Originally published in Chemical Industry Digest Vol.30.2. February 2017. Republished and circulated with due permission.



# China becomes a global process manufacturing powerhouse amidst increased market volatility

**Ron Beck, Industry Marketing Director and Sunil Patil, Business Consulting Director, AspenTech**

The world map for process manufacturing is changing, as industry realigns and impacts the global economy. As a result, globalization has accelerated. The recent crude oil price volatility has challenged oil industry executives, while presenting a new opportunity for the chemicals sector. Increased market volatility is now the new normal with fluctuating feedstock pricing, incessant commodities trading, rampant currency movements, rapid demand and supply shifts. Industry players, who are able to rapidly mitigate market changes, will be leaders in their space.

New market entrants are rattling traditional ones. For example, the Middle East and India have staked new grounds with newly built and highly automated mega refineries. This challenges traditional players, such as Japan, Korea and Europe, who face increased competition from Chinese refiners. In the upstream sector, North American shale players have given traditional producers a run for their money before the crude oil price volatility took root in late 2014. With prices are now above the $50/barrel benchmark, surviving shale players are entering 2017 with improved technology, increased efficiency and more aggressive market plans. They are also better armed with a more efficient CAPEX structure. Amidst this industry tussle to meet global demand and supply – oil and gas producers, engineering and construction companies (EPCs) and refineries alike, should consider underlying industry demand dynamics. What drives success for countries, such as China, in this global economy? A multi-billion dollars' question is at stake and the answer hints at increased flexibility via better innovation.

## China a global process manufacturing powerhouse

Danger and opportunity are two sides of a coin. What role will the most populated country and second largest economy in the world play in the global process manufacturing space? To understand China in this new environment, let us understand the market dynamics surrounding this powerhouse nation.

First, the Chinese economy is likely to continue and power on as a global economic power. Factory of the world, the Chinese economy is projected to be the world's largest consumer of chemicals, plastics, oil and gas. In the lead, the US is a fortress, as a low cost producer with favorable Gulf of Mexico logistics. This largest economy in the world is also home to the most educated pool of technical staff. However, China and India are fast chasing up with their huge population base. Another industry titan, the Middle East, has the honors of being the lowest cost feedstock producer. In this friendly clash of the process economy titans, legendary investor Warren Buffett seems to have placed his bet in saying, "For 240 years, it has been a terrible mistake to bet against America, and now is no time to start. America's golden goose of commerce and innovation will continue to lay more and larger eggs. America's social security promises will be honored and perhaps made more generous. And yes, America's kids will live far better than their parents did." Will he remain right? If yes, American companies are likely to continue to be inextricably linked to China, which currently manufactures most of the world's array of finished goods made from hydrocarbon based plastics. With strong access to capital and possibly, well placed investments, China's economic clout is likely to strengthen from an ironclad foundation.

Second, Chinese companies have an inbuilt advantage to invest for the longer term, as the Chinese government has an excellent ability to plan and execute a longer term vision. According to the World Bank, China's newly approved 13$^{th}$ five year plan (2016 – 2020) addresses energy efficiency, improves access to education and healthcare, as well as expands social protection. At a sustainable 6.5% annual growth target, economic growth and quality of life for residents

**"Globally, process manufacturers and EPC firms need to leverage the best innovation can offer and turn assets into business value."**

are better balanced.

Third, Chinese and Middle Eastern companies generally have deeper pockets and invest long term. For example, Saudi Aramco and Sadara have built up extensive investments in technology and human capital. This places the region in a good position to achieve industry leadership via operational excellence. China also has an advantageous late comer's advantage to invest in innovation, ride the wave in connectivity and analytics, as well as acquire an increased ability to operate chemical plants in an intelligent and reliable manner.

Fourth, Chinese companies have an immense ability to adopt new technology and achieve overall efficiency via asset optimization. Technology is a key enabler for companies to leapfrog decades of growth to be world class organizations in the most seamless way possible. Local process companies and EPC firms have displayed keen interest in adopting and implementing visionary approaches, such as building digital plants/oilfields and virtual organizations. This also includes embracing better business processes and workflow. The insatiable appetite of Chinese companies to innovate, collectively and individually, is often misunderstood by Western companies (in general) as imitators. This can be no further from the truth, as Chinese companies are now moving rapidly towards positioning themselves as innovators, especially in the process industry space. Greater success for China is now dependent on the ability of local company executives to capture increased insights into their businesses and ride the tidal wave of technological change.

## Mitigate increased market volatility via asset optimization

Globally, process manufacturers and EPC firms need to leverage the best innovation can offer and turn assets into business value. Asset optimization is an overarching approach that involves a balanced approach to CAPEX, OPEX and reliability to achieve sustainable operational excellence and increased profitability. Asset improvement helps companies gain insights into root causes of breakdowns and degradation, resulting in superior reliability and yields. Understanding today's operating equipment and how to increase its reliability will further fuel tomorrow's innovation.

Furthermore, asset optimization is an incremental process. Companies choosing to pursue quarterly outcomes will be challenged to invest effectively in the right technology. They need to better understand their unique challenges and evolve their organizations towards industry best practices. In standardizing manufacturing assets with a common software approach, companies enable the sharing of best practices across organizations with multiple assets. This results in greater visibility and better outcomes. It also empowers employees to reduce energy costs, improve margins and increase profitability. In the process, companies also advance in their journeys towards asset optimization.

Finally, by transforming process manufacturing via innovation and technology, industry leaders are better positioned to meet market demands and mitigate an increasingly volatile global economy. As industry players move towards operational excellence with asset optimization principles as the blueprint, both Chinese and global companies can focus increasingly on innovating their process assets and chemical products to drive future demand and growth.