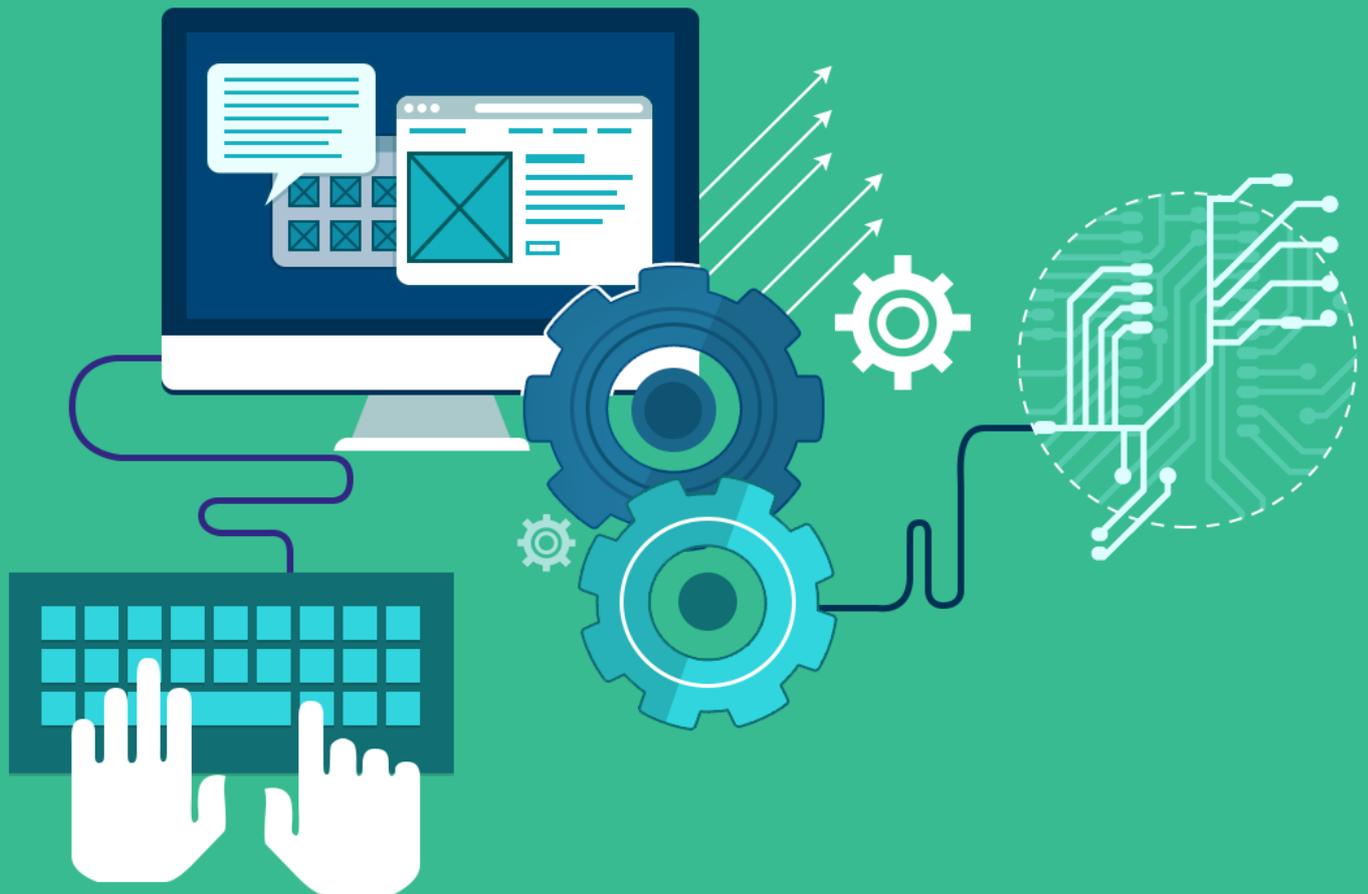


# Design Release Management & Communicating Design Intent



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# DESIGN RELEASE MANAGEMENT & COMMUNICATING DESIGN INTENT

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There is no question that many of our recent technological advancements, have been in fact within the communication realm! From the internet, cell phones, satellites, Facebook, and so on, it's all been geared for us to easily communicate and collaborate. However, with all this technology in the palm of our hands, many companies today still struggle communicating their ECAD data releases. Whether it is to internally collaborate with peers and other departments, or with external vendors, the challenge remains to communicate design intent, changes, and its releases.

Without the right platform in place to manage the process, it's difficult to ensure that all stakeholders are informed about the design intent, state, collaborate, solicit feedback, and know where the project lifecycle state is. This status quo, unfortunately, results in endless design review meetings, constant rework, delaying projects, missing market windows, going over budget, and at worse, a field failure that might put on the wrong side of the news with a product recall.

## THE CHALLENGES OF UNCONTROLLED RELEASE PROCESS

We know that designing a product involves multi-discipline departments that all have to work concurrently on the overall project. Prior to releasing it, the ECAD part of the project often goes rapidly through versioning to capture the incremental changes to the design. This change can usually be due to design scope not being locked yet, or there is a change to the requirements, or sometimes just to meet the actual design specifications. Unfortunately, the ECAD data during this stage is a moving target, and its current lifecycle is not well communicated to other stakeholders. The need to know whether a version is WIP (Work-In-Progress), in approval phase, or being released to manufacturing is vital to the project success so everyone is working with right data. And then comes ensuring that access to the right data, at the right time, from the right place, by the right user is done the right way. In systems where this is still being done manually, at some point, the process become unmanageable, and eventually breaks down, leading to:

- Poorly controlled ECAD versions and release data
- High risk of sending wrong version of the design to production
- High risk using outdated parts
- Wasted time between when a design is ready for release and it's actually released
- Time consuming chasing and collecting manual approval signatures
- Difficulty enforcing standard design processes

Industry studies, such as the Aberdeen Group, have found that many of issues that arise with inconsistent data are due to poor communication systems without an ECAD management and automated platform in place. This locked manual communication process to release ECAD data, increases the overall design cycle because engineers end up spending significant amount of time verifying design intent. Information can often be lost, especially with globally dispersed engineering teams, and data can't be tracked or controlled as the process takes place offline. With no transparency in the release system, it's impossible to release your ECAD data with confidence that your intended design will be communicated to the intended group, so they can make an intelligent informed decision.

## THE MCAD-ECAD CASE

The flaws of such a non-automated ECAD release management system can usually be easily discovered in the ECAD-MCAD integration, or lack-of. Both the Electrical and mechanical development teams often use different tools and applications, they're usually under different management, can be dispersed globally, and the need for them to be fully informed and integrated is vital to the success of the project. Historically, there been always a gap in integrating these two inseparable disciplines, and mainly it was due to the absence of a streamlined central process management system.

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Engineers, from both development team, often find themselves working with the wrong versions and with not up to date information. Without a single source of truth, the risk of discovering that the PCB board doesn't work with the mechanical enclosure during manufacturing or testing is always high. And it's no secret the impact these last minute discoveries have on the business, and on the development teams as the frenzy rework is triggered just before the project deadline.

A good ECAD management release system that can clearly communicate and collaborate design intent with other stakeholders will benefit everyone involved in the project. Without one, there are few typical situations we'd like to highlight that can be identified as potential cracks when ECAD and MCAD teams might not be working with the latest and greatest:

- ECAD team are not aware of the MCAD changes. And a common scenario is when the board outline has changed, and the change was not pushed to the ECAD team, while the layout and component placement have been already finalized (by the ECAD team). Now the whole layout is not valid and require rework significant rework.
- MCAD team not aware of the ECAD changes. On the flip side, the ECAD team might have changed the placement of a connector to make routing the board easier, or due to some other design constraint. Now the enclosure doesn't fit, and release date is just few days away.
- ECAD-MCAD missing link. An example would a heat sink, while this component is part of the MCAD world, the PCB BOM might have forgot about it!

These were common product development issues that arise by the common challenge of ensuring that the various development teams are working from the same source of truth, are soliciting feedback as versions are changing and being released, communicating design intent, and are working with the most current designs.

## BRIDGE THE ECAD RELEASE MANAGEMENT GAP

To tackle the release management of ECAD data and to be better communicate across the project team spectrum, some companies resort to implementing a Product Lifecycle Management (PLM) system. And of course, this takes them steps beyond the manual process, and enables them to better control their design files. The payback can often be seen in a form of:

- Engineers wasting less time
- Decreased product costs
- Improved product quality
- Shorter development cycles

PLMs are usually geared toward managing the product life cycle states, but not really toward the rapid change associated with a project during the development phase, when communicating design intent is crucial. To be competitive and best in class, you need to go beyond the CAD file management. With ECAD teams being in the forefront of product development, means you must provide them with a system built for a better grip on:

- Enabling collaboration with all stakeholders through all development stages
- Managing and controlling the release process of all ECAD data
- Validating designs against libraries and component lifecycle prior to release
- Managing change and work-in-progress
- Giving ECAD teams access to PLM information such as available and approved parts
- Controlling and granting access to design teams right from their CAD system

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- Eliminating steps ECAD teams have to take outside their CAD system
- Making it impossible for workarounds

## TAKE CONTROL

Many electronic companies have attempted to solve the challenges outlined here, and they had various approaches to tackle it. And it's certain that your company has its own unique concerns as they consider a seamlessly integrated system to manage their ECAD data as a whole. But one thing is common, every electronics company has this vision of fully synchronizing their development teams. If your company is still relying on manual effort to manage the ECAD data release process, and maybe email to communicate design intent, it's never too late to start on your strategic holistic ECAD data management implementation. And if you already have a PLM system in place, you're ahead of many, but might be time for you to take it to the next level beyond design file management. Best in class companies that are likely to meet product cost, launch products on time, meet their quality target at release, and have decreased their PCB development time, took design data management comprehensively with three items in mind; ECAD data management, process flow management, and tool integration.