



DIGITAL INDUSTRIES SOFTWARE

Teamcenter for Capital Asset Lifecycle Management

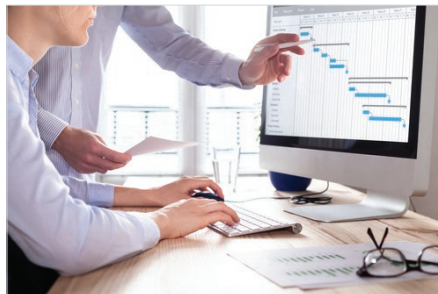
Reduce costs and improve efficiency across the lifecycle of facilities, plants, factories and critical infrastructure

Benefits

- Consolidates project and operational information to create a comprehensive digital twin of the physical asset
- Drives new efficiencies in design, construction and operation while decreasing capital project delivery costs and timeframes
- Integrates the processes by which greenfield and brownfield projects are planned, designed, managed and executed

Summary

Capital assets form the productive base of an organization, and organizations invest a large portion of their funds into the facilities, plants, factories and critical infrastructure that are the foundation of their operations. Today, many capital asset stakeholders (those who design, construct and/or operate capital assets) have the desire but are unable to digitalize and increase efficiencies by leveraging new technologies to initially monitor, then improve, the asset's performance.



Contributing to this is the struggle to aggregate and manage capital project and operational data at an enterprise level, which leads to efficiency losses in capital project delivery and throughout the asset lifecycle. The inefficiencies that are created in

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Features

- Centralize project and asset data by seamlessly harmonizing design and information models into an enterprise ecosystem
- Improve oversight and risk management of project performance with enterprise-wide visualization, reporting and analytics
- Increase compliance and safety with enterprise-wide visibility of asset information to understand the real-time status of project execution
- Create, manage and leverage the digital twin to enable a simulation-driven approach to design, construction and operations
- Enable increased productivity by digitally detecting, reviewing, managing and tracing change in real time
- Complement and enhance the value of existing legacy planning and design investments



project delivery are passed down to the owner/operator (O/O) where they can exist indefinitely. New capital projects and plant modernizations are completed in the same inefficient manner and the cycle repeats.

Just as digitalization is disrupting the way we live, the digital industrial revolution is changing the way companies manage capital assets. To help companies make the transition to digitalization, Siemens Digital Industries Software's Teamcenter® for Capital Asset Lifecycle Management offers solutions for the planning, design, construction and operation of a plant or asset as well as the systems and equipment that make up the plant or asset. Teamcenter for Capital Asset Lifecycle Management weaves a digital thread of data through a capital asset's lifecycle, from capital project delivery into operations, to drive new efficiencies in design, construction and operations as well as decrease project delivery costs and timeframes.

With Teamcenter for Capital Asset Lifecycle Management, a capital asset digitalization strategy increases efficiencies across the organization while enabling simulations and operational optimizations through the use of the digital twin. The solution helps companies digitalize their capital assets as early in the lifecycle as possible by establishing the enterprise data management and collaboration foundation for the capital asset lifecycle; from feasibility and planning through modernization and decommissioning.

Solutions to realize digitalization

Teamcenter for Capital Asset Lifecycle Management offers an evolutionary approach to managing the complexities of today's capital assets. This solution enables engineering, procurement and construction (EPC) firms, O/O and other stakeholders to create and manage the digital twin of the capital asset across its lifecycle, eliminating disconnected information silos by combining federated data sources across the enterprise.

Digitalization begins with the digital twin

Teamcenter for Capital Asset Lifecycle Management helps companies realize significant efficiencies in design, construction, and operations by building the digital twin from day one of the project. Early definition of the digital twin allows organizations to perform simulations and optimize the design prior to and during construction. Companies can realize new efficiencies through continuous optimization of the asset throughout its lifecycle with access to a wide range of planning and simulation capabilities as well as the ability to manage and share simulations across the enterprise.

Building on a foundation for lifecycle collaboration

Teamcenter for Capital Asset Lifecycle Management provides a single point of access to federated data by bringing together data authored in various computer-aided design (CAD), computer-aided engineering (CAE) and building information modeling (BIM) authoring tools. By unlocking proprietary data from

individual users and applications and sharing it business-wide, companies can make smarter, collaborative decisions, increase productivity and realize the efficiencies of integrated planning, data re-use and simulations.

As project data matures quickly, dynamically and concurrently across multiple teams, the solution consolidates information, so people can rely on a single source of up-to-date asset data. Stakeholders can seamlessly integrate plant design and engineering information within Teamcenter to manage and visualize all asset data, reducing time spent searching for contextualized engineering data by visualizing and associating a plant element with its respective tag and its 1D, 2D piping and instrumentation diagram (P&ID) and 3D views, all in a single user interface. Project designs and information models can be exchanged between contractors or sub-contractors on an as-needed basis to review and manage the



supply chain of work prior to completion. And, with the addition of analytics, stakeholders can quickly assess real-time project status and take steps to mitigate risk.

Streamlining business processes to manage project complexity

Teamcenter for Capital Asset Lifecycle Management captures, maintains and enriches project and operational information throughout an asset's lifecycle. Capital asset stakeholders can make the transition from document-centric business processes to data-centric business processes, which contributes to more efficient operations as well as improved project delivery timelines through the increase of project quality, speed, productivity and efficiency.

Teamcenter for Capital Asset Lifecycle Management offers the following capabilities to streamline business processes:

- Requirements management, which increases design compliance and reduces design time and redundancy
- Change management, which increases productivity by digitally reviewing, managing and tracing change in a real-time, unified process across the asset lifecycle
- Configuration management, which provides visibility of the asset build progress with time interval comparisons and data centric milestone measurements
- Program management, which not only manages and accelerates project planning and execution but also ensures accuracy, increases compliance and safety, reduces scheduling issues, minimizes procurement errors and enables sequencing of construction activities



Use cases for O/O and EPC organizations

Improve capital asset efficiencies

Teamcenter for Capital Asset Lifecycle Management manages the asset lifecycle from planning and conceptual design through operations and modernizations. The solution provides a simulation-driven approach to design, construction and operations by creating a closed-loop decision environment for continual optimization. Users can design, simulate and verify plant processes digitally in conceptual design, front-end engineering design (FEED) and detailed design. Users can also virtually place equipment/systems in the construction work area (CWA) and simulate and optimize the asset build to ensure predictable construction execution and efficient commissioning. The data captured from the operational asset can now be reported to operations for production planning and the EPC, if applicable, for suggested design changes and future modernizations.



Reduce project costs

Teamcenter for Capital Asset Lifecycle Management manages the asset lifecycle by allowing both internal and external stakeholders to digitally collaborate on project data that has been aggregated from multiple sources (such as third-party CAD/CAE/BIM systems) into a single point of access to federated data. The solution builds enterprise-level project awareness, helping disciplines and teams understand current project status as well as the impact of change on each participant's scope of work. The harmonization of design and information models from project contractors and sub-contractors to the solution environment provides unparalleled insight and oversight, which contributes to increased risk management as well as a reduction in project delays and cost overruns. Enterprise-level

control, visualization and simulation of the project, asset and its processes allow users to not only apply proven business processes but also adopt a simulation-driven approach to design and construction which will contribute to increased project quality, speed, productivity and efficiency. With Teamcenter for Capital Asset Lifecycle Management, time interval comparisons of the asset build and data centric measurement of project milestones is possible, and, at project handover, the O/O will already be in possession of their contracted intellectual property which can be used/reused in the operations, maintenance and modernizations phases.

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