esi
get it right

Designing reliable systems covering all requirements of modern transportation

SimulationX is the multi-domain simulation tool that enables OEMs and suppliers to design innovative transporting systems simulating real operating conditions and combining different physical domains such as mechanics, hydraulics, pneumatics, multi-body systems and controls.

The development of modern railway systems such as express trains, trams or city trains is a challenging task. Engineers have to consider the dynamic dimensioning of driveline components, dynamic behavior examination, component integration and matching, assessment of control strategies up to the examination and evaluation of critical load scenarios and their effects on wheel-to rail traction.
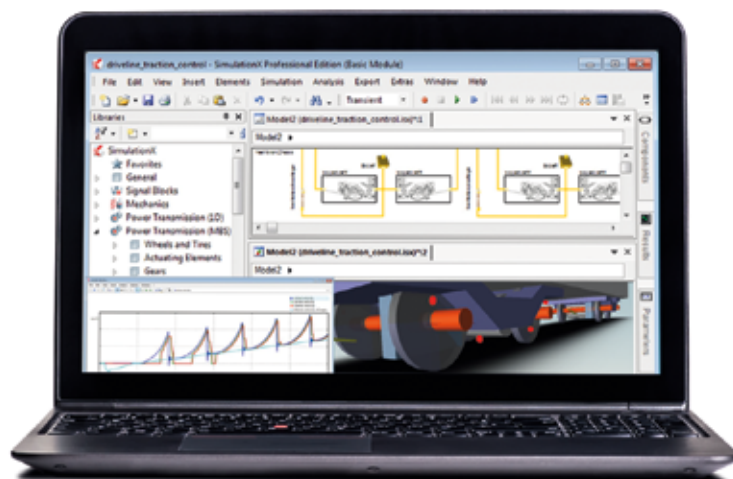
Accelerating Modeling Processes

Engineers and scientists rely on ESI ITI simulation products for the development of railway systems starting from concept through to testing. SimulationX is an intuitive 1D to 3D software platform beneficial for physical modeling, simulation and analysis of mechatronic railway systems.

Early in the design cycle, OEMs and suppliers model and analyze components, validate design choices and quickly exchange system models. SimulationX has long proven its excellent performance in combining drivelines, brakes and transmission, and facilitates the quick analysis and reliable evaluation of dynamic system behavior. This is achieved within one model and using one software platform, hence accelerating and simplifying the modeling and computation.

Multi-body systems | set up multi-body system models for locomotives.

Modeling | hierarchical modeling to view system setup and to simplify exchange and reusability of components.

Drivelines | 1D modeling of drivelines and coupling with the multi-body system.

Power transmission | friction model for power transmission from wheel to rail.

Control | modeling anti-slip and traction control including influence of sensors and sampling.

Interfaces | C-Code export, co-simulation or integration of external control codes such as traction control.

HiL simulation | assessing the performance of hardware before an actual implementation using real-time models.

Learn More:

esi-group.com/products/system-simulation

"SimulationX allows a flexible and fast engineering of heat dissipation and by this, it supports standardized as well as customized components."

Frank Seibicke,
PRINCIPAL ENGINEER/ INDUSTRY SECTOR DRIVE TECHNOLOGIES DIVISION, LARGE DRIVES DW
SIEMENS AG

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