

AspenTech Reflects on an Epic Odyssey

FROM humble beginnings next to a railway line in the 1980s with a staff of eight, AspenTech has become a global software giant optimising process management for 75 000 users in over 1500 companies. Having recently celebrated their 30th anniversary Henry Lau, Senior Vice President and Managing Director APEC AspenTech, spoke to Oil and Gas Asia about the company's remarkable rise.

How was AspenTech founded?

AspenTech was founded in a lab at MIT, as part of the Advanced System for Process Engineering (ASPEN) Project has grown to what is now AspenTech.

As a typical start up, the company was housed in a small warehouse space next to



Henry Lau

a railroad track with a few offices, some cubicles and some of the smartest people in the world, such as Larry Evans, Joe Boston and Herb Britt, who were prime thinkers in terms of computer-aided chemical engineering.

Together with a group of fairly young and inexperienced MIT grads, AspenTech was launched with eight employees in total. By the mid-1980s, this had grown to several dozen working nights and weekends in a dedicated effort to build the company.

What were some of the challenges that AspenTech faced in its early days?

Computing power was one of the great limitations and the team had to use the nearby MIT computing centre, about a quarter of a mile down the road, whenever they had wanted to run their programs. Later, the team got their first computer, which was a Vax, it had pretty limited computing power



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and had a limited number of terminals, so they had to take turns working.

The main competition in the early days was from in-house simulators, as most major chemical and refining companies had their own simulator, with fairly substantial internal groups developing and maintaining these systems.

AspenTech needed to show why the company, as a commercial fledgling software company was better at solving problems than the in-house solutions.

How has the company changed as it evolved from a start up to a mature company today?

In the early days, most companies had their own simulator and, the use of simulation in computer-aided chemical engineering was limited to relatively few 'expert' users. The emphasis was on technical capability, the ability to solve tough engineering problems.

Largely because of AspenTech, most of these companies had moved from their in-house simulators to adopting their own simulators by the mid-1990s.

With the advent of PCs and graphical interfaces, the use of simulation tools becomes much more democratized. And the challenge moved from technical capability and a few experts solving tough problems to ease-of-use: how to give more engineers access to easy-to-use technology to help them solve everyday problems. This, in addition to maintaining technical capability, as there has been much more emphasis on workflow integration and user experience in recent years.

Fast forward to the present day, joining the likes of Microsoft, IBM, Oracle, and SAP, AspenTech is one of the few software

companies to reach the 30-year milestone. And remains the only company focused exclusively on process optimization that helps our customers achieve superior financial and operational results.

Today, AspenTech optimizes engineering, manufacturing, and supply chain processes for more than 1,500 customers worldwide including: 19 of the 20 largest chemical companies, all 20 of the largest petroleum companies, 17 of the top 20 engineering & construction companies and 15 of the 20 largest pharmaceutical companies

By standardizing on AspenTech solutions, these companies have been able to: Design and run more efficient plants, increase operational performance, operate more agile supply chains and reduce energy consumption and carbon footprints.

Describe AspenTech's key innovations in terms of R&D and product development.

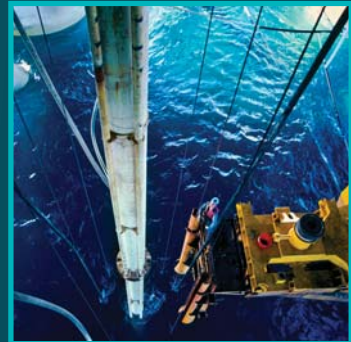
The initial hallmark achievements of AspenTech primarily revolved around our technical capabilities. Very early on, the company was able to tackle and solve problems that no one else could solve in the marketplace at that time. The advantage came from being able to model very 'non-ideal' chemical systems and 'non-ideal' thermodynamics, for example, three-phase distillation, electrolytes, polymers and solids modelling. AspenTech's technical capability distinguished the company and our products from the competition at the time and established us as being able to solve problems that no-one else could solve.

Beyond that, in the mid-1980s and early 1990s, the development of PC-versions of AspenTech solutions unleashed access to our technology and tools to the marketplace in a

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way that really freed us from the mainframe. The mobility that was associated with being able to run our solutions on PCs really revolutionized our customers' use of our products, as well as the industry as a whole. Then in the mid-1990s, development of the first graphical user interfaces opened up the use of our tools to a much larger market. It reduced barriers, enhanced ease of use and increased the sheer number of people that use our products.

Another landmark achievement of AspenTech was the acquisition and integration of some of the best companies and technologies in adjacent areas such as in costing, equipment design and plant automation and manufacturing solutions. This helped to take our capabilities beyond the core simulation business to cover a larger aspect of the engineering workflow, moving, in particular, to plant operations and supply chain management.

How would you describe AspenTech's value proposition for the oil & gas industries?

AspenONE for Exploration & Production provides integrated solutions for enterprise-wide visibility and control over the production system-from facility engineering and design, to full-scale asset and portfolio management. By delivering improvements in production, recovery increases, and reducing costs (design and operating), AspenONE for Exploration & Production translates into millions of dollars in bottom-line benefits.

With AspenONE for Exploration & Production, companies can: Shorten the time and reduce errors from conceptual design to handover to operations, visualize equipment, platform and enterprise performance, analyze production system performance using consistent models and real-time data and optimize decision making with industry-leading simulation and optimization tools.

AspenONE for Refining & Marketing delivers an integrated foundation for reducing costs and increasing throughput, while achieving safety and regulatory compliance. AspenONE for Refining & Marketing enables standardized work processes and real-time decisions based on common data, models, and assumptions. By integrating the overall business processes, companies achieve significant improvements in performance with payback in months instead of years.

AspenONE for Refining & Marketing maximizes profitability and drives operational excellence by: Expanding visibility across the entire petroleum supply chain to reduce inventory carrying costs. Increasing speed and accuracy of response in decision making to enable higher refinery margins.

Optimizing selection and scheduling of feedstock, applying actual refinery constraints. Driving collaboration across engineering, refinery operations, and the entire petroleum supply chain. Optimizing refinery performance given the trade-offs

between capacity, yield and energy.

How has AspenONE differentiated itself from the previous generations of solutions from AspenTech?

AspenONE is the market-leading application suite enabling process manufacturers to implement best practices for optimizing engineering, manufacturing, and supply chain operations. Unlike point solutions that only address specific process areas, AspenONE addresses inefficiencies end-to-end throughout the plant, resulting in significant cost savings and increased customer satisfaction.

Designed to meet the distinctive demands of each vertical industry, AspenONE integrated applications address the business processes that have the greatest impact on operational performance. The targeted areas include engineering, supply chain, advanced process control, production management & execution and supply & distribution.

The new AspenONE V7 release includes advances in workflow integration, as well as other major enhancements to help create and sustain best practices. Benefits include increased efficiency and improved profitability, lower total cost of ownership, dramatically improved operational performance, agility, reliability and profitability, as well as maximum profits and improved efficiency.

Customers access products on a 'check out /check in' basis up to their purchased amount of tokens. Software maintenance is also bundled into the contract, and customers also receive access to all future AspenONE products. Companies can monitor and track the way their software is being used and adjust when and where it is used, based on changing business requirements.

There are a wide range of benefits associated with the token-based licensing approach. It facilitates easy access to an extensive range of software solutions. By enabling end customers to discover and use new elements of a software suite without having to worry about administrative overheads, vendors can encourage users to explore their complete portfolio in-depth rather than relying on just a few 'tried and tested' tools.

In addition, the ability to access a full suite of solutions allows companies to replicate the operational and financial benefits of process optimisation across multiple parts of the customer's organisation. This provides team members with complete flexibility simply not available through traditional licence systems.

Companies can also monitor and track product and application usage much more closely, enabling them to ensure maximum and sustained value from their technology investments. Customers can analyse usage patterns through built-in standard reports, detailed views by product, product family or server. Customers can also work with raw usage data to 'slice and dice' by specific

criteria to create their own reports.

One additional major organisational benefit of this approach to licensing is that customers can focus on what they do best rather than worrying about additional software purchases. They can focus on optimising business processes without regard to whether they need to justify the purchase of additional software from the vendor. With other types of software licensing arrangements, the user may want to 'turn on' a feature, but, in order to do so, has to justify the added purchase or expense.

In the token model described, customers can access and "turn-on" new features or products for free (in the 'check in/check out' model). If they start using new products or features and are deriving value, they can then decide to purchase additional tokens. The customer can partner with the vendor, in this case AspenTech, to figure out the right blend to optimise different business processes.

A way to further maximise the effectiveness of token-based licensing is to engage in a proactive, ongoing consultancy programme aimed at raising awareness levels within the business and providing a clear demonstration of benefits. This is often the most effective way of replicating the benefits of using the system, in addition to training and internal awareness programmes.

How do you view the future of software engineering for the process industry?

The future of software engineering in the process industries is very much tied in with what is happening outside of the process industries, particularly in terms of the broader IT trends. In the last decade, in particular, we have seen significant advancements in terms of Internet capability and in mobile applications.

The equivalent computing power of that first PC, which we built at AspenTech, is now far surpassed by the computing power in your typical mobile device. The ability of tools to run in the cloud and a range of other IT advancements is really going to impact software engineering for process industries going forward. The unprecedented ability of people to be able to access data and technologies that were in the past either unavailable to them or extremely difficult to access will greatly magnify the impact that engineers can have on their organizations.

So, for example, we expect to be focusing a lot of our future development making data and models available to our customers through the Web and the cloud. We envision being able to have the full power of tools available for customers anytime and anyplace through mobile applications. And I think the sheer computing power now on tap is going to allow us to visualize, analyze, and solve problems and bring people together in a way that has not been possible before.

These are exciting times. ●