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# Justifying and Implementing Practical Data Management: *Lessons from Three Leaders*

April 12, 2005

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How do your engineers manage design data today? With Windows Explorer? On spreadsheets? In their heads? Are these legacy processes holding back your business?

Spar Point studied three small to medium-size manufacturers that improved the way they manage, share and reuse engineering data by implementing Autodesk Vault. We investigated how they did it before, what justified the move to Vault, and what it took to implement the new tool and get engineers proficient and productive with it.

How closely do these companies resemble your business? See profiles on p.4. Is your business experiencing any of the pressures that drove these companies to act? Discover six symptoms that a business urgently needs to improve how it manages its design data, and learn how these companies accomplished it – see **Spar Point's report "Are You Ready for Practical Data Management? Lessons from Three Leaders"** located on the Autodesk website at [www.autodesk.com/vault-whitepapers](http://www.autodesk.com/vault-whitepapers).

Vault vs. Windows Explorer Before adopting Vault, the companies we studied managed their Autodesk Inventor files mostly using ad hoc methods and tools. **TNA Australia Pty Ltd**, a food packaging machinery design and manufacturing firm, managed its engineering data "just using Windows file manager and a handwritten notebook," according to Asia/Pacific operations manager Rod Hunt. What advantages did Vault bring? "Best is accessibility of information," he says. "If you want something, it's quite easy to track it down. And higher-level searches – you can search on product, components. It's just a much easier way to find data. From our viewpoint, you can justify the cost of Vault just in the time it's going to save you in searching for data, and in being able to convey that information to everyone who needs it."

A related benefit of Vault is to make design reuse easier and more practical – both from one project to the next, and within a single project. "We used Inventor without any file management system for at least six or seven months," said Darren Alchin, product development engineer with TNA. "But the kinds of products we're trying to build have a lot of multiple instances of the same part in a given product. We're trying to have one part you can use in many different areas, to gain from a supplier and cost viewpoint. So you can imagine how people accidentally changing your files really set that back."

How does Vault remedy this? Agricultural equipment maker **Unverferth Manufacturing Company, Inc.**, which had a similar need, explains. "A lot of our projects overlap – different projects use common parts," says director of engineering Dave Smith. Before Vault, "you had to

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make sure you kept all that coordinated so that when you went to release it, you weren't causing problems for that other group. That's where Vault will improve things tremendously – it will keep track of that.”

Another advantage of Vault is to make team design easier and more practical. “We are now working in design teams, and Inventor lets us do that with more security” than managing files with Windows Explorer, reports Unverferth project engineer Steve Hilvers. “In the past we could have one particular part [file stored] in three, four or five different places in our work-in-process area, and without doing a search using Explorer, you would not know that someone else has that file and it's currently being altered. Vault tells you that.”

Which version of a design is the current one? Even this straightforward question can be hard to answer without a data management tool. “Without Vault, version control can be a problem,” explains Tim Van Mechelen, president of custom machinery manufacturer **ADAPT Automation, Inc.** “We're on Rev D of this machine – or are we? Where you don't have control, you depend on it all being in [designers'] memory. Vault is an extra set of brains.”

“With Vault,” says ADAPT designer Rick Vaughn, “we now have a history of design.” Dave Twist, ADAPT's director of engineering, elaborates: “In our industry the parts tend to be simple, but how it's put together is the hardest thing to learn. Vault lets you get a grip on that – and it lets you back up if you get stuck. ‘Undo’ in Inventor is not as powerful. You can get all the parts in an assembly back to the same state with Vault.”

Vault vs. Inventor's semi-isolated project mode “Before Vault, we were first not managing data at all,” says Twist of ADAPT. “Then we started managing ‘semi-isolated projects’ in Inventor, which was similar to the way Vault works. [Inventor's semi-isolated project mode] gave you check-out/check-in, but on a very limited basis. It doesn't give you the ability of Vault to keep track of old versions and revision history.”

Speed is another advantage. Using Inventor “in semi-isolated mode without Vault, when several people are working on a design, you're working on the file on the file server,” explains ADAPT's Vaughn. “With Vault, you're working on your local drive, not files on the server, so it's much faster.” Adds Twist, “Some of our complete machine assemblies get pretty large, and Vault lets engineers have all the files on their local hard drives, so you're not trying to open 500 parts over the network.” This also means “you can let people work remotely via VPN because you're actually sending files only when you check them out or in, not every time you modify or save them,” Twist adds. “We have some people who work from home, and a few contractors working remotely. With Vault over VPN, I can check every day and see that somebody designing off-site doesn't get a week down the wrong path.”

Vault vs. MRP-based data management Before adopting Vault, one company used its MRP system for design reuse, searching past designs “by text attributes such as material attributes – a text phrase or piece of text, category code, product code, a generic term like bolt or nut or square plate,” explains Hilvers of Unverferth. “For every part or item number in our system, there are four possible lines of information you can put in there. That can range from overall part dimensions, part color, any four of some 30 attributes. It's not the most efficient way, but it does work. Vault will let us search even better than that...Vault will make a night-and-day difference – it offers quicker, much more powerful search, and you get a view [of the part] directly in Vault.” Another benefit – finding parts with Vault takes one-half to one-third the time it took using the MRP system, “and the amount of data we can search on is a lot bigger and more complete.”



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Implementing Vault Was Vault difficult to implement? “It wasn’t too hard,” according to Twist of ADAPT. “We don’t have an IT department; we handle it ourselves” in engineering. Twist installed the Vault server software himself over a weekend. “Nothing complicated about that,” he reports. Most of the effort was not related to installing Vault, but rather migrating existing data from “semi-isolated” Inventor 8 projects to Inventor 9. Next, Twist spent a few weeks experimenting with Vault, mostly after hours. “After I got comfortable with it, I rolled it out, sat our people down in a conference room, and said, ‘Here it is.’”

What was TNA’s experience? To implement, the company engaged Autodesk Consulting to assess TNA’s need for BOM information flow throughout the organization, map the system to TNA’s needs, set up a part numbering system, populate the Vault with a sample TNA data set, and train TNA staff in how to manage and use the system. TNA reports this took just four days, and cost Aus\$16,000. Also involved was TNA’s reseller, CadGroup Australia Pty. Ltd. (Glebe, NSW).

At Unverferth, implementation was “very easy,” reports engineering director Dave Smith. Steve Smith, Unverferth’s I.T. administrator, worked with reseller Ed Rose of Industrial Technology (Fort Wayne, IN) and Autodesk Professional Services to install the Vault server, a process that took only about two hours. “They had it set up in one morning,” Dave Smith reports.

Becoming proficient and productive Did ADAPT’s engineers have to change their work processes? Very little. “They were used to the concept of semi-isolated projects in Inventor,” Twist says. “With Vault, most of the workflow concepts of check-in, check-out and so on are similar to Inventor.” Did it take long for users to master? “Vault can be confusing to some people for a while, but it’s nothing compared with [moving from 2D to 3D],” Twist reports. “Your Vault confusion you can lose in a day.”

How long for TNA designers to become proficient? “People can start using the Vault after about two hours’ worth of training if they have never used a similar system before, and faster if they have already used Inventor semi-isolated projects,” according to Alchin of TNA. “After a couple of days they will become proficient enough to be able to use Vault without any further coaching.”

What was Unverferth’s experience with its engineers? “If they know Inventor, they can be up and running in about an hour on Vault,” according to Hilvers. “For the guys I taught here, I usually gave them about a 20- to 30-minute class, and let them go. They had very minimal questions after that.” He explains the biggest hurdle for most users is grasping “how Vault is actually manipulating files. When you work with a file from Vault, you are actually working on a copy in your workspace and not working on the original file inside of Vault. But, once they get that down, they appear to pick up on Vault pretty fast.” Hilvers sums up, “Our goal was to allow an average CAD user to use Inventor and efficiently design, while not having to worry about file management issues. Vault provides us with that solution. It’s almost like Microsoft Windows Explorer on steroids.”



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## **COMPANIES STUDIED**

### **ADAPT AUTOMATION, INC.**

**Santa Ana, CA USA**

[www.adaptautomation.com](http://www.adaptautomation.com)

*Custom machinery design and manufacturing firm*

*Est. annual revenue \$10 million*

*45 employees; 10 engineering staff: 7 mechanical engineers, 3 electrical/software engineers*

*7 seats of Autodesk Inventor; Autodesk Vault implemented on all seats*

*Product: assembly machines for diverse industries, particularly medical device manufacturers and automotive airbag systems manufacturers*

*Typical unit price: \$100,000-\$1,000,000*

*Typical number of parts: 1,000-3,000*

*Each machine one of a kind, but high levels of design reuse: within each industry served, products for different customers average 75% of design content in common*

### **TNA AUSTRALIA PTY LTD**

**Silverwater, NSW Australia**

[www.tnarobag.com](http://www.tnarobag.com)

*Food packaging machinery design and manufacturing firm*

*Est. annual revenue Aus\$90 million*

*150 employees; 17 engineering staff*

*17 seats of Autodesk Inventor; Autodesk Vault implemented on 6 seats to date*

*Product: Vertical fill form and seal (VFFS) food packaging machinery*

*Typical unit price: Aus\$200,000*

*Typical number of parts: 25,000-30,000*

*34 product models; different models average 80% of design content in common*

### **UNVERFERTH MANUFACTURING COMPANY, INC.**

**Kalida, OH USA**

[www.unverferth.com](http://www.unverferth.com)

*Agricultural equipment design and manufacturing firm*

*450 employees; 40 engineering staff*

*27 seats of Autodesk Inventor; Autodesk Vault implemented on 6 seats to date*

*Product: tillage and sprayer equipment; hay, manure and grain handling equipment; agricultural dual and specialty wheels*

*Typical unit price: \$2,000-\$70,000*

*Typical number of parts: 200-2,600*

*New models average 75% of design content reused from previous generation*