

**Topic:**  
Industry  
Interviews

## **The User's View – interview with Nick Zuccherio Research & Development Engineering Director The Foxboro Company**

In the first of our series of interviews with major users of computer aided technologies (CAT), we hear from Nick Zuccherio, Research and Development Engineering Director at the Foxboro Company, based in Massachusetts, USA, part of Invensys Process Automation (IPA) group.

*iCAD is produced by Business Advantage, a B2B research, business development and marketing consulting practice operating in the global IT, Digital and Telecommunication sectors.*

*iCAD* asked Nick:

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Nick Zuccherio

**The Foxboro Company** is a leading global supplier of instruments, systems, software and services for industrial process automation. Foxboro's customers are typically in the chemical, oil & gas, pulp & paper, metals and mining, food and pharmaceuticals, textiles and power industries. Foxboro is part of the Invensys Process Automation group in the Invensys Software Systems division of Invensys plc, and employs approximately 5,500 people worldwide.

## What software does Foxboro use?

"Within the electronic CAD area we use Innoveda's eProduct Designer (formerly Viewlogic) version 1.1 for computer aided engineering, a 2D package. For our printed wiring assembly and design work we use Zuken-Redac's VISULA version 5.1. This is a 3D package.

Within the mechanical CAD area we use AutoCAD version 14, Adobe Illustrator version 9, Unigraphics version 16.3 and 17.1, and Solid Edge versions 8 & 9. We have also started trying out using SolidWorks."

## What is the biggest challenge to improving your design processes?

"Our biggest challenge is a cultural one. Firstly, getting engineers to accept the technology we would like them to use, and secondly, to accept the need to change from a 'push' information to a 'pull' information culture. With the current 'push' culture, activity relies on someone taking the initiative to communicate a message. We want to create a 'pull' culture through providing easy to use tools that allow employees to access information without waiting for it to be sent to them.

We've started using MatrixOne, a document management system developed by MatrixOne Inc that allows people to formalise changes to documents electronically. This builds a concurrent engineering environment so that people can communicate designs and design changes more efficiently. Therefore, if a revision happens, engineers can receive it and approve it immediately. To get the company using MatrixOne successfully we used:

**"Concurrent engineering is the way of the future."**

- Awareness-raising through presentations
- Training and education, including demonstrations covering scenarios of how it would work in practice
- Pilot studies – to make it successful you need to have some staff involved in a pilot to act as 'ambassadors.'

We've just started looking at OneSpace and CoCreate software that allows us to set up a real time session so that engineers can influence the design process in real time. Concurrent engineering is the way of the future."

## What is the most important issue for CAT vendors to tackle?

"It is extremely important to be able to transfer documents and data between different systems. We have tried to lobby the CAT industry into working within one industry standard format so that we are empowered to decide how to distribute and despatch our workload. We constantly monitor the CAD Frameworks Initiative (CFI), a

**"Compatibility of software is very important."**

collaboration of CAD/CAM users that is driving forward an industry standard that will eliminate transference of data problems. If we have a full workload we want the option of outsourcing work. For this to be possible, compatibility of software is very important.

This is also important within the organisation itself. If the engineering side is making changes to its design processes, the manufacturing side will have to follow suit. Therefore, the organisation will need flexibility to make new techniques available to all, otherwise new designs might never be produced. The issue is how can this be done in the most cost-effective way without sacrificing product quality?

We are very concerned that CAT developers concentrate too much on the end product, and not enough on the actual needs of the end user."

### **How can vendors better understand your needs?**

"We are always looking to develop new techniques to increase our products' lifecycles in the most cost-effective ways. If CAT vendors drive technological innovation, users do not have to change if they don't want to. However, if the users drive it, then they are more likely to take it up when it is produced. So we need CAT vendors to listen to us. Personally I think that user groups and conferences provide the best forums for this - they provide an honest and objective environment in which I can talk to people with similar experiences and problems to mine. One-on-one discussions with individual vendors just tend to degenerate into infomercials on how great their products are."

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### **How can CAT vendors gain competitive advantage?**

"The ease and cost of installation and maintenance is what will distinguish CAT vendors from one another. If they offer upgrades they must be foolproof, and there should be compensation if they don't work. At the moment there are too many upgrades; these are rarely straightforward and we lose a lot of time sorting such problems. I'd like companies to limit the number of regular updates. If they say there will be just one a quarter or every six months instead of monthly that's good, but I want to see proof of what processes they'll introduce to achieve that; I'd perhaps want to visit their offices to see the proof myself.

**"The ease and cost of installation and maintenance is what will distinguish CAT vendors from one another."**

CAT vendors increasing functionality is not important until the engineers themselves decide they want to use these new functions. As I said, the drive for change needs to come from our development organisation in response to market needs."

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## So what should CAT suppliers' marketing efforts focus on?

"CAT using companies need to see real life examples. We need to know exactly what CAT software/hardware can do to increase our productivity. We need to be given more than just a bunch of statistics. CAT vendors need to come into organisations and prove how it will increase their productivity. The key issues include:

**Time is money;** how easy is training/how long is the training curve for users? How quickly can it be up and running to full capacity?

**Compatibility;** how well will legacy data switching be handled? CAT vendors need to contribute to the future of CAT usage as a whole, e.g. by promoting industry standards.

**Staff recruitment;** always an issue, so what are CAT vendors doing about it? For example, they can help to get new college graduates up to speed, or actively promote CAT usage and training in schools and colleges."

**"CAT vendors need to come into organisations and prove how it will increase their productivity."**

## And the reality is.....

"I personally feel that the typical calibre of a CAT vendor sales representative is poor – I am not enamoured with the used-car type salesman I often see. Vendors who can portray more empathy with what users are going through will be more successful. They need to demonstrate an understanding of the pragmatic aspects of using CAT, i.e. show an understanding of the process as if they used to be a user themselves. Salespeople need to have a participative demeanour and a good knowledge of the actual processes involved."

**"I am not enamoured with the used-car type salesman I often see."**

## How do you rate the support provided by CAT vendors/suppliers?

"Helpdesk and technical support definitely need improving. We need good, solid and immediate assistance. When a problem occurs, a CAT user wants to be able to pick up the phone and have help available in minutes, not to have to send an email and not know when a response will arrive – this just increases their original frustration.

**"Helpdesk and technical support definitely need improving."**

FAQs on a web site are very good for less urgent situations when CAT users are trying to study using something new. It is useful to share lessons learnt by another engineer's practical experience."

## What role does the Internet play in the design process?

"We use the Internet all the time to keep up to date with developing technology and what vendors are offering. However, we don't yet use the Internet for the daily running of our CAD/CAM operations, though we may do this at a later stage. At the moment we are focusing on the use of our Intranet. This has been a good way to make tools like MatrixOne available company-wide. We have networked in corporate IT areas, for example we have a networked server, which runs ECAD design software such as Innoveda eProduct Designer (formerly Viewlogic).

MatrixOne has been a real boost to our confidence in possibly using the Internet in future, as it has demonstrated the value of moving to a 'pull' information system. This is why we put the IT Development Network Department and functional areas such as the Engineering Services Department together. The tools which engineers use and the ECAD and MCAD engineering services themselves are both internal customers of IT. The IT section is pushing a lot of Intranet access. In the past the engineering services department had its own set of services and a separate IT group had its own, with each one oblivious of the other's needs."

## So has the CAT industry not persuaded you of value of the Internet in the design process?

"We believe strongly in the potential of the Internet, but there are practical concerns that suppliers of CAT software and support services need to allay. I need a practical demonstration of the value to our business. A move to using the Internet for our design processes would mean a lot of change for a company like ours that has invested so much in working in other ways. Then there are issues around maintaining control of our designs, protection of intellectual property, and guarantees of 24 hour access every day.

**"We need more than just a PowerPoint presentation to be convinced!"**

The CAT market players began as software engineering companies and are not networking experts. They have not yet convinced us that they have mastered the Internet. CAT suppliers need to show us how it will help businesses *now*, how much it will cost and what payback/return we can expect. We need more than just a PowerPoint presentation to be convinced! CAD users need a benchmark to look at, successful real-life examples which include genuine end-users who are convinced of its merits. Perhaps they could set up a pilot within our organisation and set us up to run a small project on it so that we can actually start experiencing the benefits."

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## How has the adoption of 3D CAD benefited your business?

"We were one of the first companies to use 3D design software and started doing so about 8 years ago. There has always been a need for 3D software in the MCAD area, but the need for it in the ECAD area is more recent. The push has been the increasing trend towards miniaturisation and the fact that boards have become increasingly complex (we are now working on 8 layer boards!). You now need to be able to take cross-sections of boards to see how they connect with each other.

**"Changing to 3D software has helped us solve problems more easily because we can visualise them better, which in turn increases productivity."**

We did not measure the benefit of the change but we saw it immediately in that we were able to tackle the activities on the board so much more easily. It has helped us solve problems more easily because we can visualise them better, which in turn increases productivity."

## As a purchaser of CAT software licenses, is Foxboro considering alternative methods of obtaining this software?

"Internet subscription is an option for the ECAD area, which has seen a lot of developments. Invensys Process Automation has several companies each with its own manufacturing facilities. We need a way to pull all these together, and Internet subscriptions may be the way to do so in future if we can establish confidence in it.

However, we are not considering renting at the moment. Renting on a short-term basis does not take into account the possibility of a need for revision. By renting you lose control of the whole lifecycle of a project. If there are changes on site to a design a year later, will that rental company still be in business? You may have the original data stored, but the equipment/infrastructure to run it may no longer be there."

## Can you single out a future development that will have major implications for your design tools?

"I predict that the electronic circuit board will continue to shrink and this will stimulate some changes to design software. Almost everything designed will become smaller. The miniaturisation in density and complexity of multi-layered boards will affect the software/hardware used to design them. For example, more sophisticated resolution technology and interfaces will have to be developed in hardware, and the software will have to develop and integrate interfaces to better graphical hardware engines."

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**Note from the Editor:**

Many thanks to Nick Zuccherio for talking to iCAD.\*

Exclusive research into the levels of use of [2D/3D CAD software](#), and into CAD users' use of the Internet, is also featured in this edition of iCAD.

*\*Please note that the views expressed here are purely those of The Foxboro Company and do not necessarily represent the views of iCAD.*