

AspenTech - A Research Effort that Transformed the Global Energy Sector

• Interview with Antonio J. Pietri, Executive Vice President, Field Operations, AspenTech



Oil Asia spoke exclusively to Antonio J. Pietri, Executive Vice President, Field Operations,

AspenTech. Born in Venezuela, Pietri finds similarities in the Indian culture, compared with his own. He added that he has been to India several times and had visited Delhi, Bangalore and Jamnagar, besides Mumbai.

OAJ : *How can AspenTech help Indian and global energy companies optimize their operations to achieve energy efficiency?*

AspenTech : For energy companies, AspenTech can help them optimize their operations to achieve energy efficiency by adopting a holistic approach to energy management. Adopting best practice in this area can have a major bottom-line benefit since savings of between 5-10% can be obtained using operations planning and optimization without needing to make any significant capital investment even in the most sophisticated plants.

By implementing an energy management program with elements focusing on both supply and demand, organizations can achieve significant returns – often over 15% of their annual energy costs with very attractive payback on the capital invested. So, the best practice is to develop a sustainable approach, involving the continuous monitoring of operations and focusing on making improvements to the implementation.

In terms of product breadth and depth for the energy industry worldwide and in India, AspenTech offers the broadest footprint of process

optimization solutions.

For Exploration & Production (E&P), AspenTech can enable Indian oil & gas companies to leverage real-time data and process modeling to optimize asset development, lower costs and maximize recovery. In, engineering – aspenONE® Engineering for Exploration & Production drives operational excellence and profitability through optimal process design and operations. In operations, aspenONE® Operations for Exploration & Production maximizes operational effectiveness and improve profitability with real-time, asset-wide modeling, control, and operational visibility.

In the Midstream sector, AspenTech leverages process modeling to optimize gas gathering, compression and processing to lower costs and maximize profitability.

For Refining & Marketing (R&M), AspenTech can help maximize profitability by integrating and optimizing process engineering, plant operations, and supply and distribution for refiners, marketers, and distributors with a variety of software solutions. aspenONE® Advanced Process Control for Refining & Marketing enables manufacturers to maintain plant operations at optimum levels, maximizing profitability while meeting safety, environmental, and product quality requirements. aspenONE® Engineering for Refining & Marketing drives operational excellence and profitability through optimal process design and operations. aspenONE® Supply Chain for Refining & Marketing maximizes refinery margins by optimizing the

planning and scheduling work processes for the downstream petroleum supply chain. aspenONE® Production Management &

Execution for Refining and Marketing standardizes and streamlines refining operations with an integrated solution for monitoring, control, and analysis of production information. aspenONE® Supply & Distribution for Refining & Marketing maximizes profitability, increases operational visibility, and improves asset utilization for petroleum companies.

OAJ : *How can AspenTech contribute to reducing greenhouse gases and slowing down the environmental decline with your optimization software?*

AspenTech : An integrated and holistic approach to energy management can achieve significant savings in energy costs and greenhouse gas emissions - both within the manufacturing units and in the utilities systems that support the manufacturing units. The potential benefits to businesses of this kind of holistic approach to energy management are huge. Adopting best practice here can have a major bottom-line benefit without needing to make any significant capital investment even in the most sophisticated plants.

In addition, by implementing an energy management program with elements focusing on both supply and demand, organizations can achieve significant returns with very attractive payback on the capital



Antonio J. Pietri,
Exec. VP, Field Operations,
AspenTech

invested. So, the best practice is to develop a sustainable approach, involving the continuous monitoring of operations and focusing on making improvements to the implementation. The ability to measure performance against a plan, a contract or a budget is all part of being able to improve the energy side of the business. As energy becomes a constant metric for operational performance for the organization, users will begin to see sustainable and continuous process improvements.

Adopting this best practice will lead to optimal performance, and this performance will translate to improved profitability.

OAJ : *Please discuss about AspenTech's research and development, product innovation and keeping up with customer needs in this fast paced world.*

AspenTech : No other technology provider in process manufacturing spends more on R&D as a percentage of revenue than AspenTech. AspenTech staffs three R&D Centres of Excellence for Engineering, Manufacturing & Supply Chain, and Quality, in Houston, Burlington and Shanghai. We have over 400 R&D professionals, including over 80 process modeling developers, half of whom hold PhDs.

Most recently, AspenTech updated Aspen PIMS™ and Aspen Petroleum Scheduler™ to improve collaboration between refining planners and schedulers. According to Srinivas Rachakonda, Senior Vice President of Planning & Economics at Essar, "Powerful analytics in PIMS have yielded faster and better evaluation of crudes available in the open market. Crude cost is a major expense for all refineries, so the ability to determine crude choices quickly and accurately supports the planning process and enhances profitability. As we continue to deploy the latest developments in technology, Essar is pleased with the advancements in Aspen's innovative planning solution."

We also recently brought enterprise scale search and high performance trending to Manufacturing Execution Systems (MES) with the new release of Aspen InfoPlus.21. Process manufacturers can improve their business performance by quickly finding and analyzing their operational data for fast and easy trouble shooting. By instantly representing what is happening in the plant, engineers and operations personnel are better able to improve manufacturing performance.

Earlier this year, we announced three significant new advancements in process optimization – a new release of aspenONE Supply Chain that delivers redesigned user interface that makes it easier to navigate supply chain complexity and profitably respond to unexpected market conditions. In addition, we have also introduced search for process optimization, Aspen Search enables engineers to find the right models and plant data in seconds; improves collaboration across organizational units and engineering teams. Last but not least, the introduction of Aspen Online Training makes aspenONE Engineering products easier to use and learn, as instant access to self guided training content from inside the product helps AspenTech users become productive faster and more proficient overall.

OAJ : *Discuss about your own career at AspenTech and vision for India as an emerging market, as well as how to achieve the vision.*

AspenTech : I had joined AspenTech in 1996 and am currently the Executive Vice President, Worldwide Field Operations, based in Burlington, Massachusetts. Prior to my current appointment, I was the Senior Vice President and Managing Director, Regional Operations, Asia Pacific based out of Beijing, China. In 2002, I had relocated to Singapore, as the Vice President for Business Consulting and was subsequently promoted to Managing Director of the Asia Pacific region. I was also the Program Director for the

implementation of AspenTech's integrated refining solution at two refineries for a major European client in 1998 and later served as a consultant to a super major in a program to coordinate and run its manufacturing business processes.

India is an emerging market for the company and AspenTech is committed to growing our presence in this marketplace. The country is well positioned to be one of the biggest economies in the world in the foreseeable future with a vibrant economy and favourable demographics. With a relatively young population of 1.2B and an increasingly educated workforce, the opportunities for key industries to strive and drive innovation are immense. AspenTech can play a role in partnering Indian companies and the government to achieve well optimized operations with global best practices.

To grow this vision, AspenTech will need to continue and drive the education of the company's value position with customers. We will also be running focused sales and marketing programs to address the Indian marketplace. Our core sectors include Exploration & Production, Midstream, Refining & Marketing, Petrochemicals, Chemicals, Specialty Chemicals, Engineering & Construction and Pharmaceuticals. These sectors are pillars to the Indian economy and thus, it is important our customers know what we can do for them. For existing customers, we want to continue to value add to their operations, while acquiring new customers in both our core and non-core sectors.

OAJ : *Please highlight your company's role in key deployment for energy companies.*

AspenTech : Under Exploration & Production/Midstream, we have PTT as case study. Thailand's PTT Group turns to aspenONE Engineering and Aspen HYSYS modeling to optimize the country's largest gas plant, increasing production and minimizing cost-per-

ton of product. Thus, the leading Asia Pacific company is able to simulate gas separation to increase capacity, drive incremental benefit of \$60K/day.

For Refining & Marketing, Petrobras has successfully implemented AspenTech's process optimization solution in its first equation-oriented RTO initiative. Now the company looks to increase profitability across other sites, as it moves to a closed-loop RTO solution. Thus, Brazil's top energy company can now improve potential profits at REVAP Refinery \$13K/day with real-time optimization.

OAJ : *Discuss about the latest trend(s) in energy management within the global process manufacturing industry, particularly with regards to the oil & gas sector.*

AspenTech : Today, we are witnessing a potent combination of factors, which together are driving organizations across the process industries to optimize their energy consumption. In the oil refining, petrochemical and gas processing businesses, in particular, energy is one of the largest components of operating expense. Limits on nitrogen oxide and sulphur oxide, regulations to control 'flaring', and restrictions on greenhouse gas emissions are combining to push the issue up the business agenda.

Improving energy efficiency saves costs with no negative impact and therefore represents a particularly attractive option for businesses to follow at this time, especially given that in the near future, many

companies will be faced with having to buy carbon dioxide emissions credits. Being more energy efficient therefore has a double impact on the bottom line – it reduces both operating expenses, and expenditure on carbon dioxide credits. So, reducing energy costs is on the agenda of most companies in the process industries. One of the key issues that they are facing, however, is that there are many different ways to reduce energy cost. Consequently, in developing the most appropriate energy improvement strategy, organizations need to consider all of these different options.

OAJ : *Please share about the latest technological advancements like how mobile applications are changing the way data is being accessed.*

AspenTech : Last year in May, AspenTech had introduced process mobility with the new release of aspenONE software. Mobile versions of Aspen IP.21 and Aspen Properties Software can support broader collaboration and visibility for better decision-making across engineering and manufacturing.

Using Aspen IP.21 Mobile software on leading smartphones, customers can resolve operational performance issues faster, delivering increased profitability, reduced variability, and improved asset utilization on the fly. Flexible settings allow users to configure alerts and views that quickly identify error conditions while maximizing information value for individual job functions.

Aspen Properties Mobiles software provides on-the-go access to accurate property calculations for over 24,000 chemical species via iPhone and iPad devices. This enables broader access to a wider range of users, including engineers, chemists, and scientists. Aspen Properties Mobile is easy for anyone to use, with a simple, intuitive, touch-to-screen user interface for mobile phones and tablets. It also provides more easy access to AspenTech's proven properties data and calculations, helping to ensure more consistent designs.

OAJ : Discuss about AspenTech's evolution, milestones and achievement in the past 30 years?

AspenTech : Joining the likes of Microsoft, IBM, Oracle, and SAP, AspenTech is one of the few software companies to surpass the 30-year milestone. Today, AspenTech optimizes engineering, manufacturing, and supply chain processes for more than 1,500 customers worldwide, including all 20 of the largest petroleum companies. Thus, what began in a lab at MIT as part of the Advanced System for Process Engineering (ASPEN) Project has grown to what is now, AspenTech. The project, a collaboration between MIT and the US Energy Department, was founded to address the energy crisis back in 1981. Fast forward to the present day, the world is facing a similar energy crisis and this puts AspenTech at the right place and right time to capitalize on this world trend to help process manufacturers become more energy efficient.