Microsoft Dynamics® AX

Engineering Change Management

Enhanced capability leveraging Microsoft Dynamics AX 2012

Solution Overview

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eBECS

LEAN
CENTRE OF EXCELLENCE

ENGINEERING CHANGE MANAGEMENT

The Engineering Change Management solution (ECM) provides the means for companies to introduce engineering changes with the following goals:

- Introduce changes quickly
- Introduce changes simply
- View the impact of introducing changes
- Reduce waste in the process overall

As with all products from eBECS, they are developed with Lean concepts in mind to reduce waste within the process, yet still allow control to the level required.

The ECM solution provides seamless updates within AX for:

- New Items
- New Bills of Materials
- Changes in Item Revisions
- Item Replacements
- Ensuring documents are controlled and associated correctly for both engineering and the production function

The main aim of the ECM solution is to allow engineers to establish items and Bills of Materials (BOMs) in advance of their release to the production side, where they can be manufactured and procured according to the rules and procedures of the organisation. The release of engineering items and BOMs to the production/procurement modules is controlled under an Engineering Change Order (ECO) which can optionally be released via a workflow approval process.

The ECM solution provides the ability for engineers to:

- Define and establish engineering items
- Define and establish engineering BOMs
- Associate new items and BOMs with an ECO and gain approval for the change
- View the impact of the change through the Impact Analysis showing all direct and indirect effects of the ECO to production, purchasing and inventory
- Release the change to the production/procurement aspects of the Dynamics AX solution either directly or through a new simplified, yet standard, user configurable approval workflow
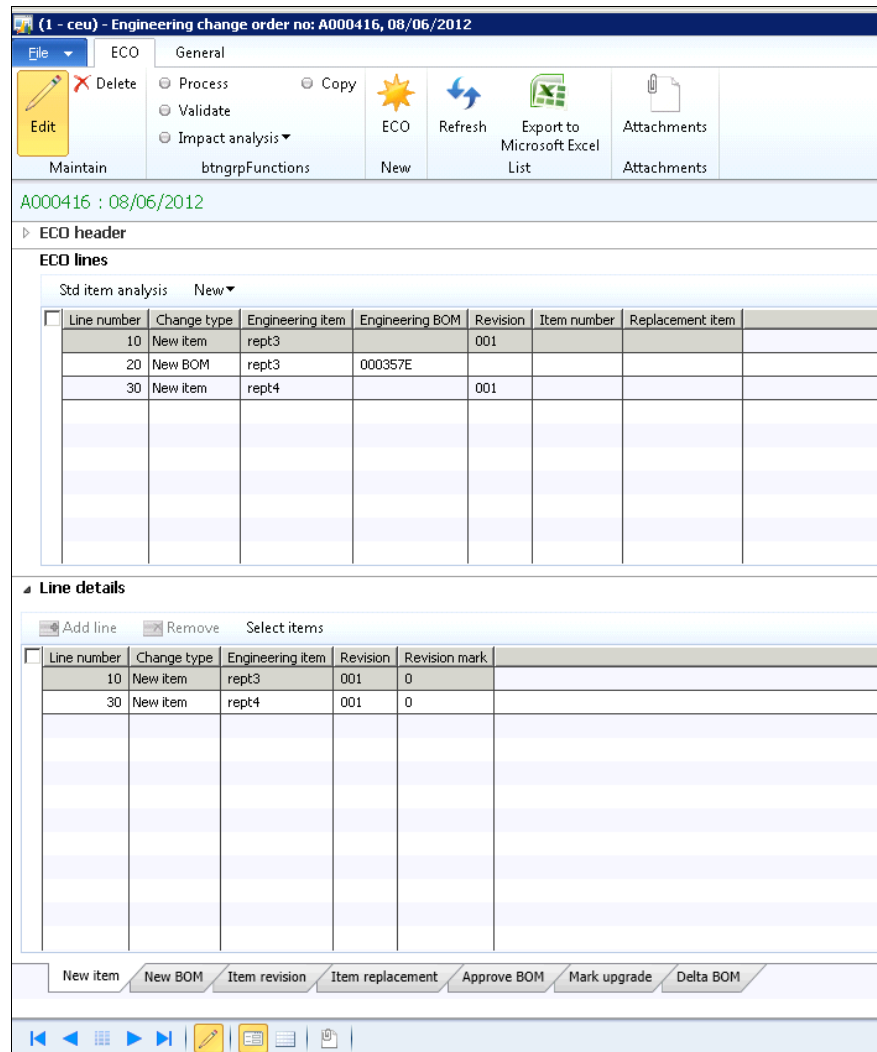
Fig 1. Engineering Change Order with Header and Line detail

The ECM solution makes items and BOMs revision controlled where changes that affect fit, form and function can only be undertaken by engineering. Production, inventory, etc. is then controlled, used and viewed by this revision.

The ECM solution is designed to be simple to use, but achieve the objective of creating items and BOMs outside the production system and releasing these (and changes) to the production system via a controlled approval process.

This approval process utilizes an enhance workflow, user configurable workflow tool that allows a user to simply create ad hoc workflows for approval of Engineering Change Orders:
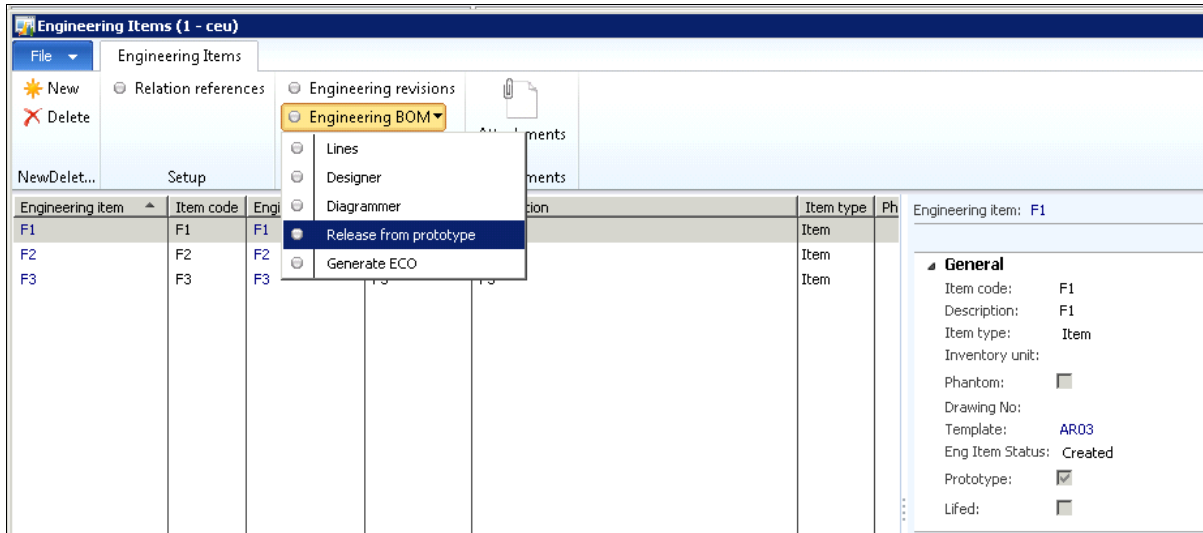
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Fig 2. Workflow to control the staged release of Engineering Items

The Impact Analysis provides a view of the impact of introducing a change. It provides a view of all direct and indirect effects of the ECO to production, purchasing and inventory, and the financial effects:
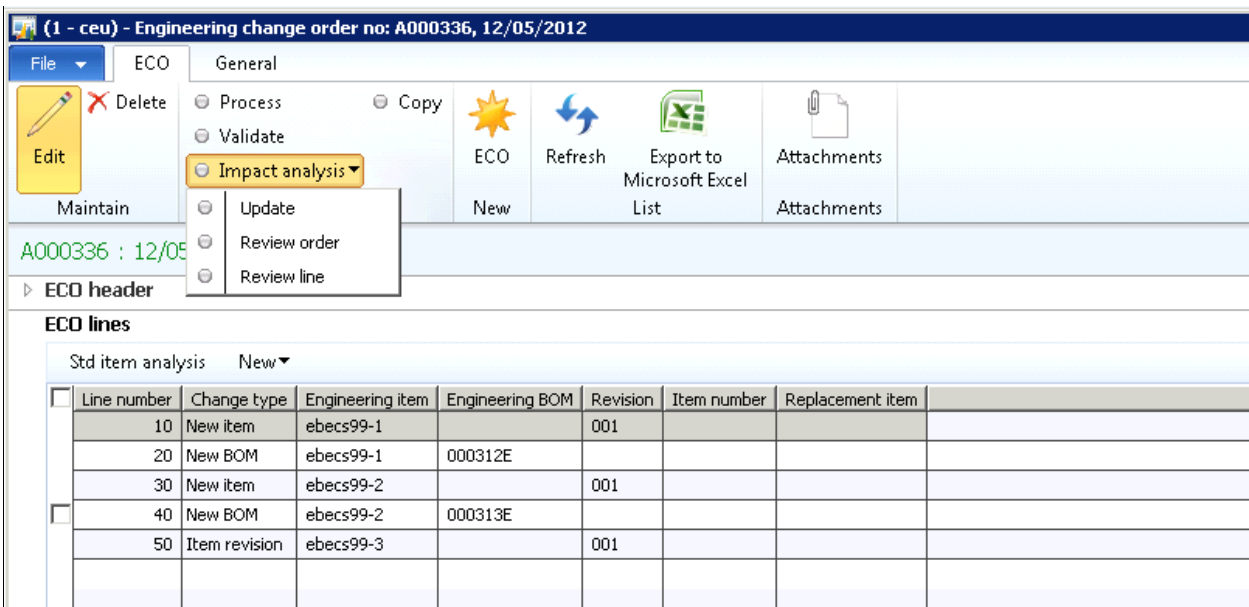

Fig 3. Impact analysis for the Engineering Change Order

It should be noted that in the change process for BOMs, that this process is managed not by changing an existing BOM, but by creating a new "version" of the BOM that will replace the BOM currently being used. A Mark number can also be used as a method of changing an existing BOM and keeping the revision information unchanged. It is designed for small changes that do not affect fit, form or function of the item.

The following schematic defines, from the application view, the structure of the solution for the actual data elements involved in engineering:
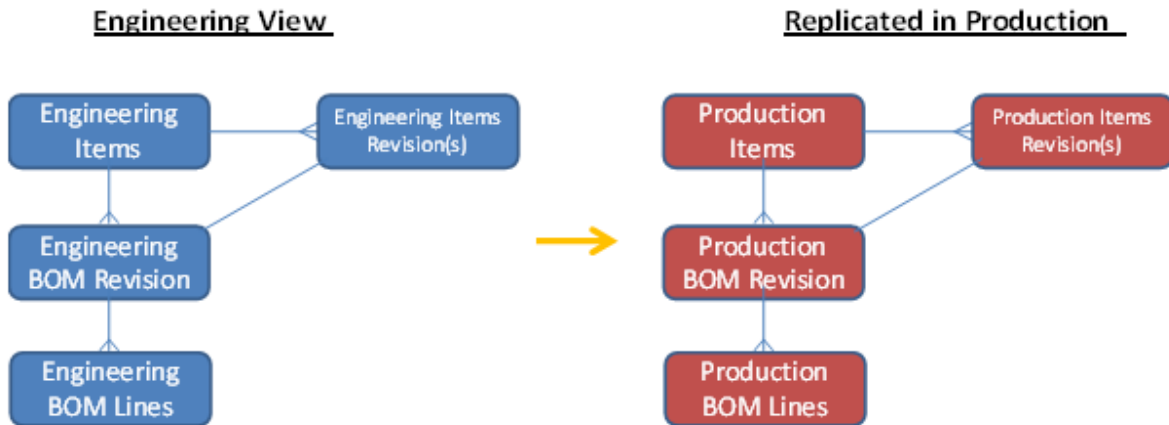
Engineering elements are only visible within the engineering side and no production type activity can occur until the elements have been transferred via the controlled Engineering Change Order. The user configurable workflow process or simple "process" button controlled by normal AX security provide the control mechanisms needed for the approval of the ECO before it is released to production. Once released to production the engineering elements are fully introduced into AX items, BOMS, and revisions.

ABOUT eBECS

eBECS is a specialist in the design and delivery of solutions for manufacturing, distribution, oil & gas, general heavy industry and all aspects of the service industry.

eBECS offers in-depth industry experience and detailed technical knowledge of Microsoft Dynamics enterprise resource planning (ERP), customer relationship management (CRM) and business intelligence (BI) solutions, which are implemented across a broad range of independent yet related industries and their extended supply chains.

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