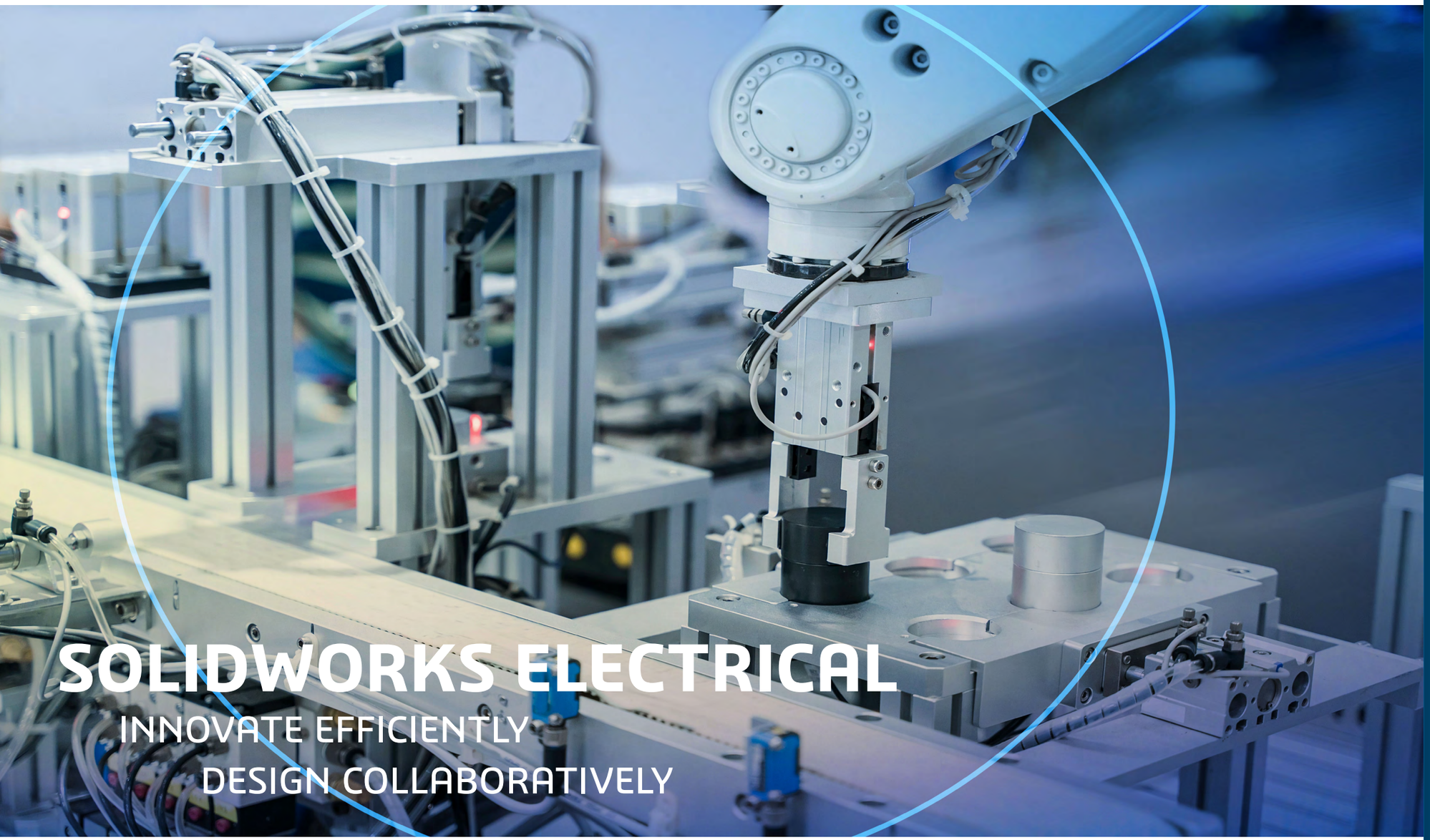
SOLIDWORKS



# SOLIDWORKS ELECTRICAL

## INNOVATE EFFICIENTLY
## DESIGN COLLABORATIVELY



DASSAULT SYSTEMES

# INTRODUCTION

There are many challenges that face today's industries. The demand for smarter and innovative solutions is emerging, while products and services become more integrated, complex, and autonomous, but also follow industry guidelines, requirements, and regulatory standards. Methods and techniques for design and production are also changing and the need for collaboration and innovation has surged.

The significance is that more and more electronics and electrical systems are integrated throughout every phase of the product lifecycle. New underlying challenges and complexity within each electrical discipline becomes apparent and further adds to the complexity of integration with other engineering disciplines – such as mechanical, fluids, simulation, and software.

**This e-book highlights the Dassault Systèmes SOLIDWORKS Electrical solution and how to tackle an end to end electrical process and integrate it within a full development project.**

# CHALLENGES

- Many traditional engineering and design groups use a wide variety of specialized software applications to create and manage electrical systems.
- Each of them, with their own database or file-based information storage, results in inefficient manual exchange of data between essential process steps.
- There is not a strong enough relationship between schematics, 3D design, and manufacturing.
- Electrical teams are critical departments that undergo engineering changes last.

**To rectify these challenges, the initial step is to have a comprehensive and integrated design workflow that connects a single source of truth for all stakeholders**

# VALUE PROPOSITION

**Early Validation**
of systems installation requirements

**Early Design Optimization**
with intelligent project templates

**Improve Design Validation**
with integrated Design Rule Checks

**Increased Collaboration between Disciplines**

- Mechanical Systems
- Electrical Systems
- Analysts
- Manufacturing
- Logisitics

**Improve Manufacturing Engineering**
due to early optimization with integrated  integrated functional + physical mockup

**Digital Thread**
from systems architecture to 2D schematics and 3D system modelng

# PROCESS OVERVIEW

Governance

System Architecture

Schematic Design

Reporting & Validation

3D Modeling and Routing

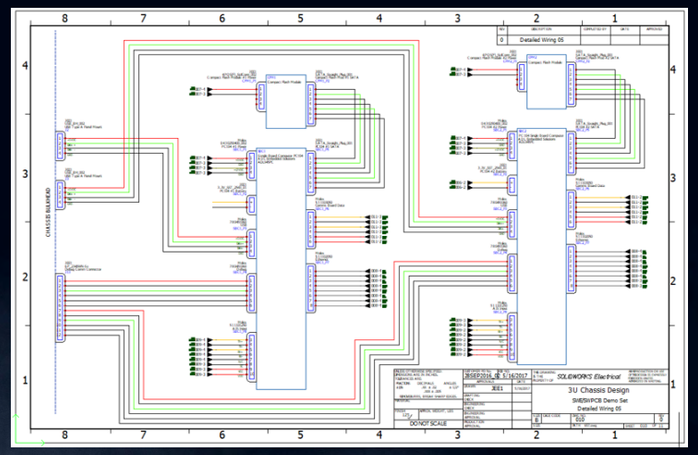
Manufacturing

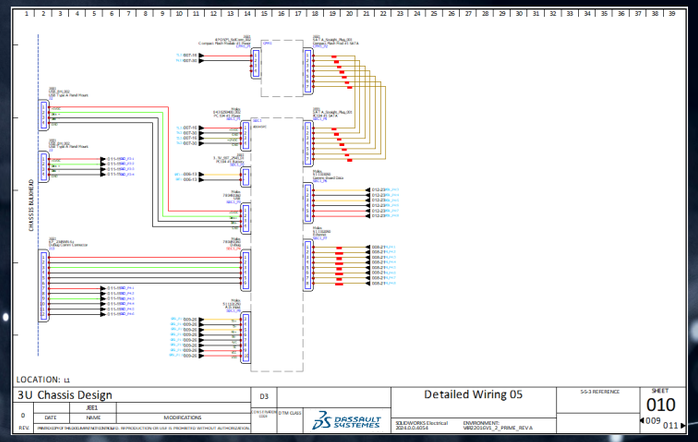
**SOLIDWORKS ELECTRICAL helps to simplify complex processes by generating integrated top-down, fully-detailed electrical, pneumatic, and hydraulic systems in a multi-user environment.**

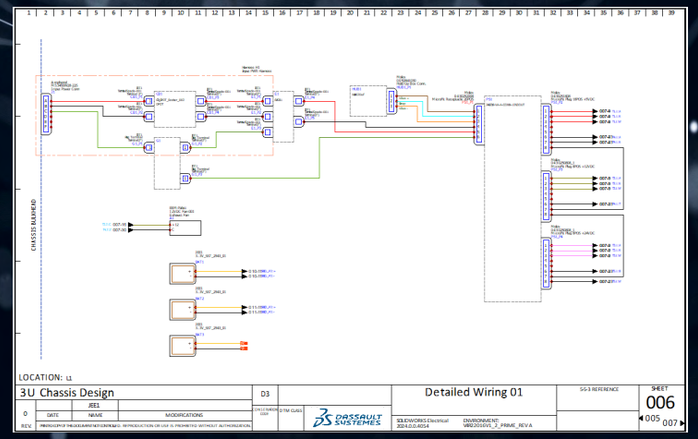
- This top-down approach is collaborative in nature linking schematic locations to 3D assemblies and subassemblies.
- This workflow optimizes the development process, design time, and communications between disciplines.

**SOLIDWORKS ELECTRICAL'S** schematic capture capabilities allow you to create intuitive, customizable, and automated designs helping you spend more time designing and less time performing re-work.

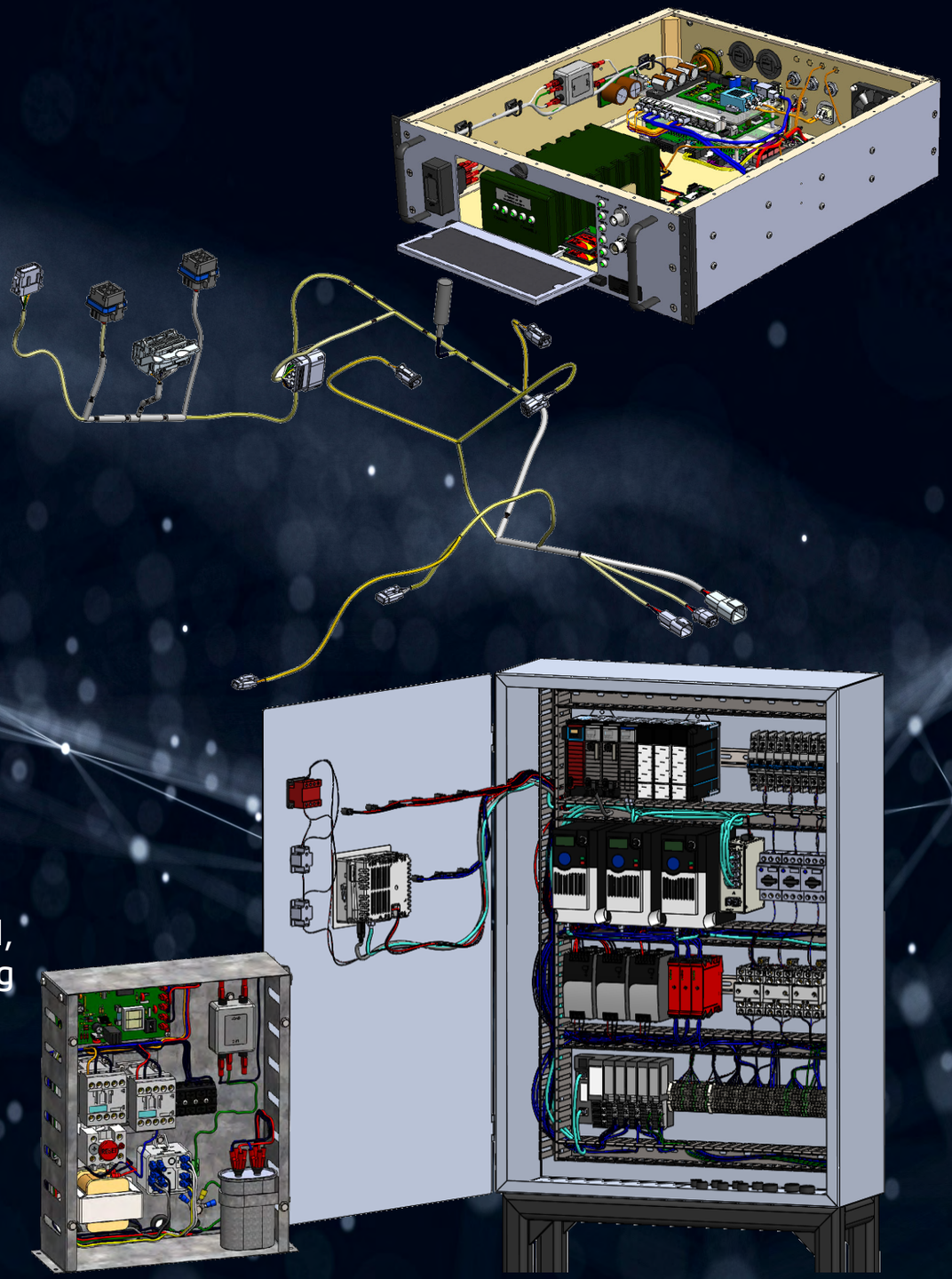
- Automatically generate terminal block drawings based on and synchronized with real-time design
- With Programmable Logic Controller (PLC) management, you can automate PLC wiring tasks and import PLC data
- The application intelligently guides you as you design and visualize your system's I/Os
- Automatically generate reports based on real-time design database queries
- Utilizing Design Rule Checks (DRCs) help to ensure consistent deliverables





**SOLIDWORKS ELECTRICAL 3D connectivity provides the power to link all system components to their affiliated 3D part while also ensuring design continuity.**

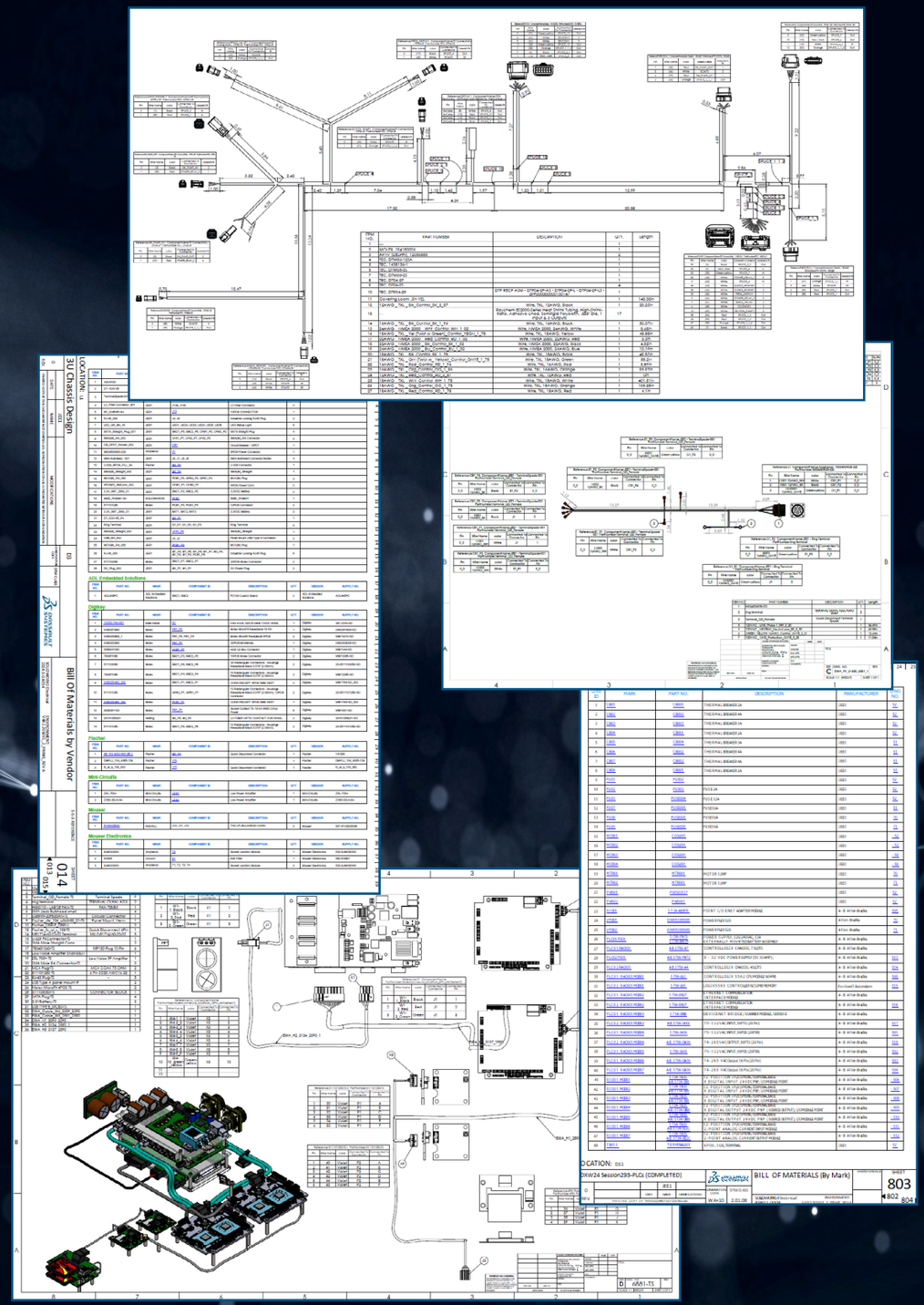


Linking engineering data tackles several important business issues:

- Provides manufacturing with the most realistic view based on design intent.
- Automatically calculates conductor length for use in reports and cable assembly drawings.
- Provides a mockup for marketing material, for building customer relations, or creating a virtual twin.

## SOLIDWORKS ELECTRICAL prepares you for the manufacturing processes by allowing for customization and automated report generation.

- Create manufacturer drawings that include callouts, notes, dimensioning, detail views, connector tables, projected views, stub lengths, and more.
- The flow of information from 2D schematics to 3D assemblies, flattened views, and drawings helps to avoid time-to-market delays and reduce manufacturing defects
- If an engineering change is required, the flow of information allows you to rebuild with minimal effort.

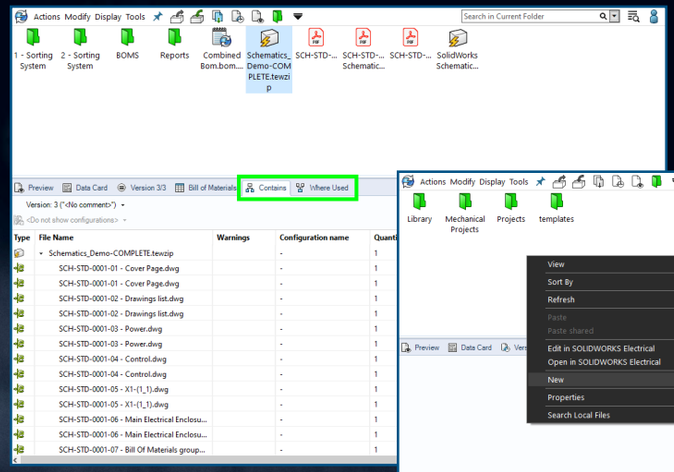


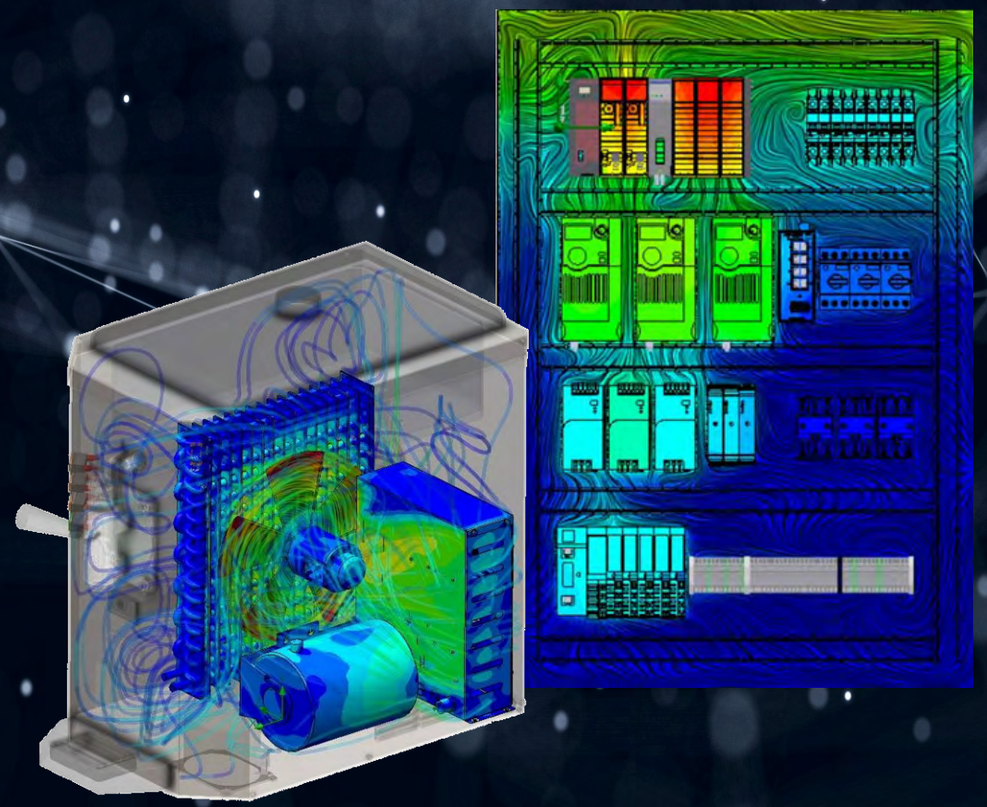
**SOLIDWORKS ELECTRICAL projects can be governed and organized with Product Data Management (PDM), which helps maintain a single source of truth.**

- With the connection to Product Data Management, custom workflows and approval processes can be put in place.
- The ability to automatically generate new projects from within PDM, streamlines the development and design processes.

**Project data can also be shared for analysis, such as thermal simulation.**

- Data analysis helps to ensure equipment, projects, and systems are valid helping to eliminate prototyping.



# CONCLUSION

**SOLIDWORKS ELECTRICAL** is an end to end solution that envelops the entire process, from initial system architecture through manufacturing using intelligent and connected applications.

Many existing processes are initially implemented using disconnected tools. These isolated processes result in substantial modifications, increased costs, and position the electrical design late in the process.

By promoting collaboration with other disciplines like mechanical, pneumatic, and fluidic engineering, we can make better decisions and create high quality products with a shorter time to market.

# INCREASE COLLABORATION, IMPROVE EXECUTION, AND ACCELERATE INNOVATION

**SOLIDWORKS ELECTRICAL** is an extremely valuable asset for systems engineering, but when we take a step back and look at the bigger picture, Dassault Systèmes offers a much broader porfolio than just electrical design.

The **3DEXPERIENCE** platform is a game-changer for organizations because it is the only platform that is both a system of operations to run their business and a model to help transform their business.

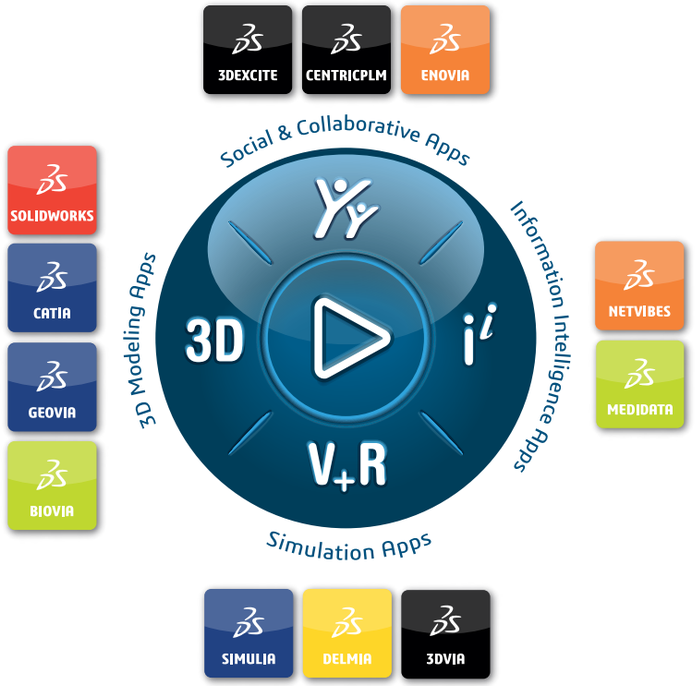
It offers a fresh approach to innovation by bringing together R&D, engineering, production, commercialization and even consumers under one holistic environment.

By breaking up the traditional silos and offering flexible collaboration across disciplines, the 3DEXPERIENCE platform empowers organizations to invent, learn, produce and trade in entirely new ways.

Learn about other companies that experience the power of the 3DEXPERIENCE platform:

**Learn more about 3DEXPERIENCE**

**Learn more about SOLIDWORKS Electrical**




## Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating virtual twin experiences of the real world with our **3D**EXPERIENCE platform and applications, our customers can redefine the creation, production and life-cycle-management processes of their offer and thus have a meaningful impact to make the world more sustainable. The beauty of the Experience Economy is that it is a human-centered economy for the benefit of all – consumers, patients and citizens.

Dassault Systèmes brings value to more than 300,000 customers of all sizes, in all industries, in more than 150 countries. For more information, visit **www.3ds.com**.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