

## Teamcenter

# Inventec

## PLM powers a dramatic turnaround

### Industry

Electronics and semiconductor

### Business initiatives

Enterprise data management

### Business challenges

Keen competition in the IT industry

### Keys to success

Diverse applications united under a common interface

Corporate-wide access to all product information

Entire legacy database migrated to the new system

Higher management support

### Results

Hundreds of millions of New Taiwan (NT) dollars saved in operational costs

Enhanced overall productivity and data quality, with lower demands for manpower

Shorter lead times

Better ability to compete

**Using Teamcenter as one of the keys, a Taiwanese ODM turned its fortunes around and rose to #17 on Business Week's "Info Tech 100" list**

### PLM – the unsung hero

In Business Week's "Info Tech 100" list for 2006, Inventec Corporation was ranked 17 with annual revenue of \$6.198 billion (US) and a growth rate of 45 percent. This marked a dramatic revival for Inventec, an original design manufacturer (ODM) of laptop computers, servers and other high-tech products. After a period of lean times and a long fight for major laptop orders, Inventec not only succeeded in winning orders, it also successfully expanded its product line to include design and manufacturing of servers.

The "unsung hero" of the revival, according to Inventec management, is the company's product lifecycle management (PLM) system – Teamcenter® technology from Siemens PLM Software. "Major IT companies have almost made PLM a criterion for the selection of ODMs," says J.K. Wei, system engineering director at Inventec. "We're very lucky that our management made a wise decision when the company was at a low point to invest in PLM and restructure the entire product development process. This has given us the competitiveness we enjoy today."

### Clear definition of needs

The most critical requirements for the PLM



system were to connect the many diverse software applications within the company and to allow users to access information whenever they needed it. The old process had caused problems with product structure management and introduced errors due to repeated data entry into multiple applications – i.e., a lack of integration between the engineering change process, engineering bill of materials (EBOM) and factory information system (FIS) with enterprise resource planning (ERP) and documentation management. It had also caused confusion on the part of users who had to deal with too many portal pages. There was no way to perform a detailed analysis of engineering change control, and too much time was spent introducing basic technology and core functions of PLM.

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In 2002, Inventec assembled senior executives to form a PLM implementation committee. The committee took into consideration all of the company's needs and goals and compiled the results as a very thick proposal. "We spent a lot of time communicating and clarifying the demands and setting specific goals," explains Wei. "External consultants couldn't believe how detailed the proposal was, but it was the prerequisite for our success in implementing PLM."

After a thorough evaluation process, Inventec chose the most widely adopted PLM solution in the world, Teamcenter. "The maturity of the PLM vendor and the availability of support were critical," says Wei. "We also saw that Teamcenter could be easily customized and that it has an interface that quickly connects applications, which was perfect for solving our lack of system integration. Teamcenter also provides complete and instantly usable core programs, and it's relatively easy for us to maintain our investment."

#### Comprehensive application

From the beginning, Inventec's PLM solution had the goal of "comprehensive application" – meaning full implementation of Teamcenter functionalities as well as simultaneous implementation at Inventec's branches worldwide.

The PLM implementation team used Teamcenter as the core system to gradually integrate five disparate data management systems (project management, part information management, engineering document management, product configuration management and engineering change control) under a common interface. They also integrated ERP, the business database, computer-aided design (CAD) and FIS to enable the circulation of internal information and to prevent errors and incompleteness caused by repeated data input.

The implementation process took two years. In July 2004, Inventec activated PLM simultaneously in Taiwan, China, United States of America, Europe and South Asia.



The initial number of users exceeded 800. The mid-term goal is to have more than 2,000 users.

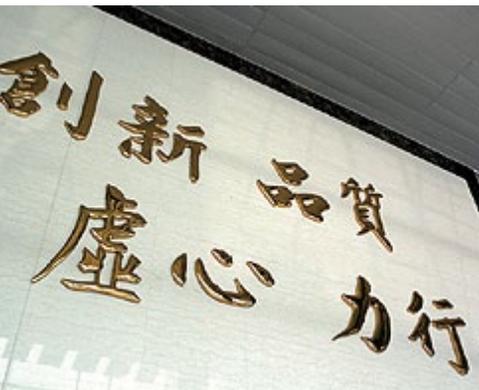
#### Key to success 1: internal reference

"Inventec enjoyed a rare advantage in a PLM introduction," Wei says. "We had a perfect internal reference site – the server business group." The server business group followed a mature operational process set up by the previous owner. However, to enhance efficiency and integrate information among different systems, an electronic tool was needed.

"When new functions were introduced, the results always showed instantly in the server business group because it had the more mature operational process," notes Inventec R&D director Liu Da-Cheng. "When the same functions were to be deployed in the laptop business group, we could use the other business group as a reference and make appropriate adjustments. I believe this was very helpful during the implementation of the PLM solution because we didn't have to wait for a long while to see results."

#### Key to success 2: incorporating original data

After thorough preparation and analysis, the PLM team made an important decision: to incorporate all data from the old systems. "We knew it would have been easier for us to establish PLM if we had ignored the legacy data," says Wei. But unlike the segmentation approach commonly adopted by other IT companies, Inventec chose to incorporate into Teamcenter all of the data from the past 25 years (including parts and BOM), from every single factory.



## Solutions/Services

Teamcenter  
[www.siemens.com/teamcenter](http://www.siemens.com/teamcenter)

## Customer's primary business

Inventec is an ODM for laptop computers and servers.  
[www.inventec.com](http://www.inventec.com)

## Customer location

Taipei  
Taiwan

**"In the first year that PLM was introduced, Inventec's revenues began to rise.**

**"We estimate that we saved hundreds of millions of NT dollars in operational costs by process restructuring. The deeper PLM is applied, the more significant the results."**

J.K. Wei  
System Engineering Director  
Inventec Corp.



Why insist on incorporating data from old systems? "People tend to reject changes," says Wei. "When both old and new systems exist, users would definitely choose the old system because they are more familiar with it. That would make PLM an 'adornment' and our management would never allow that. Our PLM team made tremendous efforts to screen and transfer old data into the new system for product development and design." Thanks to the PLM project team's highly confident techniques and constant communication with key decision makers, Inventec achieved its goal of migrating all of its legacy data to Teamcenter.

## Operational cost savings

Having implemented Teamcenter for more than three years, Inventec has enjoyed all of the typical benefits of the solution, including enhanced productivity in design engineering, solid data quality, fewer human errors, shorter lead times, faster and more reliable design change control, increased overall productivity, reduced human resource costs and reduced total cost.

In addition, it was during the first year that Teamcenter was introduced that Inventec's revenues began to rise from the low point. And during the first three years of the Teamcenter implementation, the number of projects commissioned to Inventec grew tenfold. This increase in sales was accompanied by a slower increase in headcount as employees were working more efficiently.

Wei notes, "Siemens PLM Software is one of the unsung heroes that saves costs and enables a successful operation." According to a report by the Inventec's PLM team, hundreds of millions of New Taiwan (NT) dollars in operational costs were saved by process restructuring.



"PLM is an approach of engineering and organizational restructuring by way of readjusting and regulating every process," adds Wei. "It is almost inevitable that end users or even middle-ranking executives may oppose or complain about it. However, the longer and deeper it is applied, the more the users will appreciate how PLM changes work efficiency and even work attitude. In the long run, the main influence of PLM is reshaping corporate culture. This daunting process to success requires perseverance, clear goals, communicating real benefits and support from higher management."

## Improvements ahead

Inventec's next objective is to increase the depth of the Teamcenter implementation – more users, more creativity and more benefits. One of the first things the company will do is incorporate suppliers and clients into the platform. "This is an ever-improving process," Wei says. "The market is changing, and corporations must change processes accordingly. We have moved onto the right path, and will constantly improve and increase the benefits we get from Teamcenter. I believe that with strong support from Inventec's higher management as well as a positive work attitude from employees, PLM will help create even more excellent results in the future."

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[www.siemens.com/plm](http://www.siemens.com/plm)

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