

INTEGRATING THE ECO AND NEW PART REQUESTS WITH EDX

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D A T A M A N A G E M E N T

W H I T E P A P E R

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It is a very unusual design that does not encounter at least a handful of modifications during development. Two types of common modifications to a product being developed are 1) design changes when a change to the released circuit or mechanical design is made, or 2) new part requests in which a part is to be added to the library that has not been used by the enterprise previously. Each of these modifications requires initiation of a work flow process, to ensure this correction is made properly and timely. Often, these workflow processes are tedious, taking time away from more fruitful endeavors, and since these usually require communication across multiple databases hosted for multiple applications, the possibility for error is substantial.

This white paper discusses employing the Enterprise Data eXchange (EDX) as a vehicle for integrating the new part requests and design change processes between PLM and the ECAD environments. This makes it easier for program managers to view and track progress of these workflows much more accurately, ultimately providing more rapid production of higher quality products.

EDX not only enables the exchange of library and design data, it also enables integration of ECOs and new part request processes via Work Instructions. With the EDX Work Instruction Package a request can be made between systems, initiating a process action. Any system can be the 'owner' of a new part request or can initiate the ECO; EDX is flexible and recognizes that either the PCB tools or external third parties can initiate such requests.

Because EDX is based on the Open Packaging Convention, it is possible to include a datasheet for a new part or a set of marked up drawings for a design change. This makes it easy to accurately communicate the requirements to the engineering team. In addition, the manifest layer of EDX enables status information to be communicated between the engineering department and the rest of the enterprise. Enterprise users should be able to view the current status of the part request or the ECO that they are interested in.

SAMPLE PART REQUEST INTEGRATION

Figure 1 illustrates a process integration for the new part request process. This example is shown with a PLM system, but could easily be an ERP or a CIS system. In this case, the EDA design flow initiates the request, creating the initial EDX Work Instruction Package that is used to exchange information about the part request between the EDA library system and the enterprise PLM system.

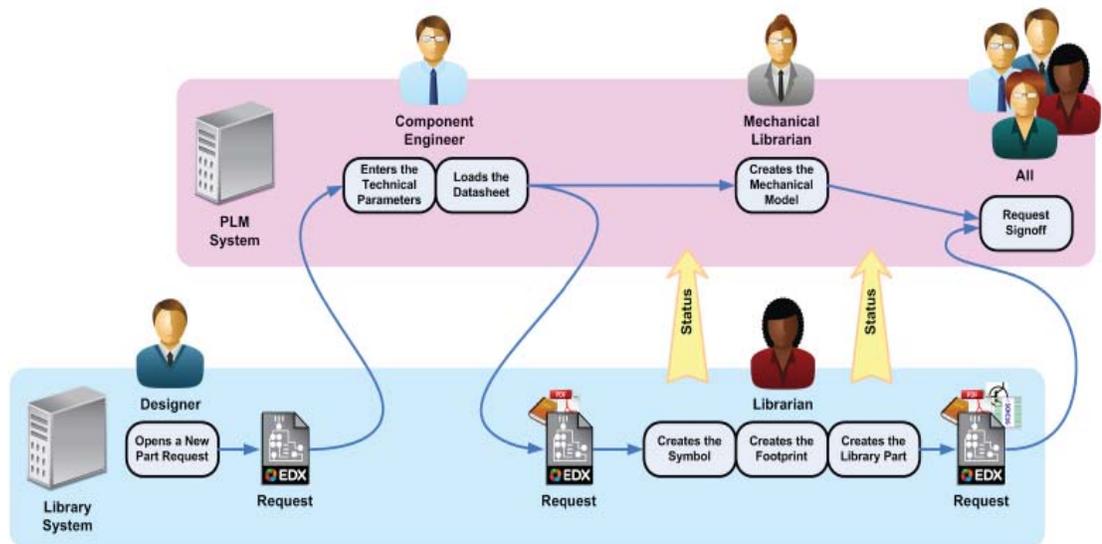


Figure 1 - Example New Part Request Flow

Initially the designer searches the EDX library for a part to use in their design. When they fail to find a suitable candidate they search for an appropriate part to use. Once they have found a part that they would like to use, they enter a new part request into the EDA system. At this point the part request data is sent to the PLM system in an EDX Work Instruction Package.

When the PLM system receives the EDX Work Instruction Package, it uses the part request data to initiate the new part request workflow. The PLM workflow then guides the component engineer through the process of capturing the technical parameters for the part and the approval steps that are required before the part request may be handed back to the librarian. During the workflow an EDX Work Instruction Package is created that contains the updated part request data, which is sent back to the EDX Library.

At this point it's worth noting that the EDX Work Instruction Package supports passing metadata that describes the request and its current state between the two systems. This metadata might include descriptive parameters, or technical properties as defined by the user, in addition to the request properties, such as user name of the requestor, a time stamp, or request status field.

When EDX is loaded into the EDA library, it sets the status of the part request to indicate that the librarian should create the EDA library views, symbols, cells etc., that are required to model the part in the EDA design flow. The component engineer may have attached the component data to the request. Once the librarian has finished updating the EDA library part, an EDX Work Instruction Package would be created that includes a status update for the part request to say that the librarian's work is done, and perhaps including of a copy of the library part and the supporting library views that were created.

When the PLM system loads this EDX package, the library part data added to the PLM system's library archive and the new part introduction workflow's status is updated to reflect that the librarian's task is complete. The new part would then go through the final approval process before being approved for general use.

The EDX package is flexible in that it supports initiation of a part request either in a third-party system, or from within the PCB design flow. The order of events is entirely dependent on the overall system requirements.

SAMPLE ENGINEERING CHANGE PROCESS

The design change process is very similar to the new part request process, as can be seen in Figure 2 on the next page.

In this example, the ECO process is initiated in the PLM system. Production engineers and others report issues with the design that are tracked in the PLM system. At some point, the manufacturing engineer decides that a change must be made to the design and starts the ECO process. This initiates the ECO workflow in the PLM system and, once the change has been approved, an EDX Work Instruction Package is created that contains the details of the change that's being requested. These details may be in the form of metadata on the work instruction and/or marked up diagrams.

When the designer receives the EDX Work Instruction Package, they can review the details of the change request and decide whether or not the change should be made. Assuming that they decide to go ahead with the change, they update the design. When complete, they generate an EDX Design Container Package that contains the updated design databases, the Part List, approved vendor list (AVL), and manufacturing outputs. The EDX Design Container Package includes the ECO number so that when the package is loaded into the PLM system, the updated design data can be linked to the correct ECO that initiated the change and the workflow can be advanced to the approval step.

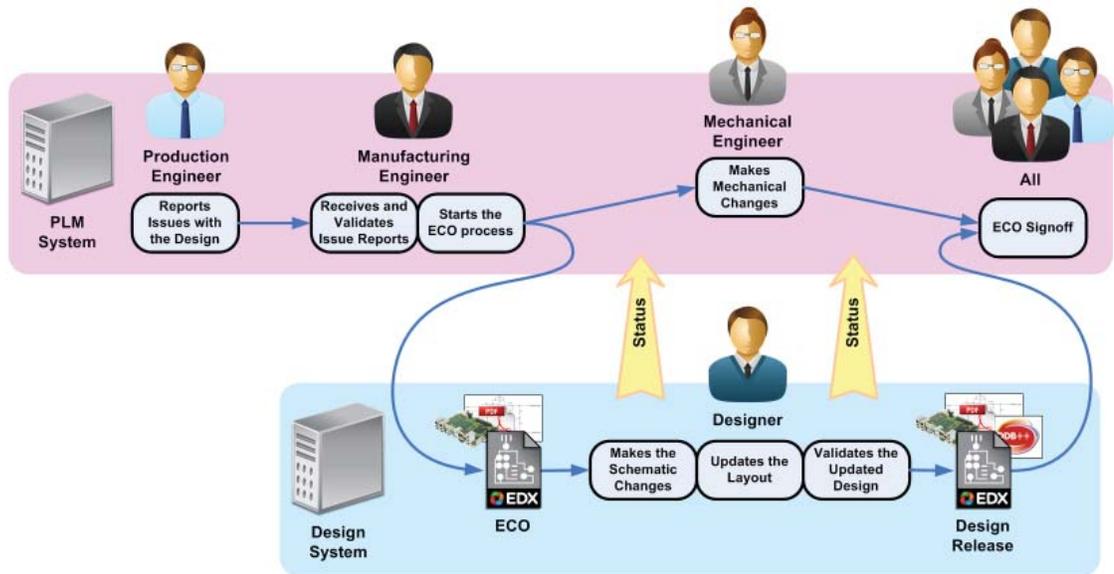


Figure 2 - Example ECO Process

SUMMARY

In this paper, two example applications of EDX for enterprise workflows were illustrated. However, the Work Instruction Package is flexible enough to support many different types of process integrations. Clearly, EDX goes beyond the simple exchange of data such as release design data sets, and facilitates integration of processes across the enterprise. This is just one feature of EDX. You can find more materials on EDX including white papers, a data sheet, and Frequently Asked Questions at www.edx-sa.com.

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