

OpenPlantPID

Pictures: Bentley

“Interoperation is more than just exchanging data”

By launching ISO 15 926-based plant design tools, Bentley¹ has brought a new momentum to the debate on effective exchange of 2D and 3D geometry information between different CAD systems. Ken Adamson explains the uniqueness of the vendor’s approach and talks about recent feedback from the market.



Mr Adamson, at the end of January 2008, Bentley launched its first ISO 15 926-based CAD product, OpenPlant PowerPID. In March this year, an extension followed with OpenPlant Modeler V8i, OpenPlant ModelServer V8i, and OpenPlant Isometrics Manager V8i. What is the strategy underlying Bentley’s “openness”?

The OpenPlant products are a new suite of engineering products based around the ISO 15 926 standard, which is an open modelling format for plant design. It is a comprehensive suite of products from process engineering to piping. As you mentioned, originally related to our P&ID product OpenPlant

¹⁾ Bentley Systems, Inc., headquartered in Exton in the US-state of Pennsylvania.

PowerPID, the new releases from a few months ago cover a modelling environment and a back-end database due to its client/server architecture. This is our first release for 3D applications.

What are unique features of this system?

It is the first 3D modelling system on the market based on ISO 15 926. Not only that OpenPlant ModelServer manages our componentbased system in terms of checking-in/out of individual items like pumps, vessels, piping, etc., it also manages files. So you can mix both modern system technologies based on components as well as any existing discipline application that is more file-based. And by the way, OpenPlant Isometrics Manager is the first application that we call “intelligent”. It embeds information with isometric documents,

so for the first time one can combine both the drawings and the specifications.

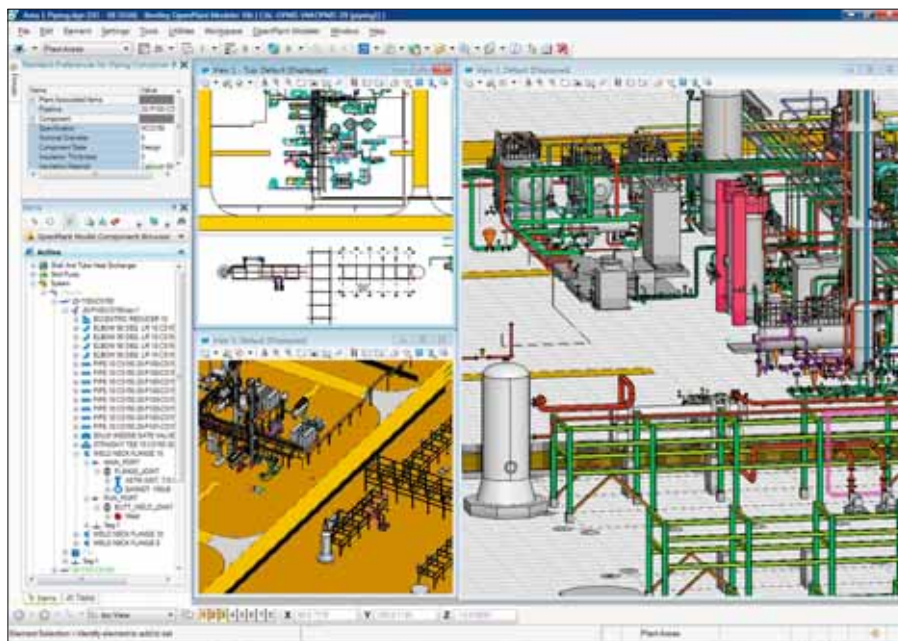
Besides the aspect of using the ISO 15 926 standard, what is notably new, e.g. from a features & functions point of view?

OpenPlant Modeler is based on the MicroStation technology. So we are leveraging everything available in MicroStation in the context of a modelling application.

Do I need to license a MicroStation seat?

No. The entire graphic engine is embedded within the modeller. That allows the user to do whatever he gets from MicroStation plus the add-on specific content. For us the unique entry

OpenPlant
Modeler



OPMS
Component
Browser

here is to make an application that is specifically geared to a special target audience. It contains the functions required for the piping group, for example, but we have removed extra functions that might be of no value to them. The interface is a kind of drag & drop/point & click type. So, it significantly reduces the numbers of menu entries. And there's a lot of intelligence within the pipe routing. We call this "ahead of displayed technologies", providing feedback immediately. In terms of usability, for aspects like simplicity of editing, we think we are unique. And the strength of the underlying platform is that it just leverages 36 years experience in developing MicroStation.

Can you give us a deeper look inside what it means to use the ISO 15 926 standard in plant design?

Normally, when people refer to open standards they are referring to exchanging information: I can write some data out, and some other can read it in. That is very much a binary thing just from an import/export point of view. You might assume that some post-processing is necessary if you are receiving the data or some pre-processing if you want to export it. But that's not true because we can directly read or write information! What that really means is that now you can look at having applications interacting directly using that standard rather having to go through all the vendors APIs to do that. From a customer's perspective, you can absolutely rely on the information you are going to get.

That sounds very convincing!

So, if you want to write and to maintain your own systems, just as a starting point you can tie these systems directly into the OpenPlant environment. From a software vendor's perspective we don't have to add more functionality to it. In our case, and this isn't really highlighted in our communication, as we have a reporting module, this reporting module can run within the OpenPlant Modeler and it can run completely as a stand-alone module. The data exchange takes place via model services. The reporting module is based on the ISO 15 926 as well, and it has allowed us to create an application that only has one specific function that might open up to just a thousand people interesting in building reports based on the information of specific 3D models. That doesn't mean to say everybody needs to understand how to do modelling just because they want to create a report.

You can take that same analogy and apply it to your own systems where you can interact directly in our systems through that open standard. And that is where iRing comes into this picture by providing a protocol for that interaction. So the opportunity we see for moving forward is much more on the interoperability side, and that really means interoperating at runtimes with multiple different applications, whether they come from Bentley or somebody else or they are your own applications. We provide the opportunity to really interoperate and not simply to exchange data! But there are also

some other opportunities that may be less obvious.

How can you configure these applications?

Most users want to customize or extend their applications, that's true. And typically that requires some specialized interfaces with some specialized support within the application. In our case, it is simply adding in information through the ISO 15 926. Within this ISO norm you have support for defining your private extensions versus a common group of sets of extensions internationally agreed and guaranteeing consistency with the rest of the structure. In terms of managing your own extension or own add-ons etc., you are doing it in the concept of this ISO format and not in a specialized application format.

What does that mean if you extend your argumentation to software maintenance?

You're right, that's always an issue. If you have upgraded from one version to another and you have done a lot of customization, in our case the customization is completely separate from what is defined in the ISO norm itself, and it is actually managed separately. The consequence: the whole process of upgrading is very much more simplified, making sure you can maintain any special add-on you have done by yourself.

Trying to wrap up what you've said: There are different options for interaction, right?

I can give you an example of what we

have done for our own applications. One of the main objectives for this suite is not to build an all or nothing proposal here. On a simplistic level we can use the MicroStation technology underneath and simply reference into existing documents. In this case, MicroStation is going to give support for DWG and DGN files as well as for other formats. It is going to use existing processes and procedures for extracting information from those applications. If there are data associated with AutoCAD files, for example, I am going to see it, even if I haven't normalized it to ISO 15 926! So, without doing anything there will be leveraging of current capabilities we offer using de facto standards or just using legacy information.

Climbing the ladder to the top, what is the next step of interaction?

If you want to move up to a kind of a second level there are tools we provide, like iModel. The iModel concept allows you to publish out information in a kind of read-only files such as in the Revit format or in one for our own applications, too. I am going to see the intelligence in these iModels, within the context of my application. You can im-

agine, if there is someone on the architectural side, the information is published in the Revit format, and I can bring this model information into my model session. So I can see my plant design information in the context of surrounding buildings or infrastructure. And this works even if a building application is used that is not normalized to ISO 15 926!

Moving up the chain, you get to something like iRing. Our iRing group is providing tools with which you can map your existing applications onto that ISO norm. What iRing also provides is to interactively query for information through a standard protocol. So, depending on what the third party supplies or supports in query options, I can interactively query and extract information and get in there.

What are your activities for PDS users willing to migrate?

We took PDS models and publish them out to iModels using the ISO 15 926. Afterwards I can bring this information into OpenPlant and upgrade it, for example, to a complete ISO model that I can edit.

Two and half years addressing the market: In which way

would you describe the customers' feedback?

Overwhelming feedback has been the response. The industry has been asking to go to an open standard basis for a long time. It really wants to exchange and share more information than has been done in the past. In larger projects or joint ventures, the need for sharing information is huge: one day acting as partners, another day as competitors – today high flexibility is required in the business world!

Will owner/operators benefit from your initiative as well?

For sure! They want to get the best deal for doing a project. What they don't like is to link too tight to a contractor. On the other hand, costs for maintenance, repair and overhaul are tremendous if the data are not available. So, having a way to overcome this problem, they can both get the best price for a new construction and have the most optimized way of maintaining the data along with the plant when it is delivered. If you like, it's a kind of a win-win situation. Early adopters like CH2MHill confirm this message.

Thank you for your comments!

Interview: BERNHARD D.VALNION