Briefing

ROBOTICS & AUTOMATION NEWS

Product lifecycle management

From ideas to real products

The problem with covering product lifecycle management stories is that there's not many good pictures to go with such articles. Screenshots and graphics can be interesting, but they're not as interesting as pictures of robots and machines.

PLM software itself is actually far more interesting than the pictures might suggest to the observer. And from a user's point of view, there's probably no other software system that is as powerful and as capable of providing a high-level view of a manufacturing company's production process.

PLM, as the name suggests, is software used in industrial companies to manage the entire lifecycle of a product. Typically, PLM integrates information from the research and design department, and the manufacturing facility, right through to – and beyond – the logistics and delivery operation. In fact, a PLM could be as extensive and as complex as the business operation itself.

But PLM is generally about the manufacturing operation only, and not about the finance- and accounts-oriented parts of a business. For that, you might want to look up enterprise resource planning software, or ERP. Yet another acronym, CRM, stands for customer relations management, which is self-explanatory.

It is possible to integrate PLM, ERP and CRM into one big digital business, and this is probably what will eventually happen since many are working towards that.

But this briefing looks at the latest news in the PLM market in order to provide an overview of the much-mentioned "digitalisation" trend in industry.

Each application within a PLM suite can, by itself, cost a lot of money and be very complex. But generally speaking, there are said to be five main areas in PLM:

1. Systems engineering
2. Product portfolio management
3. Product design
4. Manufacturing process management
5. Product data and change management

Design and development, for example, is a fascinating area now because so much is happening in advanced manufacturing technology.

Designers can now use real-world physics to simulate how products will perform in the real world before they go ahead and make expensive prototypes. This type of simulation is not new, but in the past it may have cost too much for most companies since it often required the use of powerful supercomputers.

Now, with cloud computing and newer software functionalities such as generative design, simulation is within the reach of even the smallest businesses. ■

Picture courtesy of Autodesk Fusion

News

Boeing and Dassault Systèmes extend PLM partnership

The world's largest aerospace company, Boeing, has decided to extend its use of Dassault Systèmes applications to include more software from the 3DExperience platform for its design, manufacturing operations management, and product lifecycle management.

Boeing will expand its deployment of Dassault Systèmes' products across its commercial aviation, space and defense programs.

The decision follows a competitive process that included the rigorous analysis of technical and cost-benefit analyses.

Ted Colbert, CIO and senior vice president of IT and data analytics, Boeing, says: "The decision to adopt Dassault Systèmes' 3DExperience platform is a key milestone in our digital transformation.

goo.gl/1NMKEb

Danlaw partners with Siemens on PLM

Danlaw, a company which develops connected car and automotive electrics technologies, is now an official Siemens product lifecycle management – or automated lifecycle management – solution partner.

The company says the partnership highlights Danlaw's commitment to providing a seamless solution between its Mx-Suite verification and validation test software and Siemens Polarion QA software with the Mx-Suite Polarion Connector.
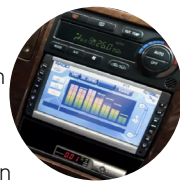
goo.gl/wEnYb8

Siemens strengthens PLM with Tass acquisition

Siemens has reached an agreement to acquire self-driving software specialist Tass International.

Siemens has been on the acquisitions and investments trail for some time.

Earlier this year, Siemens spent $4.5 billion buying Mentor Graphics, a builder of electronics solutions. Last year, it invested more than $130 million in Bentley Systems, a developer of software which can show factories in digital form.

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PTC's PLM bookings double over last four quarters

PTC says bookings for its PLM software-as-a-service solution have doubled over the last four quarters.

This expansion complements PTC's new subscription model and aligns with the recent findings of a cloud PLM study conducted by CIMdata, which finds that 95 per cent of current and prospective cloud PLM customers surveyed plan to purchase PLM Cloud in the next 24 months, while 72 per cent are planning to buy in just 13 months.

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Arena receives strategic investment from JMI Equity

Arena Solutions, a provider of cloud-based product lifecycle management solutions has received an investment from JMI Equity, a growth equity firm focused on investing in software companies.

Founded in 2000, Arena claims it invented cloud-based PLM and today provides an all-in-one product development platform that unites PLM, ALM, supply chain collaboration, and QMS for the design and manufacture of complex electronics.

goo.gl/B7QC9M

Ortovox to implement Centric's PLM solution

Ortovox Sportartikel, a German producer of mountain safety equipment and mountainwear, has selected Centric Software to provide its PLM solution.

Centric aims its PLM at fashion and consumer goods companies.

The seasonal nature of many of the company's products led Ortovox to consider PLM. "We needed to improve the way IT supports the way we work and create a central product database," says Stefan Krause, head of product.

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PLM 'integral' to industrial internet

Product lifecycle management software is integral to the industrial internet but not all companies use them.

Industry experts at Hannover Messe say PLM is as essential as computer-aided design software, adding that in the age of Industrie 4.0 and the Internet of Things, some people might wonder if we still need PLM systems.

"We may as well ask ourselves if we will need CAD systems, or software to create order confirmations," say the industrialists at Hannover Messe.

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PLM goes small to go large

PLM – as an application – is huge. It has to be. But it's growing even larger, and getting easier to use

The internet has revolutionised everything, and is slowly beginning to have an impact on the product lifecycle management sector. The reason why it's taken this long is probably because of two factors: computing capacity and availability, as well as concerns about privacy.

The typical manufacturing company would be understandably concerned about industrial espionage, and the risk of someone stealing their ideas, inventions and innovations. And putting computer-aided design files and other data on the cloud increases the risk.

Nonetheless, more and more PLM solutions are based in the cloud, so companies are having to make that choice and move to the cloud.

The advantages of cloud are obvious, especially for large companies with offices and facilities at various locations around the country or world.

Arena, which claims to have released the first cloud PLM, has reportedly doubled its business in the first quarter of this year, and claims it has 1,000 customers around the world today.

The big three

While specialist providers of PLM are doing well, the big industrial companies which have released PLM software to the market are also finding significant revenues in the sector.

They may have started out developing PLM for their own operations, but now find there's a lot of money to be made by selling to outside companies.

The big three PLM providers, judging by general impressions and some statistics, are probably Dassault Systèmes, Siemens and Autodesk.

Of those, only Autodesk is pure software company – the other two PLMs started as internal data management at the respective companies.

Autodesk, however, gets less attention for its PLM than for its famous AutoCAD design tool, but the company is strengthening its Fusion 360 PLM offering with some interesting new applications and functions, such as Netfabb.

goo.gl/oGtMor

PLM for the masses

The key growth driver going forward for PLM providers may well be small and medium sized enterprises.

So far, PLM has generally been seen as a software suite for large businesses, partly because of its computing requirements.

But cloud PLM makes the software available to any business at much lower rates, although most of them may have to figure out to implement the applications to their specific business operation.

PLM providers are increasingly building easy-to-use tools for new customers who may not have used such systems before.

And as PLM becomes more integrated with CRM and ERP, more people will become learn how to use the software – a crucial factor in any new technology's success in the market. ∎

Infographics & tables

CIMdata is a research company that specialises in monitoring the product lifecycle management market, and produces many different data about the total size of the market as well as segmentations within the sector.

In one of its most recent reports into PLM, it found that the overall size of the PLM market in 2016 was just over $40 billion, and predicts it will grow to more than $56 billion by 2021.

We have produced a simple bar chart showing this growth on the right. But there's a more detailed bar chart on CIMdata's website – link provided in middle columnw – which shows segments such as:
- digital manufacturing;
- simulation and analysis; and
- mechanical computer-aided design.

There can many more applications within a PLM suite. In fact, it depends on what the customer wants, since most PLMs currently are implemented by large companies with complex structures and specific

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Total market size

2016 $41 billion

2021 $56 billion
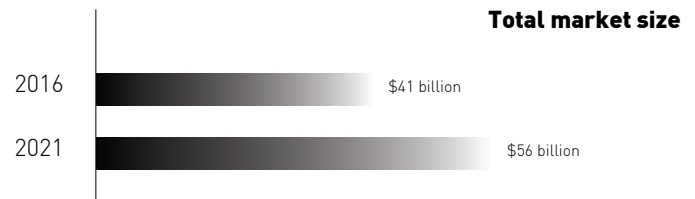
Source: CIMdata

requirements that require PLM to be customised.

Stan Przybylinski, CIMdata's vice president of research, says: "The PLM market grew to $40.6 billion overall in 2016, 5 per cent growth over 2015. The license model change for Autodesk and PTC led to down years for both, which pulled the overall market down as well.

"Some segments like systems integrators and simulation and analysis had good years. Looking toward 2021, CIMdata forecasts the PLM market to grow at ... annual growth rate of 6.7% to $56.3 billion." ■

Top 10 PLM applications by number of installations, according to iDataLabs.com

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Nº	Company name	Link to recent news about the company	Installations
1.	Siemens Teamcenter	https://www.plm.automation.siemens.com/en/products/teamcenter/	2,972
2.	Dassault Systèmes Enovia	https://www.3ds.com/products-services/enovia/	1,852
3.	Oracle PLM	https://goo.gl/63hHHr	1,396
4.	Siemens Simatic	https://goo.gl/9f1g9V	1,075
5.	PTC Windchill	https://www.ptc.com/en/product-lifecycle-management	1,072
6.	SAP PLM	https://www.sap.com/products/supply-chain-iot/plm-r-d-engineering.html	779
7.	Siemens PLM	https://www.plm.automation.siemens.com/en/about_us/index.shtml	734
8.	Arena PLM	http://www.arenasolutions.com/	184
9.	Aras	http://www.aras.com/	147
10.	Infor Optiva	http://www.infor.com/	33