"We are changing the culture of doing engineering"

Be it project managers, plant designers, or system administrators, all of them have their own views on getting optimum support from a working environment. Executive Director of Aucotec's product management, Dr Pouria Bigvand, takes on the role of a listener and reports on the sensitivities of the individual target groups when it comes to a powerful tool infrastructure.

In 2019, Aucotec acquired a new major client in the oil, gas, wind and solar energy sectors: Equinor ASA, formerly known as Statoil, based in Stavanger, Norway. Equinor is one of the world's largest offshore operators, and also maintains refineries and wind farms. The company is undergoing a transformation process with the traditional document-oriented lifecycle information at the plants becoming highly digital based on centrally managed data with the help of Engineering Base

Picture: Equinor / Rønnevik / Gravås

Dr Bigvand, what are your take-aways from discussions on the constraints and needs of project managers?
The most crucial point on their mind is the timeline. Project managers have told me: You can replace tools, contractors, people, but time is the only constant in the equation. I remember a meeting with a project manager explaining to me insistently: Look, I can work with any tool available to me. I can adjust my handling of it, or change my team's mindset in order to work with it efficiently. But the only thing I can't put my hands on is time. To that end, a tool can bring tremendous progress in project processing if it supports engineers in keeping to a tight timeline – the project plan is crucial for those managers.

On the other hand, what you're saying is that tools are interchangeable. That sounds like bad news for tool providers …
… to be honest, I do believe tools are interchangeable and that means tool providers are constantly under pressure to provide best in class. Of course, project managers have their preferences, but that does not necessarily mean that their preference is the optimal one. They say: It's always crucial that the tool suite gets me to my goal on time. Think of a trip to the airport to catch a flight and you are under huge time pressure: You know one route that is not the easiest and fastest, but you have been using it for years, so you know about all the obstacles along the way, would you use the same route this time or would you use a new route that is faster or shorter, but unfamiliar? People typically tend to avoid change when they are under enormous time pressure. They will reach the airport on time, but they need to start sooner in order to overcome all the known obstacles. These are the costs of being conservative. To map this to our world, this conservatism is the main reason why we offer our prospects hands-on proof of concept project that gives them all benefits of being an innovator trying out a new path while maintaining the full safety a conservative feels comfortable with.

Got it. Let us drill a bit deeper and look at a lower level of management: the plant designers. Can you share their secrets with our readers?
All engineers, not only process engineers, but also other experts like instrumentation and control engineers, want to be supported by a working environment that enables them to get their jobs done as quickly as possible.

Dr Pouria Bigvand
Picture: Aucotec

Frontend users find it very difficult to change their way of working. Despite digitalization many of their tasks will remain mandatory. So they prefer to stick to their usual way of working, even if this means inefficient work-arounds or a significant amount of work later down the road to increase the quality and consistency of documents. For me, this shows that some of the digitalization initiatives are still missing the actual day-to-day needs of the engineers who are actually supposed to design a plant. A modern digital environment should adapt itself to the needs of engineers. The process of creating a plant data model should follow their design intent, not the other way round. This is part of the basic concept of our cooperation platform Engineering Base (EB).

It's interesting what you have said, it goes in the direction of 'form following function' — here: digitalization should follow daily business processes.
Exactly!

What about the role of 3D representation in the future?
Considering the new technologies in rendering 3D images and available tools, the 3D model of a plant is one pillar of a plant digital twin. 3D models are not only used in design of plant layout and related calculations such as weight, pipe, and cable lengths and so on but also are intensively used in the training of operators and maintenance staff, and I believe using technologies such as virtual reality, the role of 3D will be more and more important in future.

What is Aucotec's strategy in terms of dealing with 3D models?
Our concept of 3D data management is quite unique. Since our product is very strong in the design of 1D and 2D aspects of a plant data model, which is the handling of data and the diagrams, we have decided not to go into the 3D design business for several reasons: Many different 3D models are needed, for piping, mechanical design, for plant layout, or for cabinet design. However, there is no software vendor that covers all these different disciplines. Therefore our clients use a lot of different 3D tools. They prefer our platform as a single source of truth integrated with all those tools necessary for plant design. That means a new paradigm for them because before they had to integrate different 3D tools

by means of point-to-point connections. Now, they don't have to do this anymore. They just integrate their tools with EB, something that they really appreciate.

And, last but not least, what is your experience with the other target group, IT administrators?
The most important thing to their mind is that they want to manage tools with the lowest maintenance demand. Thus, for them it is really important that they can rely on stability and scalability – you start a project with five users and during the work you want to scale up to, let's say: 50 users. This must be possible without any problems. Sometimes it's not feasible to predict from the very beginning how many stakeholders will be involved during project processing.

Moreover, we at Aucotec focus on minimizing customization costs. You can do the customization of EB during project execution instead of investing upfront in six or twelve months just to do the configuration.

Look around, there's a boom in IoT topics. Do you expect a paradigm shift in terms of connectivity?
You are right — but somebody should name it 'IoO', not IoT. Because 'things' don't have any logic. What we really need is an 'Internet of smart Objects'. As long as you deal with objects, you have dumb documents for them. As soon as you have smart objects, they themselves have the intelligence to know what to do next and what to communicate with other objects. To put it in a nutshell: Yes, I am waiting for the IoO boom.

Cleverly observed. What ideas of the clients does Aucotec face as a software vendor? Do your clients want you to run a digital ecosystem?
The traditional expectation for a software vendor is to provide stable software to gain efficiency. However, we don't just offer a software tool. What we offer our clients is a more or less new engineering culture or mindset. This culture is represented by EB's object-oriented approach, by the multi-user environment – our platform stands for a culture which makes documents

or diagrams secondary and sometimes even side-products. Its user's thoughts are around engineering objects and assets. This culture leads to consolidation and adopting a special mindset. It is about a specific modern way of doingdoing engineering. The digital platform is the enabler of that approach.

Can you give us an example?
For instance, culture is expressed in how you deliver your documentation to owners and operators. Will you run the check, review, and approval on each document or will you do it on the asset data model while documents just represent the result? The culture also expresses itself in how you schedule your planning: Based on finalizing a diagram or based on the maturity of the assets' data model? Or culture is represented in how you structure your project organization. These are the kind of questions our clients are asking us. For example, by using EB you don't need engineers to do boring drafting jobs. This digital platform will result in reorganizations that significantly increase the efficiency of a company, because EB means introducing a new way of project execution.

I don't want to offend you, but Aucotec is relatively small compared with other vendors. Is that a problem?
I don't think that Aucotec is a small software vendor. It is a question of how you calculate the size of a company. If you count the number of software engineers and consultants per product, Aucotec actually is one of the biggest vendors providing a cooperative digital platform for plant design. For instance, we have around hundred developers working on this platform. Moreover, most of the time our clients prefer an agile, professional and focused vendor over a big one-stop-shop player.

I appreciate your answers, thank you!
Interview: Bernhard D. Valnion

For further information visit
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