Beamex

Calibration White Paper

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Successfully Executing a System Integration Project

beamex
World-class calibration solutions

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For process manufacturers today, having a reliable, seamlessly integrated set of IT systems across the plant, or across multiple sites, is critical to business efficiency, profitability and growth. Maintaining plant assets – whether that includes production line equipment, boilers, furnaces, special purpose machines, conveyor systems or hydraulic pumps – is equally critical for these companies. Maintenance management has become an issue which deserves enterprise-wide and perhaps multi-site attention, especially if the company is part of an asset-intensive industry, where equipment and plant infrastructure is large, complex and expensive. If stoppages to production lines due to equipment breakdowns are costly, implementing the latest computerised maintenance management systems (CMMS) might save precious time and money.

In the process industries, a small, but critical part of a company's asset management strategy should be the calibration of process instrumentation. Manufacturing plants need to be sure that their instrumentation products – temperature sensors, pressure transducers, flow meters and the like – are performing and measuring to specified tolerances. If sensors drift out of their specification range, the consequences can be disastrous, perhaps resulting in costly production downtime, safety issues or batches of inferior quality goods being produced, which then have to be scrapped. For this, Beamex's calibration management software, Beamex® CMX, has proved itself time and time again across many industry sectors, including pharmaceuticals, chemicals, nuclear, metal processing, paper, oil and gas.

Seamless communication

Today, most process manufacturers use some sort of computerized maintenance management system (CMMS) that sits alongside their calibration management system. Beamex® CMX Professional or Beamex® CMX Enterprise software can easily be integrated to CMM systems, whether it is a Maximo, SAP or Datastream CMM system or even a company's own, in-house software for maintenance management.

Beamex® CMX helps companies document, schedule, plan, analyze and optimize their calibration work. Seamless communication between CMX and 'smart' calibrators means that companies have the ability to automate pre-defined calibration procedures. As well as retrieving and storing calibration data, CMX can also download detailed instructions for operation before and after calibrating, like procedures, reminders and safety-related information. Seamless communication with calibrators also provides many practical benefits such as a reduction in paperwork, elimination of human error associated with manual recording, and the ability to speed up the calibration task. CMX also stores the complete calibration history of process instruments and produces fully traceable calibration records.

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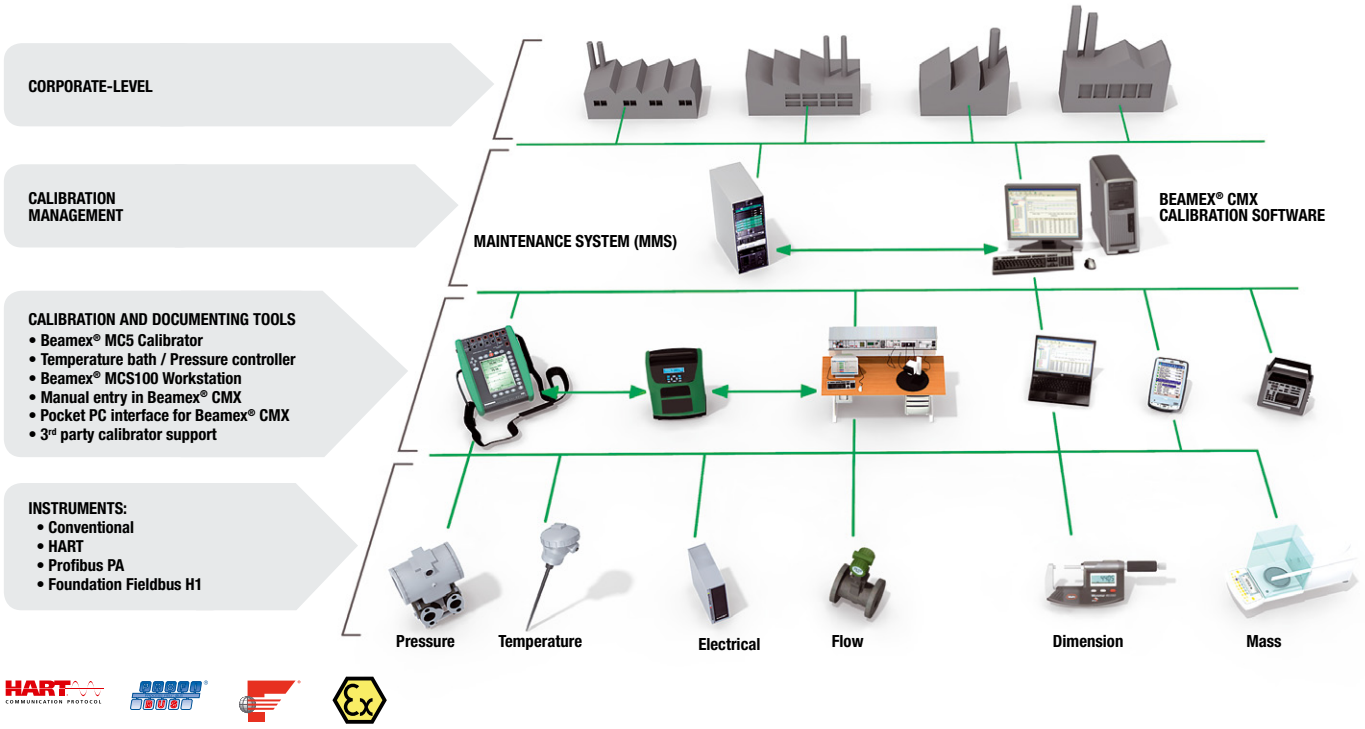
Integrating CMX with a CMM system means that plant hierarchy and all work orders for process instruments can be generated and maintained in the customer's CMM system. Calibration work orders can easily be transferred to CMX Calibration Software. Then, once the calibration work order has been executed, CMX sends an acknowledgement order of this work back to the customer's CMM system. All detailed calibration results are stored and available on the CMX database.

Integration Project

A customer may have a large CMM system and a considerable amount of data keying to perform before integration is



complete. A data exchange module or interface that sits between the two systems is required. The integration project involves three main parties: Beamex, the customer and the CMM system software partner.

Project organization and resourcing

In order to have a successful integration, it's important that the right people and decision-makers are involved and participate right from the beginning of the project. It's also essential that the main roles and responsibilities of the parties are specified before the project evolves. Moreover, a project organization should be established and include members from both the supplier's and the customer's organization, as a successful project requires input from both parties. The role of each member should be defined and project managers appointed. The project manager is usually responsible for the operative management of the project. In addition, a project steering group may need to be established. The project steering group is responsible for making key decisions during the project. The role, tasks and authority of the project steering group must be defined as well as the decision-making procedures.

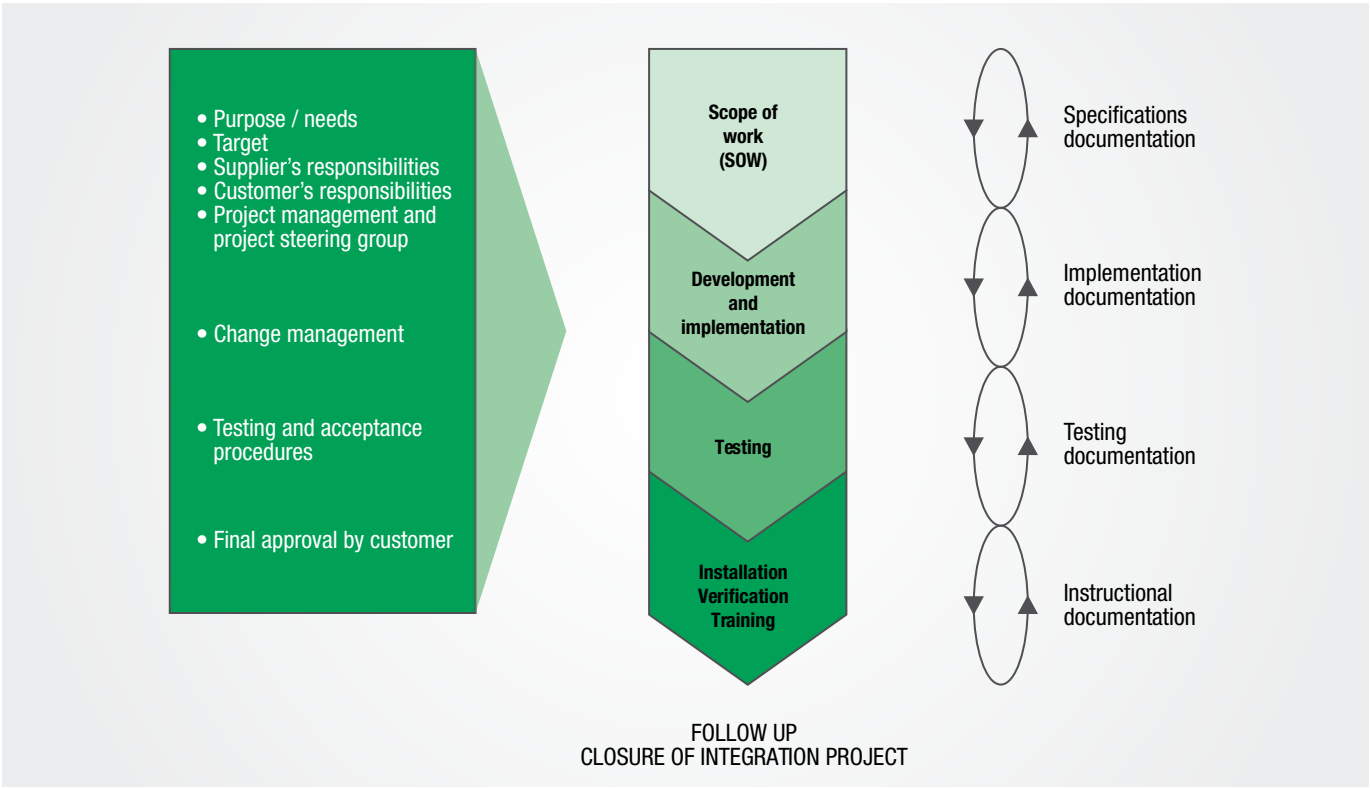
Project phases

The integration project is divided into four main phases: 1) Scope of Work, 2) Development and Implementation, 3) Testing and finally 4) Installation, Verification and Training. The four main phases are also often divided into sub-phases. A schedule is usually defined for the completion of the entire project as well as for the completion of each project phase. Each project phase should be approved according to the acceptance procedures defined in the offer, agreement, project plan or other document annexed to the offer/agreement.

Scope of Work

To ensure successful integration with a satisfied customer, defining the correct scope of work (SOW) is crucial. The scope

INTEGRATION PROJECT PHASES



When the integration is finished, the customer has a system that saves time, reduces costs and increases productivity by preventing unnecessary double effort and re-keying of procedures in separate systems.

provided, main roles, partner responsibilities and the desired outcome. The scope of work is important to make sure that both the supplier and the customer have understood the it. The SOW is often developed through pre-studies and workshops.

Defining what is not included in the scope of work is just as important as defining what is included in it. This means that establishing some framework and limitations for the project are also very important, as the resourcing, scheduling and costs of the project depend greatly on the scope of work. If the scope of work is not defined carefully, questions or problems may appear later in the project, which will direct the project back to phase one where a review of the scope is necessary. This is an urgent but time-consuming matter and can be avoided if the right people and decision-makers participate in the first project phase. However, as changes to the original scope of work may be necessary and required even in projects where the SOW phase has been done carefully, it is important that the supplier and customer agree on change management procedures as

early as the starting phase of the project.

Development and Implementation
When the scope of work has been defined and approved by both parties, the integration can enter the next phase, which is the actual development and implementation of the project deliverables.

Testing
Testing occurs both during the project after each partial delivery, in order to be able to continue the development work to next phase, and at the final stage of the project. The testing, approval procedures and timelines should be defined when agreeing on the project.

Installation, Verification and Training
The final stage in the integration process is the installation and testing at the customer's facility and taking the system into production use. The project manager at the buyer's facility now plays a major role in the success of the integration process. The supplier will, if required and agreed, assist with informing, training and providing training materials.

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When the integration is finished, the customer has a system that saves time, reduces costs and increases productivity by preventing unnecessary double effort and re-keying of procedures in separate systems. When there is no need to manually re-key the data, typing errors are eliminated. A CMMS integration will enable the customer company to automate its' management with smart calibrators. This improves the quality of the entire system. The documenting calibrators that support an integration to customer CMMS are Beamex® MC4 Documenting Process Calibrator and Beamex® MC5 Multifunction Calibrator.

Integrating a CMM system with calibration management software is an important step in the right direction when it comes to EAM, Enterprise Asset Management. However, EAM is more than just maintenance management software. It's about companies taking a business-wide view of all their plant equipment and coordinating maintenance activities and resources with other departments and sites, particularly with production teams. Savings from EAM are reasonably well-documented and come in various guises, the most common benefits being: less equipment breakdowns (leading to a reduction in overall plant downtime); a corresponding increase in asset utilization or plant uptime; better management of spare parts and equipment stocks; more efficient use of maintenance staff; and optimized scheduling of maintenance tasks and resources. But the key to success is really the quality of information you put in the software, the data has to be as close to 100% accurate as possible to get maximum benefit from the system.