened to visitors and new businesses after being almost inaccessible to many foreigners for many years. After a short discussion with the worldwide vice-president, my wife and I were on a plane to Shanghai, to see where I was to set up a new facility to manufacture turbochargers. We landed on a rainy January evening, in the dark. Outside the airport, our first view of China was rain and a family of three on a bicycle with a raised umbrella. We arrived at our modern western style hotel, the inside of which could have been almost anywhere in the world.

Experiencing the culture

Our first two days were formal culture training, so that we would not offend our hosts by asking the wrong questions and so we could learn about the unusual habits of burping, coughing, blowing the nose with one finger and allowing the chicken or fish bones to fall from the mouth whilst we were eating! We also tried to learn the basics of the language. Later, we travelled a few miles to see the huge expanse of land in Pudong, where new facilities for multinationals were to be built. We saw some of the most modern buildings in the world and in places real poverty. We saw a farmer ploughing his field with an ox whilst talking on his mobile telephone. We met real Chinese people who wanted to communicate by sign language with ‘the people with big noses’ (westerners). They were fascinated by us – our clothes and particularly our shoes, by the way we looked and even by the way we spoke.

A few weeks later, as an expatriate, we lived in unreal surroundings – a top floor apartment overlooking the city 28 floors below. The apartment was serviced by the 44 floor hotel next door and we had a driver to drive us everywhere. We shopped for food in a store run by a Hong Kong based company and could buy almost everything that we could purchase in the UK. We ate types of international cuisine in restaurants of almost every nationality and we soon learned that twelve people could eat in a high quality traditional Chinese restaurant for the same cost as one person eating in a western restaurant.

I visited old traditional Chinese engineering companies that employed tens of thousands of people, that provided housing and education for their employees, that were overstaffed, over structured and that looked after employees and their families from cradle to grave. I

visited state of the art factories that had been built by joint ventures between Chinese and overseas partners to make electrical goods, photo-copiers and compressors. These visits were my introduction to the highly educated Chinese people who understood western ways and who understood the need to change their country.

We learned the importance of 'face' and not losing face. We learned the need for 'guanxi' – having knowledgeable contacts and we realised that in meetings we would always be outnumbered by Chinese. Meetings were big social occasions to formally ratify the decisions that had been made unofficially beforehand, and there were often hidden agendas! We soon realised the power of the interpreter! We also realised that there was a tremendous loyalty to customers and suppliers, that foreigners were trusted because they were fair and that there were major ceremonies followed by celebration dinners for almost any special occasion.

So why should a multi-national company set up in China?

China has the world's largest potential for growth – whatever the product, it will be required in China as China develops. China also has a very low cost base and salaries for normal employees are approximately 1/12 to 1/15 of a UK salary for an employee carrying out a similar task. Communications and the transport infrastructure are improving daily.

Starting the Construction

My brief was simple – build 'the best factory' in the world and make turbochargers! Many discussions took place within the division! Finally, we agreed that the factory would build 'older models' to guard our technology, but we would install the most advanced machine tools with low levels of automation. It would have the best employee facilities including a restaurant and showers as many people did not yet have them at home. It would be the most environmentally friendly factory that we could build and it would be fully air conditioned so that employees would work during the very hot summer days. We would employ the best people that we could find and we would have to provide transport to bring them in to work from greater Shanghai. Finally, we would need people who would be prepared to change some of their culture.

Building the building

Traditionally, in China, a design institute designs a factory, arranges for it to be built, specifies and installs the equipment and knows everything that there is to know about making the product. They also issue all certificates and approvals for the new building and processes so that it can enter production. We were reluctant to divulge any sensitive technical or process information so we immediately fell foul of the system! We eventually found a department of a local university who were approved as a design institute but who wanted to work with us in a western way. Building designs were soon approved, the fabricated building was ordered from the USA and construction started.

The building teams moved on site to build the huts where they would live in almost squalid conditions, using packing cases for beds, cold water for showers and eating cabbage and rice for the next few months. We appointed our Chinese building 'expert' who told us that we wouldn't need to pile the ground and that we would have to mix all concrete by hand as

ready mix concrete was not available! We held the formal 'ground breaking' ceremony (and celebratory dinner) with dignitaries from China and from the corporation from all over the world, just as state of the art earth moving equipment arrived on site. In fact, we drove 495 piles 30 metres into the soft ground before pumping ready mixed concrete for over 100 hours!

We had designed a sanitary waste treatment plant and an oil and waste recycling centre as additional buildings and these were built using traditional Chinese methods. During the digging of the foundations we uncovered human bones, but after a tense few hours of waiting, the all clear was given by the authorities and work continued. We reburied the remains in a silk bag and planted the first tree in the development area next to them.

Containers of girders, window frames and cladding and general fittings arrived from Kansas City in the USA along with an erection team and the main factory soon took shape. One of the largest mobile cranes in China arrived to lift the air conditioning units on to the roof.

Whilst the new facility was being built, we made a decision, initially unpopular with the financial team, which would have a major effect on the start up of the new plant. We needed additional office accommodation for our growing workforce so we decided to take out a short term lease on an empty factory unit. We could then order our machine tools and equipment early, install them in the temporary facility and use the whole area as a training school so that all employees would be familiar with the components and processes when the factory was completed and ready to enter production.

Approvals

The building was finished within eight months but then we needed the approvals – over 140 chops (official stamps) were required and almost every official had some input in to something! But, everything was negotiable! We installed transformers from the USA but the local electric company would not approve them and it took several weeks of negotiation and testing before the formal connection to the mains! On the ‘switch on’ day the ‘world’ appeared and stood and watched and waited for some catastrophe to occur but the lights came on and the compressors started up! The fire department didn’t understand sprinkler systems, and the health department hadn’t seen such a modern sanitary treatment plant.

Finally, all approvals were given. The building was handed over and the plant was ready for us to start moving in our equipment and for us to immediately start production.

Recruiting

Using a human resources consulting group who were familiar with China, we embarked upon employing good people. Apart from myself on operations and my American colleague on sales and marketing, all employees would be Chinese nationals. We prepared job descriptions for each position and also prepared an individual training plan for when each employee started.

For management positions, we agreed that our direct reports would have to speak English as ‘American’ was the language of the corporation throughout the world, but English was not a prerequisite for any other position. We also were determined to recruit the ‘best’ person for every job, regardless of qualification or sex - our management team consisted of female quality, human resources, materials and IT managers. And more importantly we decided that the process operators should not have any experience of manufacturing as we did not want any traditions, customs or practices of traditional industries.

Training

The corporation had a superb training programme for all levels of employees and we de-Americanised this training. Key personnel were sent to Japan, the USA or the UK for training in the sister plants, and here we encountered the difficulties and risks of sending employees overseas. One quality engineer never returned from the USA – resulting in his Chinese family paying several years salary as part of the formal training agreement, to cover the costs and embarrassment that the business incurred.

Within the plant, we trained employees in the western culture, in team working, empowerment, lean manufacturing, the theory of constraints and six-sigma. Employees at every level, regardless of their position learned about turbochargers and experienced assembling and disassembling them. We brought 'experts' from the group around the world to help us in areas such as quality (Japan) and finance (Brazil).

We taught the employees to use PCs and Microsoft Office and used a computer simulation package to plan the layout of the new plant. This was then used to teach the operators where their machine would be and how materials would flow to and from their process.

In the early days it was vital that we paid particular attention to housekeeping – everybody was taught from day one to understand the 5Ss – every evening everything was put away and desks were cleared.

Processes

We benchmarked the manufacturing processes and equipment from within the group to ensure that we installed the 'best' and we purchased our plant and machinery from all over the world but not at that time from China. In 1994, it would not have been wise to rely on some of the Chinese machines and equipment. Our CNC lathes and machining centres came from Japan (only two hours flight away, if service was required) and our grinding machines from Switzerland. Assembly equipment and the main conference room table came from the UK, and furniture from Hong Kong.

The equipment was delivered on old trucks, sometimes with the front wheels almost off the road due to the weight. Packing cases were jacked up, the lorry driven away and then the packing case was lowered to the ground - these were traditional practices that needed to change, urgently. Health and safety was initially a major concern.

Suppliers

Our first attempt at local sourcing was for aluminium and cast iron castings. With confidence we went to the major suppliers who were allied to the existing Shanghai motor industry but the development took forever and eventually we went to other less well known foundries outside of Shanghai. One particular component was a particularly difficult casting and the UK had become the supplier of this component to Japan and Europe. Several other foundries in Europe had attempted to make the casting unsuccessfully so we decided that we should allow a very long lead time for this components development in China.

One day a Chinese entrepreneur knock on the door to tell us he had his own ISO 9000 foundry that could beat any other in China on cost and quality, so we gave him this difficult casting. Within four weeks we had received a dimensionally perfect casting – China was changing!

With regard to cutting oils and lubricants became an issue as we set a very tight supply specification – the chosen supplier would have to take away waste oils as part of his supply contract and all but one of the major oil companies walked away from the business!

Customs

The system of paying duty was very simple - goods were delivered to the port where they would be examined by customs officials who would declare the amount of duty to be paid and the goods were released when a cheque was taken by hand to customs. After some lengthy discussions on which duty band to apply, we became the first business in Shanghai to become a 'trusted company' where we received our imports as soon as they arrived and we paid duty on account, monthly.

Moving to the New Facility.

When the new facility was finally ready to inhabit, all people, plant and machinery were moved in what seemed like a military operation. Fleets of trucks moved everything and whereas cranes lifted equipment on and off the trucks, the quality of the floor allowed us to move equipment within the plant on hover pads. Services – electricity, water and compressed air were already hung from the roof and the machines just needed connecting.

Within two weeks the factory had been moved from the temporary facility to the new plant and we were ready to start making 'real' components to supply to customers.

Leasing the temporary facility was a key to the success in starting up the new plant. It enabled an unprecedented amount of training to be given to the new employees, start up bugs in equipment and processes to be eliminated, and for us to experiment with some of our newer lean philosophies. In the UK we had been confident that we could rearrange a manufacturing cell and have one operator working three machines and working with flowing parts rather than with batches. This change was resisted in the UK plant but implemented without question in China.

Today, China has changed.

People in the cities no longer have the habits of burping, coughing, blowing the nose with one finger and allowing the chicken or fish bones to fall from the mouth – at least in public. They no longer hang their washing in the streets or sleep on the flat roofs of buildings during the summer nights and poverty has become much less of an issue – possibly less than in some UK cities. Shanghai is now a serious threat in business to Hong Kong, London or New York – over 200 major conglomerates have their Asian headquarters there. Pudong is no longer a marshland – it is a growing major city and the development park where the turbocharger plant was built has now become a thriving industrial area. The container port has expanded, and a new international airport connected to Shanghai by the fastest train in the world has been built nearby.

Employees no longer clamour to leave China and those who do often return, having experienced the west and then realised the potential of their home country. Mandarin is now taught in 100% of the schools and English (American) is the common language for business and advanced education. The people are friendly, willing to learn and respect most foreigners. They still have difficulty in accepting empowerment and have a fear of doing something wrong, but they do want to work for foreign companies as they are prestigious and pay big salaries.

In March 1994, the first cash machines (ATMs) were installed and today 350 million people have credit cards. Western stores are everywhere – the largest B&Q in the world is in Shanghai. 24 hour convenience stores are on many street corners and it is now much easier for Chinese nationals to travel overseas. The infrastructure in China is constantly changing with more and more motorways, better railways and safer airlines.

In Manufacturing

Whilst there are still many slumbering giants, they are beginning to awaken and many traditional companies are now adapting to the new world. Quality standards are high and many companies are approved to ISO 9000. Almost every major multinational now has some form of joint venture or wholly owned facility in China and their Chinese facilities are often achieving the highest productivity of the plants throughout the world. Employees have become used to western techniques and local managements have realised that the world is in their 'oyster'. Continuous improvement programmes and lean manufacturing techniques are being adopted by many companies. And for now, the costs remain low.

The output from the turbocharger plant has grown exponentially. It supplies the Chinese market as well as exporting components to other plants around the world. Its quality is second to none, its productivity is the highest in the group and it provides a working environment that is one of the best in China. Whilst initially we intended to import items such as stampings and fasteners, the plant now relies on Chinese suppliers for everything as they have changed their standards, and the western ways of doing business and the business improvement techniques are being passed down the supply chain.

A Growing Market

China is still a growing market and whereas the market for some products is flattening in the UK and Europe, it is still growing and will continue to grow rapidly in the Far East. If a company wants to expand and grow in the Chinese market then setting up a facility in China is a logical conclusion and it should become a superb investment – due to the demonstrated quality standards, the highly educated labour and the lower manufacturing costs.

A Threat to the UK?

Growing in China and purchasing goods or services from China are two vastly different scenarios. Today, sourcing components in China or Eastern Europe rather than manufacturing them in the UK can give the significant cost reduction that our customers today are looking for. But are we considering the 'big picture' and are we making the correct decisions for British Industry as a whole? Let's consider a hypothetical example:–

A customer demands a significant price reduction from Supplier A, otherwise it will resource the business to Supplier B. Supplier A reluctantly stops manufacturing components in the UK but retains the assembly here and it sources its components in Asia or Eastern Europe. The customer gets his price reduction and is in the short term happy. Supplier A is relieved and retains the business.

But Supplier B is still anxious to obtain the business, so it too stops manufacturing components in the UK and sources them in Asia or Eastern Europe. He too retains assembly in the UK. The result is that two manufacturing facilities within the UK downsize, jobs are lost and the competitive advantage of sourcing in Asia has been eroded as both companies are again in a similar position.

So, who has gained? The customer - as he gets his reduced price, the airlines and freight companies through shipping more goods and passengers around the world and the Asian or Eastern European company who increases its export business.

But who has lost? British manufacturing as a whole. And what happens next year when the customer wants another major price reduction? Maybe, to retain the business, both suppliers will move their assembly away from the UK.

The remedy is for all of us involved with British Manufacturing to **WAKE UP** and addresses the real issues that face us.

Today's Issues

Recent statistics show that the productivity of UK manufacturing lags behind the USA, Italy, France, Germany, Canada, and Japan. To address this major issue, we need to change the culture of our manufacturing businesses. We need to have a vision of our future and develop a strategy to improve by: -

- Having flexible machines, processes, systems and people
- Valuing our employees by improving communications, empowerment and training
- Reducing our inventory and only having small amounts of 'good' inventory around us
- Eliminating all the wastes throughout the business by introducing lean thinking
- Improving our quality until we reach six-sigma levels
- Delivering what the just customer wants exactly when he wants it.

A Final World

As China and Eastern Europe develop, more and more people get a taste of western life and start to wonder if one day they too can own their own home, have a family car and overseas holidays. Labour costs are increasing in China and they will continue to rise as the employees receive greater benefits and start to move from company to company.

Chinese manufacturing companies use the same machine tools, the same processes, the same tools and the same materials as the rest of the world – only their labour rate is different. But the gap is huge and it will take many, many years for the gap to be eroded.

Footnote

In December 2002, The Honeywell Corporation announced that their UK turbocharger manufacturing facility – in Skelmersdale, Lancashire – was to close.

Chris McKellen has been involved in lean manufacturing and increasing productivity in several companies for the last 18 years. Today, he has his own training and consultancy company.

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