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The Challenges Of Library Management

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THE CHALLENGES OF LIBRARY MANAGEMENT

No one questions the reality of electronics proliferation in virtually every industry segment. Not only that, but in most cases electronics, along with its embedded software, are in the driver's seat when it comes to new product features and functionalities. We interact with them every day, whether within consumer electronics such as cameras or our home appliances that use state-of-the-art sensors. When we visit our doctor to get an MRI, or when we drive our cars that pack enough processing power for a workstation. And of course, the manufacturing machinery automation making some of our workforce obsolete. It's no longer a competitive differentiator to own the most expensive tools to develop electronics, it's merely the cost of entry. And while many variables come into play for any company to have a competitive advantage, in a world of electrification, being able to effectively manage the entire ECAD data lifecycle can mean the difference between staying or getting out of the game.

While there are many paths that can lead to a product failure, such as the challenge of managing a globally dispersed team, undeveloped development processes, working with multiple tools, and poor collaboration, one particular issue should be among the top priorities for any business to tackle: ECAD data library management. Unfortunately, poor data management often leads to creating multiple libraries, sometimes due to multiple tools, which results in data inconsistency and unreliable lifecycle state information.This not only impacts the cost and quality of your products, but also takes a toll on the productivity, efficiency, and collaboration of your team.

WHY MANAGE ECAD DATA LIBRARY

Your organization might use shared drives and email chains to communicate changes, but without a proper system in place, managing your ECAD data library can be a nightmare. From an engineer's perspective, the simple process of selecting a part for a design can spiral into a lengthy agony of undoings, not knowing, for instance, whether the part selected will enter end-of-life before the project is even complete. The engineer might be lucky enough to catch such an issue before releasing the product into manufacturing, but unfortunately, it doesn't always work out that way. Imagine if the product has already been released, and now the team has to scramble to find a drop-in replacement with the same fit, form, and function, go through all the engineering change orders, update all documentation to reflect that change (every document that component was part of!), approve the new part and maybe a new vendor, secure supply, go through the quality testing, and go through the manufacturing hand over release process, again! All of a sudden engineering doesn't sound like fun at all.

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In the midst of all the things that can go wrong, implementing a simple holistic single source of truth platform to manage your ECAD data library should be a top priority with the goal to:

- Ensure data consistency
- Simplify new part request and creation
- Manage part lifecycles and revisions
- Eliminate duplicate parts
- Streamline where-used of already approved parts
- Provide vendor approved list visibility
- Integrate with existing tools
- Gain user control access
- Share ECAD libraries globally

While the company as a whole will benefit from better ECAD data management, designers are the first to profit, as their job will be more streamlined and they'll have the time to focus on what they enjoy doing, designing. This proves even more true if they don't have to leave their usual ECAD environment and can link design library data right from their favorite tool that they feel comfortable with. Companies that aren't accustomed to electronic designs, such as Nike just few year ago, will find this particularly vital to their business existence. Where would a company like that even start without the right tools to manage their ECAD development process? Companies that are already in the electronics industry often get stuck in the time-consuming and error-prone routines to manage and share their ECAD data library. These outdated methods of managing ECAD data libraries are putting top-down pressure on companies to be more competitive, as it leads to longer design cycles, missed market windows, and potential product recalls. What can companies do to rid themselves of these tedious data management processes to maintain a competitive edge in today's market?

ECAD DATA LIBRARY MANAGEMENT CORNERSTONES

Implementing an organized, easy-to-use system for streamlining your ECAD data management process can reduce the potential for error and help you deliver projects on time and within budget. Although there are other elements of managing ECAD data libraries, we'll highlight the following four aspects of ECAD data library management and their importance:

- Data Consistency
- Lifecycle State Management
- Parts Reuse
- Procurement Enforcement

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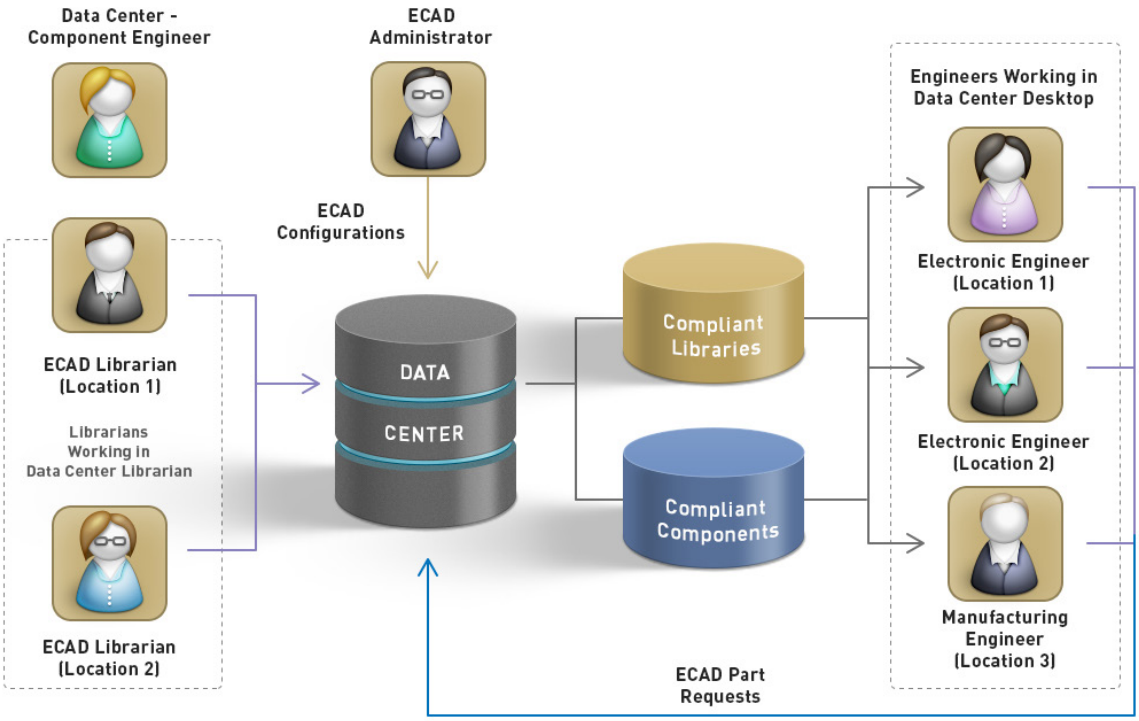

DATA CONSISTENCY

ECAD data library consistency - or a lack thereof - poses a major problem for many electronic companies today, and it's always a concern among designers and engineering managers alike. They know that volume is always rising as they phase out old data from their library and phase in new ones. Many companies don't treat their ECAD data as assets, and that culture needs to change by realizing that investing in a platform to manage their ECAD data is not an IT project, but a strategic one. The ability to control and manage data integrity can better position electronic companies for developing successful products.

LIFECYCLE STATE MANAGEMENT

If data is consistent throughout the enterprise but somehow its lifecycle state information is not reliable, it won't serve anyone. Managing your ECAD data library is only effective if the data lifecycle phase information is accurate. Sometimes it's not the engineer's fault that the part introduced to the market three years ago was just phased into the end-of-life state by the supplier. But having the right platform to communicate this kind of information as early as possible and then have it updated throughout the system is crucial not only to current projects, but upcoming ones as well. Up-to-date lifecycle phase information allows development teams to handle it differently at different times, especially as the data typically has a longer lifespan than the project it's a part of.

PARTS REUSE

While it might be fun to research new parts, order free samples, and breadboard them to see if they'll work for your design, it's not that fun to hear from sourcing that the part vendor does not meet the minimum requirement to be on the approved vendor list. Or, even with an approved vendor, engineers still have to deal with the hassle of entering the new part into the system, going through first article inspection, and handling the quality and sourcing approvals. Before looking for a new part, It is really worthwhile to look for one that is already in your system, approved, tested, and sourced, one that would work for your design (just make sure to check it's lifecycle state!). Engineers would save a ton of headaches, and might just make the project on time

and within budget. The ability to search and find parts, or even designs, that can be leveraged for a new design is priceless! The small effort to search and reuse would not only save the work related to the part itself, but also would save you the time spent on a new design, testing, design reviews, and reliability. Take for example power supply circuits, many companies have some sort of standard input power that comes into their product, which is then converted to run their electronics. There is a high likelihood the power distribution would remain the same, and someone else already did all the heavy lifting, so with the right ECAD library management platform, engineers can search, find, and reuse those parts, or even designs, and not reinvent them!

PROCUREMENT ENFORCEMENT

Engineers love the flexibility to explore new technologies to incorporate into their design, however, it's not always feasible. At the end of the day, electronic companies are in the business of delivering not only cool products, but products that are manufacturable and supportable for a long term, and of course, profitable. There are really good reasons why the business, depicted in sourcing/procurement, dictates from whom engineers can buy. Simply put, it's about risk mitigation. This risk mitigation of supplier evaluation, such as only approving vendors with strong financials or those that can only be alternatively sourced, can only be enforced with an end-to-end closed loop ECAD data system. While this might limit the development team's choices of vendors, it ensures that your suppliers are providing high-standard products and service levels, and securing the capacity your business needs.

START TREATING YOUR ECAD DATA LIBRARY AS AN ASSET

If you are facing challenges to improve your design process, avoid unnecessary reworks, and increase your development team productivity and efficiency, you're not alone. Trying to tackle your development process without a structured plan will only set you up for an eventual failure. If you start treating your ECAD data library as an asset, you'll be far better off. There isn't a magic wand to get it in sync, ensure its integrity, or control and communicate its lifecycle states, but it's imperative to implement a platform that enables you to manage and tackle everything mentioned above.