



Increasing Efficiency Through ERP Automation and Integration with Manufacturing Mechatronics

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ROI Consul

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Introduction

There are many consulting firms that talk about integration and efficiency improvements, facilitated through the merging of disparate systems within an organization into their ERP. What they are typically talking about is integrating the CRM Module with a web based order management system, or the Shipping module with their logistics supplier's IT, in-order to reduce time and cost per business operation.

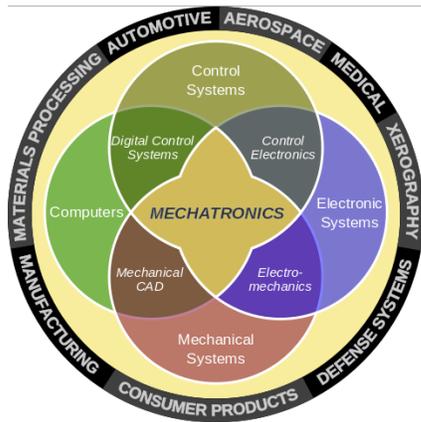
This is typically done through hard-coding or via EDI of some sort (Epicor utilizes Service Connect; other ERP systems may use software like Microsoft BizTalk). We here at ROI Consul are all for this type of integration, so much so in-fact, that we think that it is not done enough and more external devices could be integrated into the ERP for long-term benefits.

The point of this paper is not to denigrate efforts of improving supply chain efficiency, it is to raise awareness that internal manufacturing systems are being overlooked. They can also be integrated to gain benefit. Even though they may not already be connected to a PC, it does not mean that they are not capable or cannot be brought into your ERP System for real-time monitoring, reporting and closed-loop feedback.

Some of the systems that are needlessly overlooked in a manufacturing environment are the actual manufacturing devices themselves ranging from CNC Machinery, Automated Testing Equipment, Component Placement, Intelligent Mechatronics, Weigh Scales, Automated Handling Devices, Robotics and other devices that your typical discrete (or indeed process based) manufacturer utilizes in the production of the end product.

Discrete manufacturers need to take a leaf out of the Process Manufacturing book, specifically the "Closed-Loop" page and take note...

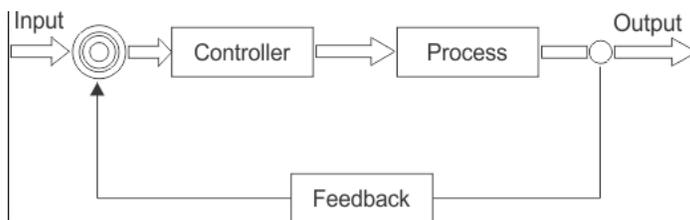
Mechatronics and Closed Loop Systems



Mechatronics: Defined as the multidisciplinary field of engineering that includes a combination of systems engineering, mechanical engineering, electrical engineering, telecommunications engineering, control engineering and computer engineering.

Those who are not familiar with such devices only need to look at machinery that monitors and senses inputs to adjust actuator outputs, in a closed loop system.

Many mechatronic devices, typically those controlled via PLCs, microprocessors or firmware have the capability to communicate with your average every day PC via communication protocols such as TCP/IP, FieldBus, CAN, IEEE 488, RS 232, RS 485, RS 422 etc. With the advent of IoT we are looking at the same thing except devices are equipped with Wireless communication hardware and integrated with software that does something useful.



Closed-loop Control System: Also known as a feedback control system, is a control system which uses the concept of an open loop system as its forward path

but has one or more feedback loops (hence its name) or paths between its output and its input. This allows the constant monitoring of the actuators and adjustment as needed to ensure the process is optimum.

Bear in mind here, we are not talking about the ERP being used to control and drive a manufacturing operation in its entirety, as a typical process control system would, but in the least to monitor and store data as needed based on the requirements of the implementation.

ERP Automation and Integration with Manufacturing Mechatronics

For instance, if your lots are weight controlled; is your weigh machine capable of being integrated into the software? Automated Testing Equipment can be observed and provide feedback for QA modules, Production can be monitored automatically without shop-floor staff, to measure pieces per hour, wastage and scheduling can be tightened by understanding the state of the shop-floor equipment in real-time.

There are as many applications and solutions for integration with ERP, as there are mechatronic devices used in the manufacturing industry. The only common thing that they have between them, is typically their control and communication systems.

Implementing an Appropriate Solution

As stated above, it is hard to say exactly which of your mechatronic devices should be integrated into the ERP to realise the best benefit.

We would need to first carry out a full assessment of the technology, the manufacturing process, the business processes they are involved in and interactions with other entities within your organization.

This would provide the holistic picture and it is only after that provision, that conclusions can be drawn and the best way forward charted.

If you have such devices, are thinking of upgrading to more intelligent manufacturing mechatronics within your organization, or would simply like to enquire about the possibility of streamlining your processes, over and above the run-of-the-mill supply chain mind-set, contact us today for a free, no-obligation discussion with one of our consultants. Call **0844 884 5993** or email: info@roiconsul.co.uk

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About ROI Consul

Mission Statement: To provide our customers with robust IT consultancy that gives a measurable return on their investment in us.

ROI Consul focus is as a System Architect, Business Analysis & Design, Software Delivery, Reporting and Integration Consultancy. We pride ourselves on proven skills in these areas.

Microsoft Certified experts with accreditation's in Business Analysis, Project Management and an in-depth experience. We can deconstruct your ERP, CRM, Web Solutions, Supply Chain or other internal systems to provide impartial advice on the best approach to integrations, customisations, operational and management reporting solutions, for your business.

We are also specialist in Vantage, Epicor 9 and Epicor 10 Technology, Including Epicor SDK.

ROI Consul can also provide you with reporting outside of the standard set provided by your system in a technology that suits you. Should your system operate using Crystal Reports or SQL Server Reporting Services, we can provide you with a consultation and then display your KPI's in a format that you understand.

With an in-depth understanding of the SDLC (Software Development Lifecycle) and a proven ability to speak to customers in their own language, globally. ROI Consul only work on solutions that we can prove and that are deliverable. All projects are fully managed, documented and tested using our own internal standards, although we will gladly work within your organizations quality and documentation parameters as required.

ROI Consul is a company that prides itself on being able to translate each business process into a technical implementation that is transparent and efficient for it's stakeholders. Our role is to understand how the business user interacts with the system, surrounding technology, the system itself and provide a solution that allows the user to do their job in the most efficient, effective and robust manner. This ultimately streamlines the organization, improves employee efficiency and makes life easy for all concerned!

6 www.roiconsul.co.uk Call 0844 884 5993 or email info@roiconsul.co.uk for more information.

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We can integrate your systems into a synergy in which you can reduce cost and time per click, report on daily company activity effectively, as well as provide reporting for historical analysis, KPI Monitoring and improvement strategy.

If your organization uses Epicor EPM, including Performance Canvas, or are planning to do so, we can offer you expert level assistance. This includes EPM Server, Performance Canvas and associated Content packs. All EPM areas are a specialist topic for ROI Consul, having unrivalled and demonstrable project experience of this vertical. We can also offer Epicor SDK Training.

ROI Consul specialize in the following areas:

- Epicor ERP Consultancy
 - SDK and Black-Belt Customisation
 - Epicor Service Level Agreements and Service Contracts
- Business Process Review, 'As-Is' and 'To-Be' Solicitation and Documentation
- Business Analysis
- Software Architecture
- Functional and Technical Design
- Project Management
- Documentation at all levels
- System Integration
- Online and Classroom Training

Visit www.roiconsul.co.uk call 0844 884 5993 or email info@roiconsul.co.uk for info.