PRELUDE OF "NEXT FACTORY – BIG SCENES FROM GLOBAL MANUFACTURING TRANSFORMATION"

A book review translated **by Charles Yang,** Executive General Manager, Apache Footwear Ltd. and Chair of the WFSGI Manufacturers Committee. The ideas and concepts expressed in this article are referring to the prelude of the presented book.

In the recently published "Capital in the Twenty-First Century", french economist Thomas Piketty pointed out that return on investment and assets have greatly outgrown the speed of economic development. Disparity between the rich and the poor was fueled by the current free economy. The repercussion to his work was overwhelmingly discussed by major financial media all over the world.

The most significant transformation since the Industrial Revolution

Starting from the global macro-economic evolution as the base to analyze the characteristics of emerging manufacturing economies and zooming into the interactions among enterprises, the book explores the context of the competitiveness of the manufacturing industries.

Published in Chinese the book "Next Factory – Big Scenes from Global Manufacturing Transformation" by Professor Ren-Jye Liu and Kuo-Min Chen sets out to explore competitiveness for manufacturers.

The highly visible drastic changes to the operating environment on the eastern sea-board of China and the long overdue movement of "re-shore to the USA" by the American society symbolized the emergence of the transformation of the "World Factory". Unlike the past, this new trend does not chase the low labor rate in the developing economies. Instead, it started a new movement of re-shoring to the developed economies (or the original investing countries) and ignited the largest scale of "World Factory" transformation since the Industrial Revolution.

We strongly believe that this new manufacturing economy will totally change the concept and the adaptability of the Original Equipment Manufacturers (OEM). It allows them to compete, simultaneously, with the US and Japanese enterprises in this new value-crating manufacturing model and help abating the challenges toward the old low labor rate chasing manufacturing paradigm. From the production management standpoint, this new manufacturing economy will end the era of assembly-line based mass volume production economy launched by Ford Motor Company in manufacturing the "T-model" automobile a century ago.

In these past three years, General Electrics, Ford Motor, Caterpillar have moved their off-shore manufacturing back to the US. And Lenovo of China, Foxconn of Taiwan, Mitsubishi Chemical of Japan have largely increased their investments in the US-market. America seems to become the new wonderland for global manufacturing investments. In high-end products, the specialized manufacturing processes along with the cost of quality, human resources turnover and intellectual property right infringement risks have become so high that they greatly neutralize the cost benefits offered by off-shore low-cost production countries. However, comparing to the hassles experienced in the low-cost production base startup, the re-shore manufacturing would have to overcome much more challenges in the developed countries. Since the focus of the re-shore operations will not be on the production cost, rather, it aims at creating values for the end consumers in addition to the original requirements on quality, cost and delivery. Rather than claiming "Customer First" as policy, leading manufacturers strive to understand the conditions of how end consumers appreciate their products.

Toyota Motors announced that it will maintain the production capacity of 3 million vehicles in its Japanese operations, 50% of which will be exported to the rest of the world. The exported vehicles will have to be competitive enough to win over the foreign market. There are two strategic implications, mentioned by Toyota's Head of Manufacturing Hirofumi Muta:

Firstly, Toyota's Japanese operation is the heart of its production activities. Any of the key learnings will be promoted and shared to all Toyota's production sites around the world. Secondly, due to its labor costs being higher than all other sites, the Japanese operation has very strong sense of urgency which drives Toyota to constantly maintain the lead in automobile industry.

Challenges of the new Quality-centric Manufacturing Paradigm

For long, the Original Equipment Manufacturers (OEM) in electronics, footwear and apparel industries have been chasing low labor rates to maintain the growth of cost-driven mass volume production economy. In recent years, the rise of consumer value-adding a "Quality-centric Manufacturing Paradigm" has gradually become their focus and reshaped the future of these manufacturing industries.

Hereunder are the five perspectives to explore this new manufacturing trend to build new operations not just in low-cost regions and to pursue more than the mass volume production model.

1. Understand the trend of re-shoring and renounce the era of low-cost only manufacturing. Re-shoring in the US, China investing in the future of Africa, or the "China-Plus-One" strategy[1] all point to a new era of the "World Factory" transformation. The manufacturing economy has turned to embrace high-end manufacturing solutions.

2. Emphasize on end consumer values instead of price and study the new dynamics of outsourcing customers. From the classic definition between values and trade to promoting close-to-the-market production and exploring the end consumer values will turn the manufacturing center into a service industry. The perception changes from outsourced work to outsourced customers. Product proposition needs to offer more than functionality, it needs to understand customers' perception, conditions of application and its processes to provide total solutions. The customer is always the eternal values creator.

3. The basic requirement for future manufacturers is to provide customer values through a "Quality-centric Manufacturing Paradigm". The new manufacturing economy provides the values through LEAN production and understanding the essence of consumer value. Future manufacturers need to both understand the customer to create values and eliminate waste to manufacture for the subsequent processes. The key questions are: "Doing what?" and "Who can do it?". The "Quality-centric Manufacturing Paradigm"focuses more on organizational ability especially devoted to product planning and human resource coordination than making smart decisions.

4. The customer decides the cost and value in the new manufacturing economy. Operation structure not only dominates the competition in the new economy but also impacts the transformation and the collaborations across the supply chains. The key to the re-shuffle is to derive new values from the fragmented manufacturing value chains. Pursuing customer-oriented new manufacturing economy to foster interactions among suppliers and customers will create an operational competence hard to be imitated by competitors.

5. Summarize the reflection of the new manufacturing economy toward capitalism. A sustainable manufacturing model usually is simple, wise and customer-oriented. It is also a knowledge base to contemplate what future manufacturing requires. In another word, new economy appreciates "less is more". Only through being tightly linked with all interest parties and processes, based on trust to provide solutions that customers really want we can create higher welfare for mankind.

About the authors of the book:
Kuo-Min Chen is a senior manager in a Taiwan's machine tool company and has 20 years plus working experience in this industry. He received his Ph. D. degree of Industrial Engineering from Tung-Hai University in 2004 and his Master degree in Mechanical Engineering from National Taiwan University, Taiwan in 1991. He major in machine design, production management and product innovation management. His research activities include business management and innovation strategies.
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[1] China Plus One: to exploit opportunities in other low-cost production countries to both hold down costs and reduce over-dependence on China.