Talent and Technology

EPCA President Tom Crotty Discusses Drivers of Innovation in the Chemical Industry

The European Petrochemical Association (EPCA) represents over 650 producers of chemicals and their service providers from 55 different countries that stand for an aggregate turnover of over €3.6 trillion. Each year in October EPCA holds its annual meeting where more than 2,600 delegates discuss challenges the industry is confronted with. EPCA challenges the "business as usual" approaches and brings forward new and "out of the box" ways of thinking on key elements that can drive the chemical business community forward.

At the 46th Annual Meeting 2012 of EPCA in Budapest, Hungary attendees looked at talent and technology as drivers of innovation in the chemical industry. Tom Crotty, EPCA President and Group Director of Ineos outlined the main theme of the conference in his introductory speech. Crotty said the industry holds the key to resolving the twin challenges that face the world: how to meet the needs of a growing population while also reducing the impact of humankind on the ecology of a fragile earth. "As we look further into the future, who knows what we could achieve as an industry if we can truly harness the twin powers of talent and technology", he said.

Keeping Pace with Change

"Industries that fail to keep up with change simply fail. In the chemical industry we have shown that not only can we keep pace with change, we can - sometimes - do a pretty good job of anticipating it and driving it. We need to continue to do that if we are to thrive through the 21st Century."

However, the industry will need to get two interlinked things right, Crotty urged: "We have to innovate and continue to thrive through those technological breakthroughs that meet the needs of an ever-changing world. To do that, we'll need great people. Our ability to innovate is entirely dependent on and limited by the talents of our people. The combination of talent and technology is essential to
ensure the future of the chemical industry in Europe and around the world."

**Enthusiasm about Science and Technology**

In this context, Crotty took the opportunity to spotlight what he called "the great work going on with inGenious," an organization established as a partnership between industry, national science platforms and ministries of education.

"To ensure we have the right people for the future, we've got to enthuse young people throughout Europe about science and engineering." EPCA's outgoing President, whose term finishes on December 31, 2012, explained: "inGenious's mission is to reinforce young Europeans' interest in science and technology industry careers by influencing maths and science teaching. That starts with getting involved with about 1,000 schools throughout Europe, to build strong links between young people, their schools and us - an industry that is a provider of what we believe are exciting and challenging careers.

**Global Social Challenges**

Moving on to the big issues that form the backdrop of today's chemicals industry, Crotty noted that the last three EPCA Annual Meetings have looked at the challenges of population growth, sustainability, and at the global financial meltdown: demographics, ecology and economy. "We're all aware of the challenges of a rising global population," Crotty said. "Population growth is inexorable. Our population is now growing by a billion every 12-23 years, which gets us to 7 billion today, and the projections are that there will be 9 billion people on the planet by 2050. The challenge for our planet and our people is not just through the absolute number of people, it's also about their distribution and aspirations." These extra 2 billion people by 2050, said Crotty, will be in the burgeoning economies of Africa and Asia and they will have aspirations the like of which we have never seen before. "We live on a shrinking planet in terms of communication, and technology has liberated people from isolation and freed their minds to soar. Our new 2 billion will form part of a growing, aspirant global middle class. Why should their standard of living be any lower than someone living in New York or Hamburg?"

**Population Growth**

Crotty said he'd been struck by a picture that economist Jeffrey Sachs shared with EPCA in 2010, showing the distribution of world GDP over the past 500 years. "Until the industrial revolution, GDP was determined by population: the more
people you had, the more wealth you created. Clearly, the industrial revolution turned that on its head and the technological advances developed in the West meant that this region dominated world GDP. But we're now seeing signs of GDP reversing because technological advances are now being dispersed throughout the world. Now if that happens, over time we may well see a reversion to a situation where the regions with the biggest populations become much more dominant economic forces." This is already becoming a reality in China, Crotty noted. Does this mean it will happen in India, and the countries of Africa? Will there be a paradigm shift in world order?

• Ecology

Moving onto ecology, the EPCA President said population growth brought new challenges. "We're already living beyond our means and consuming the earth's resources at a rate that is - in geological time - the blink of an eye. And the rate of that consumption is increasing." In light of the current population growth dynamic, is the world facing a doom-laden future, Crotty wondered. Will there be shortages of food, fuel and water?

His belief is that the industry remains at the heart of the solution. "In the short term, we are already using our talents and technologies to husband those scarce resources. Our chemistry is allowing the world to light-weight cars and planes and drive up their fuel efficiency to ease the environmental burden. Our industry is already underpinning renewable energy resources, whether by providing the materials for solar cells, the lubricants for wind turbines or the technology to make fuels from waste. As we speak, Ineos is in the process of commissioning the world's first bio-refinery - we're making bioethanol fuel from waste carbon. And similar technologies are being developed by the chemical industry around the world."

He cited several outcomes from a recent Cefic meeting as evidence of the industry's response to these challenges: "A commitment to zero plastics in landfill by 2020, and the major new SPIRE initiative - a public-private partnership to establish sustainable process industry in the European Union through resource and energy efficiency. And longer term, the R&D challenge to develop pathways from sunlight straight through to feedstock and fuels."

Our industry has a huge opportunity to remain at the heart of global development, Crotty continued. It is also his belief that the European industry can lead that development. "This isn't only important for the reasons I have described, but it is also important because of the third big issue we face: economic imperative. "While every generation thinks it is living in unprecedented times, we surely are, Crotty
The shock waves from the 2008/2009 crisis are still felt around the world. Banks that once were the source of risk finance for our industry are now more risk averse. Indeed the financial regulations put in place to prevent a repeat of that crisis are now institutionalizing risk aversion and caution. And governments throughout the developed world have debt levels of unprecedented scale as a result of repeated financial sector bailouts. These debt levels could be with us for generations," he said.

What's more, governments grappling with these "politically impossible tasks" are telling people that vote for them that things will get worse before they get better, which just adds fuel to the fire of recession because it undermines public confidence, the EPCA President continued. "Nowhere is this more keenly felt than in Europe, where there is the added challenge of trying to manage a single currency influenced by a number of independent and economically disparate states."

Now the short-term effect on the European chemical industry is very real but also being well managed. Demand is depressed, but in Crotty's view an increasingly sophisticated offer to customers by European producers has limited the impact.

"There are other big signs of economic change for our industry on the horizon. The shale gas developments in the US have led to a truly astonishing renaissance in U.S. petrochemicals with no fewer than eleven ethylene expansions now announced and a further seven being considered. This has also led to major falls in U.S. gas prices and a shift in U.S. global competitiveness, pushing it right up the scale of competitive industries."

This has implications for Europe's chemical industry, he continued. "It's too early to say how the search for novel gas is going to impact Europe. A number of countries, notably the UK and Poland, have made statements of government support for novel gas developments. In the meantime some arbitrage between the US and Europe seems inevitable. In fact Ineos has just announced long-term arrangements to bring US gas into Europe. But whatever happens, feedstock development will remain a major issue for this industry in the coming years - whether through novel gas or through bio- or waste-derived feedstock or through blue-sky developments like artificial photosynthesis."
The Future of the Industry
Crotty reiterated his confidence in the future of the industry: "I really do believe we are a force for good in the world and that the world needs us to address these major global issues. Meeting the needs and aspirations of a growing world population in a way that is sustainable is a huge challenge. How can we provide food, water, shelter, transport and entertainment for 9 billion people without depleting the world's resources? The answer, of course, is by harnessing our talents and harnessing our technology."

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