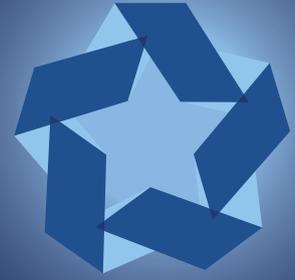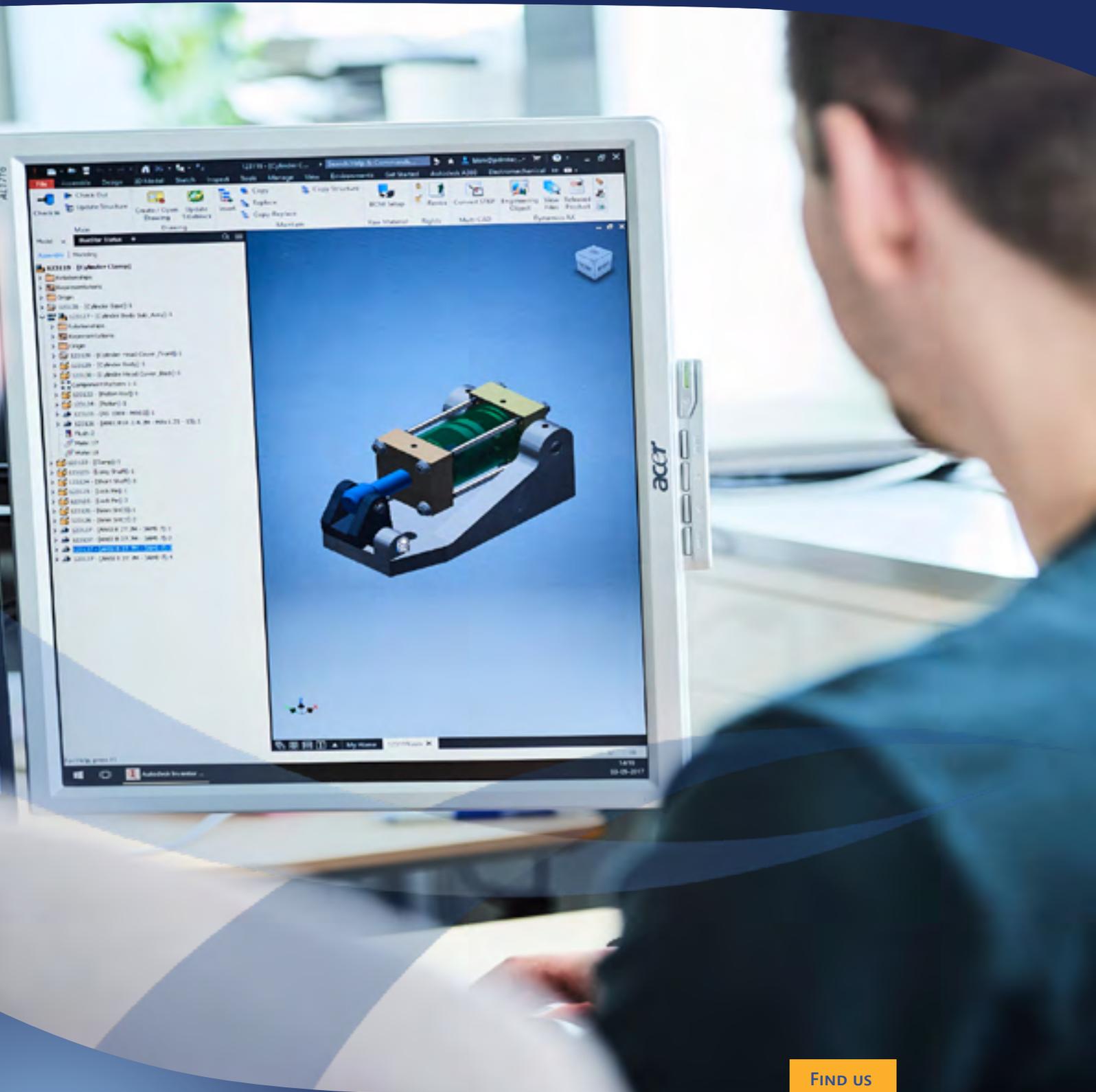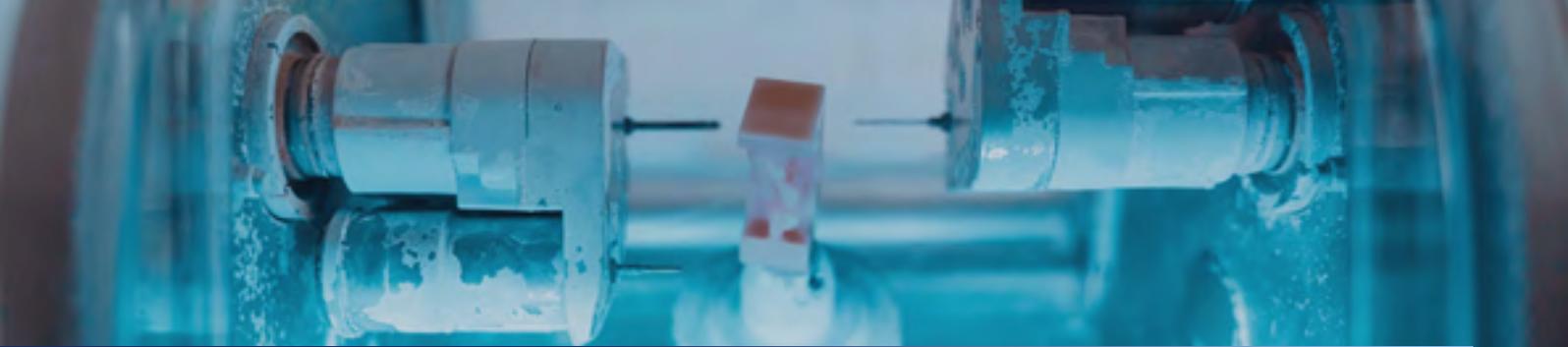# 10 REASONS WHY YOU NEED
ERP-BASED PLM

BLUESTAR PLM®
PLM inside Dynamics 365

TODAY'S CHALLENGES IN ENGINEERING AND DISCRETE MANUFACTURING

In todays manufacturing companies, CAD, PLM and ERP solutions are traditionally implemented as stand-alone solutions, which each has its own data structure, interface and capabilities to fullfill Engineering, Operations and Manufacturing requirements respectively. However, with the rise of Industry 4.0, for manufacturers to stay competitive they must be able to implement solutions that interconnect information and processes not only accross the interal enterprise and departments but external partners and suppliers as well.

When CAD, PLM and ERP are not fully integrated and operate as silos, corporate-wide information sharing and collaboration becomes nearly impossible. Consequentially, manufacturers suffer delays, miss cost targets, slow change cycles and orders that end up not fulfilling customer requirements.

These increased industry demands means manufacturing companies are facing several critical challenges that are tightly connected to a deep integration between Engineering and Manufacturing:

Non-value-added work takes up too much time

Manufacturers are on average spending a third of their time on non-value added work such as searching for data, manual data entry, and checking in an out minor engineering changes from CAD to ERP. This absorbs, often overqualified, human resources which should be concentrating on value adding activities instead. Consequently, productivity is hampered, when engineers work with outdated data and lead time is affected negatively. In addition, data entry errors occur in the manual re-keying process, leading to costly rework and wasted time.

Order fulfillments are delayed by bottlenecks

Often Sales, Engineering and Operations work in detached IT systems i.e. product configurators, CAD applications, PLM and ERP systems. This disconnect results in an order fulfillment process characterized by duplicate data entry and manual exchange of information across Sales, Engineering and Operations. The result is prolonged order processing which increases costs per order and limits the amount of orders the organization is able to process within a given time frame with a fixed amount of resources available.

No visibility in end-to-end business processes

Efficient management of business processes is a major challenge for discrete manufacturers who execute complex procedures on an everyday basis. The challenge lies in the coordination and passing of information, tasks and documents delegated to a variety of people from different departments. Attempting to manage such processes manually may - besides being an often overwhelming task - have a negative impact on the company's overall productivity.

BOM updates are not shared

Operations has to find out as early as possible that a new BOM or even just part of the BOM has been released with new requirements for part numbers will be forthcoming. This is crucial in order for Purchasing to procure long-lead items early in a project, so Operations and manufacturing will not face the release of an avalanche of parts late in the project that are expensive and take months to get delivered.

TODAY'S CHALLENGES IN ENGINEERING AND DISCRETE MANUFACTURING

Operational performance suffer due to decentralized product data

Attempting to manually synchronize CAD, PLM and ERP data is a time-consuming task and often results in inconsistencies between Engineering and Manufacturing data.

Engineers and Operations are regularly forced to work with out-dated information as a result of delays in comunication between engineers and third parties. In intense engineer-to-order environments this becomes increasingly difficult, due to high change rates which increase the amount of manual rekeying needed.

The manufacturing floor needs to have direct access to design data to avoid mistakes in assembly or fabrication.

Already existing product knowledge is not leveraged

Manufacturers wants to be able to streamline their production by reusing existing parts in new products and items. Existing parts are already tested and approved, and so valuable time is saved by reusing instead of developing new parts. Today, many design teams search for these parts manually – a trivial, inefficient but important task.

Engineering change orders are executed without understanding the impact

Engineering change processes are complex in nature and involve many objects, logistics, transactions and people who may be scattered across several departments and locations. Not accounting for all this information and the outcome of executing product change orders before they are implemented, can result in errors, delays and costly rework

THE INTERPLAY BETWEEN ENGINEERING AND MANUFACTURING

These challenges in Engineering and Operations departments are a lot more manageable when there is a much deeper integration between ERP and PLM than what is traditionally implemented in organizations.

Most manufacturing companies will have some type of interface between their PLM and ERP system. This is often a one-way interface: items and BOM's that are released from PLM are created automatically in the ERP system. This is necessary but absolutely not sufficient for a smooth working together of Engineering and Operations.

PLM embedded in ERP

The highest level of system Integration is achieved, when PLM is embedded in ERP. Having a PLM embedded in ERP provides a bi-directional sharing of information, and a stable base for business process automation. Data is instantly accessible and not locked up in out-of-reach files or drawings. When data is not centralized and affected by real-time changes some people will have visibility while others will not, and they are left guessing or believing they hold the right information when they in fact do not.

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10 REASONS WHY YOU NEED ERP-BASED PLM

1. A Single source of product truth

When PLM operate as an embedded module in ERP,
You ensure reliable product data is available at point-of-use for all departments and locations. With greater data transparency across departments and locations, you will avoid errors and miscommunications, with greater accuracy and predictability to make informed business decisions.

"Overall, now that we have access to great detailed information, we have identified many opportunities for improvement. We couldn't have done any of this without Bluestar PLM."

Joe Stitch, Supply Chain Director, Rayloc
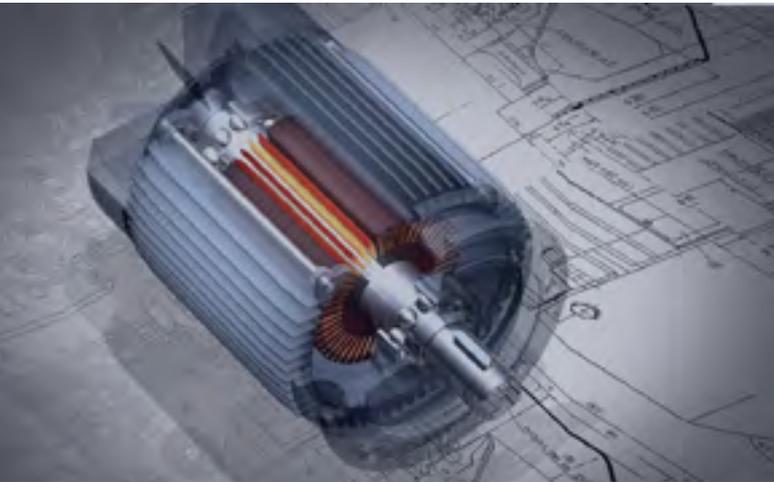
2. Seamless data flow across CAD, PLM and ERP

Manage 2D/3D both mechanical and electronic CAD files accross multiple disciplines with a two-way exchange of meta-data between CAD, PLM and ERP. This allows you to track revision-specific BOMs, drawings and technical documentation against production orders, sales orders, purchase orders

This ensures that CAD, PLM and ERP data are always automatically kept in sync in a single solution to prevent human errors, to save time and money.

3. Transparent and fast change cycles

ERP-based PLM allows for total-integrated engineering change management functionality, making the design impact and impact on logistics, manufacturing and cost feasibility of engineering changes fully visible, before they are implemented. When ECO's are transparent, the risk of making errors decreases. In turn, it becomes easier and faster to make correct decisions, for faster lead-times and time-to-market.

4. End-to-end Business Process Automation

Because users from Sales, Engineering, Purchasing and Manufacturing are brought together on a common ERP/PLM platform, workflow automation can be applied across the enterprise. This means that all your business processes can all be fully mapped, monitored and executed from start to finish, so Engineering and Manufacturing can work in parallel rather than in squence, for more efficience and shorter lead times

*"We've reduced time spent on ECO processes by 80%.
We've reduced document control time on ECO tasks by 60%- 80%.*

*Anna Toloeva, System integration lead,
Mobile Technologies Inc.*

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5. Optimal Data Reuse

With data being centralized in one place, you can reuse CAD, PLM and ERP data. Design your new products in CAD-systems efficiently by retrieving data on items and parts already existing in your database. When product data is contained in a single environment you can easily search for and find parts related to other items/products based on parameters such as geometric position or similarity, attributes or classifications.

> "With Bluestar, it takes about 90 seconds to both configure a part and create the CAD drawing."
>
> *Farooq Mohammed, Director of IT,*
> *Hannibal Industries*

6. 2D & 3D Configuration/Variant Management

Generate 3D Models based on your product configurations, and easily manage product variants. An ERP-based product configuration platform lets you manage the entire configuration process from quotation through engineering and manufacturing in a single system.

7. A single workspace improving Mechatronic engineering and collaboration

With the integration of design software tools such as E-CAD solutions and EPLAN, you will have a single data base to manage your mechatronic data. This eliminates the need to jump between and manually exchaning, importing and exporting files between solutions.

Engineers from all disciplines will be able to easily exchange incremental suggestions for changes throughout the entire development process. This increases multi-domain collaboration, saving you costs on making last minute changes design changes that are expensive and constrained.

> "PDM Technology's IT solution helps our engineers navigate large quantities of data, which enhances overall quality by reusing existing data."
>
> *Peter Johansen, IT Manager,*
> *SH Group*

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8. Comply with Product regulations

By storing and managing data on material declarations, chemicals and regulatory specifications in one single solution, you will be able to comply with international substance regulations.

ERP-based PLM allows you to easily centralize, calculate and share your compliance data with your partners, supplieres and customers - as you are obligated. This way, you will not risk having to pay huge fines, make expensive rework, suffer credebility or have your products taken off-market, when your entire product line complies with regulations for dangerous materials, such as RoHS and REACH.

When you have all this information in one system - Microsoft Dynamics 365 (D365) & AX - users in Engineering, Operations and Manufacturing have access to the same compliance data in real-time. This reduces errors, allows you to perform due dilligence and ensures that expensive non-compliant products that require rework are not fabricated.

9. Worldwide Collaboration

Enables distributed engineering and manufacturing teams to collaborate globally with easy and fast access to centralized product data and distributed, up-to-date 3D files.

10. Simplified IT infrastructure

When ERP and PLM exist in the same environment it provides a simple IT infrastructure with no redundant maintenance of stand-alone PLM systems required for a lowe total cost of ownership. This also facilitates user adoption with a single interface.
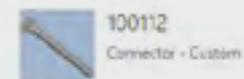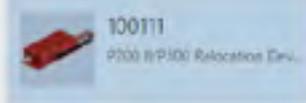
"Having a solution running from AX made future upgrades easier because everything is contained in one place."

Anna Toloeva, System integration lead, Mobile Technologies Inc.

BLUESTAR PLM - PLM EMBEDDED IN DYNAMICS 365 & AX

Bluestar is a PLM solution, fully embedded as an add-in module for Microsoft Dynamics 365 for Finance and Operations & AX (D365F&O/AX). This means that there is no need for an additional, PLM-only server or database, which simplifies the needed IT infrastructure. As it is a modular PLM software, it gives a customizable and scalable solution to support the desired parts of manufacturing, fitting into the areas already covered by Dynamics 365.

Bluestar PLM improves collaboration between Engineering, Operations, Sales, Purchasing and Manufacturing by bringing them all onboard a common system, for complete traceability and visibility in product data and end-to-end business processes spanning accross the enterprise.

Customer benefits

80% reduction in time spent on ECM processes

50% reduction in BOM-related errors

15% increase in production line efficiency

80% reduction in time spent on document control

CONCLUSION

Having a PLM software embedded in an ERP environment brings a series of advantages:

Better information flow

Instead of having separated information flows in multiple software environments, there is only one main information flow through the product's processes linking Engineering and Manufacturing together. This increases the efficiency of inter-departmental communication.

Reduced costs and number of errors

Automated data transfer overcomes issues arising from synchronization between the two environments, as there is only one common system to maintain, where the data stays inside. Besides, as these transfers are automated, the corruption of data such as missings or typos caused by the long and tedious manual work are eliminated. This increases data accuracy and quality lowers the need for rework.

CONCLUSION

Shortened lead-times

System integration cuts a lot of non-value adding processes that were needed for the data transfer between several systems. The increased transparency of data given by the integration helps planning, while it also shortens the time needed to spend on the product between design and manufacturing.

User-friendliness

By having a single collaborative setting, people do not have to learn to use an additional system. They are going to work in the same user-interface which they are already familiar with. This not only provides faster implementation and deployment, but also can give additional confidence to the users.

Having a single system not only gives you data reliability and process transparency related advantages, but also lowers the company's IT needs by not having to maintain and monitor two separated environments. The result is an overall increase in company efficiency.

If you want to learn more about how an ERP-based PLM works, visit our page:

www.bluestarplm.com

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