Using PLM in the Transit Industry

CIMdata Commentary

Transit companies face many of the same issues of companies in other industries. They need to improve the productivity of their people, their processes and their capital investment (i.e., infrastructure, rolling stock, etc.), they want to provide better service to their customers, they need to improve their top and bottom lines, and they need to be able to rapidly adjust to changes in market demand. At the same time, they are dealing with aging infrastructures that require higher levels of maintenance and (good news) increase ridership.

Most transit companies have used traditional paper-based (or now Excel-based) tools and document management systems to help manage maintenance issues. While such solutions provide some of the functionality needed, they do not provide the integration of information and processes needed to help a company significantly improve their productivity and profitability.

Paper-based and document based systems do not have links between actual product definition information and its configurations (e.g., the as-maintained configuration of a specific train-set or track control infrastructure). While they may document what is done in a report, they don't capture and feedback the decision process, what occurred and why, to the organizations responsible for updating facilities and stock. Also, these systems are not designed to gather information and apply analytics that can be used by management to make decisions faster (e.g., see bottlenecks in an infrastructure upgrade) or analyze the type and number of maintenance issues to determine changes that need to be made in equipment to improve operational up-time.

To help address these, and other, issues transit companies are beginning to define and implement Product Lifecycle Management (PLM) strategies and a broad set of business process enabling solutions. While PLM has its origins in discrete product manufacturing related industries, companies in many other industries have found that the underlying capabilities and philosophy of PLM can help them become more efficient and competitive. For example, PLM is being applied in aerospace and defense, aircraft maintenance, automotive, industrial machinery, food and beverage, medical devices, plant design and operation, heavy equipment, retail and apparel, financial services, shipbuilding, and many other areas.

For industries like transit that have long life equipment, PLM is proving effective in supporting service, maintenance, operations, and warranty related business processes by allowing companies to more effectively incorporate equipment configuration definition, technical operation and service documentation, and MRO and logistic systems. It can help transit companies maintain their facilities and rolling stock in a state of good repair. It helps them to better define the configuration of a facility, railway, and individual engines and rolling stock. Both component and maintenance configurations can be maintained within one system and the service documentation can be linked to those configurations. This ensures that if any changes are made, the documentation will automatically be updated to reflect them so that service personnel are always working with the correct documentation for the actual configuration. Because service personnel will have accurate, up-to-date configuration and related documentation, the first time fix rate can be significantly higher when compared to document based systems. This minimizes asset down time and enables the transit company to optimize the use of its human and physical resources.

Information can be collected and analyzed about an asset's performance and maintenance history. This helps establish a better knowledge of that specific asset in its operational life and a better understanding of its operational performance. That data can be used to improve availability and reliability in operation and contribute to improvements in later generation products. The ability to capture and analyze asset related information can then feed preventive maintenance planning. Required preventive maintenance can be scheduled when it will have the least impact on asset utilization and daily operations.

PLM solutions also have extensive, integrated project management functionality. This enables a transit company to define what tasks need to be performed (e.g., preventive maintenance), the resources and personnel needed to perform those tasks (and their availability), track execution of the tasks, and ensure that all reporting and documentation associated with those tasks are completed. These solutions also provide management with dynamic, real time dashboards and reporting so that management personnel can quickly identify any potential delays or bottlenecks and make informed corrective decisions. These capabilities enable a transit company to operate at the highest efficiency possible.

PLM solutions also help companies manage their processes to ensure that the right persons are tasked with the right work, at the right time, and will be provided the right information for their duties. Personnel are notified of any actions they need to perform via a variety of methods—email, text, voice mail, etc.—on desktops, laptops and mobile devices. PLM solutions enable users to work with the device that is most effective for them at any given time or place. This improves service personnel productivity and helps them work better and smarter to minimize down time of facilities and rolling stock.

Adopting PLM concepts and solutions can improve a transit company's ability to more effectively manage their facilities and rolling stock even as they must replace aging infrastructure and expand customer services and schedules to meet growing demand—and do it more profitably.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata's services, visit our website at http://www.CIMdata.com or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.