



**ELMo<sup>®</sup>**

Unique software and hardware solutions

What is?

**ELMo<sup>®</sup>**

**ELMo<sup>®</sup>** (Electro-Mechanical Logic Modelling) is a simulation engine developed independently by Tritem - an innovative solution for fast and simple logical modelling of an electrical system. It digitises the testing of complex systems through automated simulations. Based on circuit diagrams, a library of parts and components and further documentation, a complete, fully functional logical simulation of the entire system or subsystem is generated on your PC via a connected controller.

The input data controls the simulated configurations via an adaptation of the respective model. A change in the read-in data therefore immediately leads to an adapted simulation scenario, with the possibility of modifying each individual cable or device.

The respective logical model communicates with other functional models and buses and makes it possible to manipulate each individual system component - the possibilities for creating test scenarios are unlimited. Flexibility and repeatability (in the regression testing) of simulation processes are massively improved as a result.

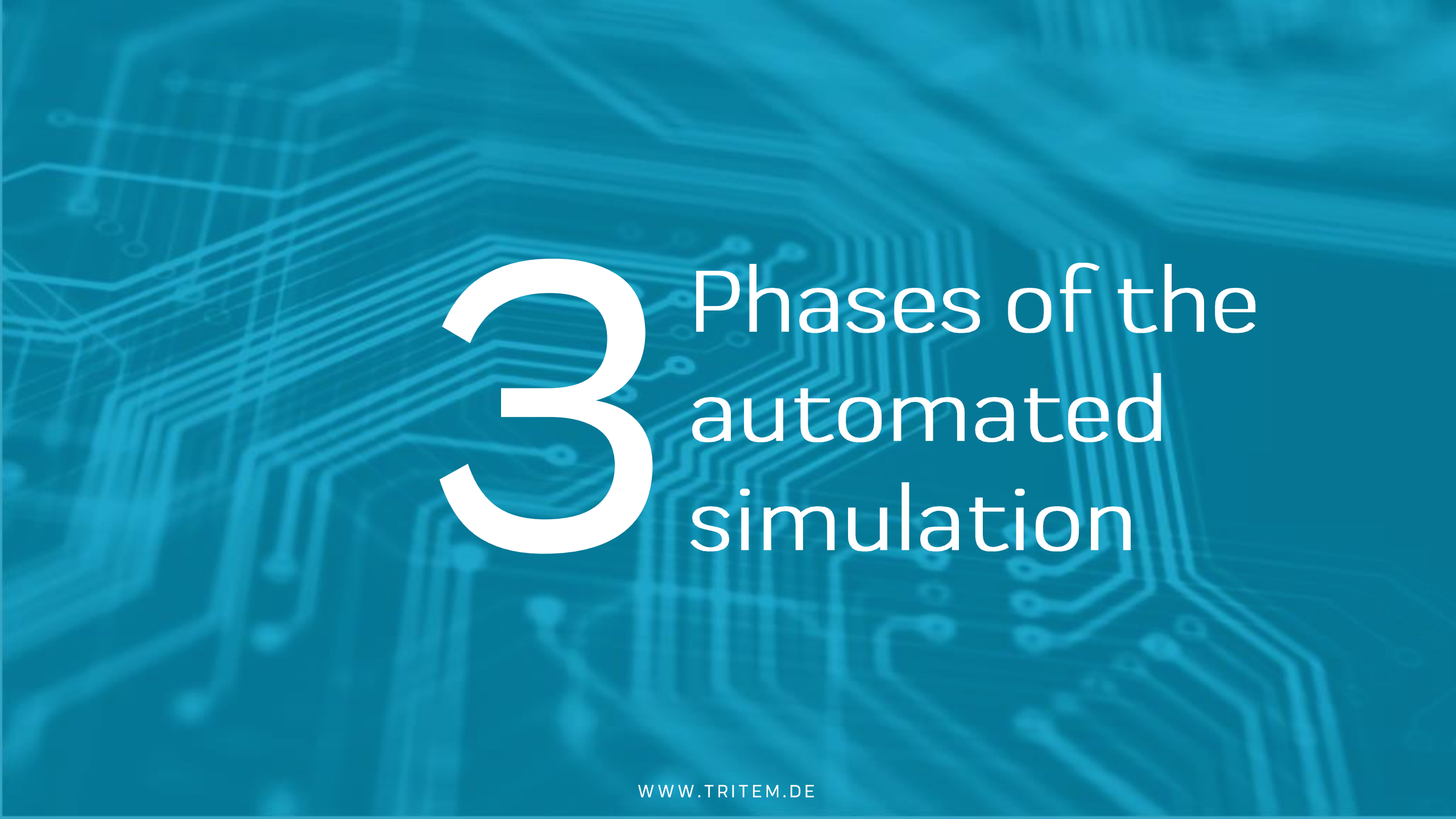
What is?

ELMo®

**ELMo®** only uses common formats and standards such as Jenkins or Excel. The underlying models, buses and CAD applications can be of any type and a corresponding interface allows the use of a wide range of test management systems. Existing models, such as SimuLink, Labview, etc., can therefore continue to be used without restriction. In addition, the connection to test systems such as NI etc. is supported.

Due to its unique architecture and powerful calculation algorithms, ELMo® is able to simulate even extraordinarily complex systems in real time - with any industry standard PC, without investing in specialised end devices. This makes the engine an incredibly powerful and cost-effective tool for development and validation.

Tritem offers the development of the simulator as well as the integration of all components from planning to commissioning of the automated test system as a integrated solution.



# 3 Phases of the automated simulation



## Connect

ELMo® real-time simulation can be run in National Instruments VeriStand with the Pharlap ETS or NI Linux Real-Time operating system. The ability to connect ELMo as part of a larger system allows designers and testers to benefit from a full range of NI hardware modules and I/O communication protocols such as ProfiNET, Profibus, MVB, CAN or OPC-UA to connect real-time simulation to DUTs.

ELMo can also connect to other simulation software or third-party test execution software via its own internal TCP/IP-based interface.



## Create

ELMo imports the circuit diagrams from various CAD tools such as Aucotec RUPLAN and ELCAD or Autodesk EAGLE. The clearly defined interfaces make importing files from other CAD tools simple and intuitive.

The extensive integrated ELMo model library contains many already prepared devices such as switches, relays, lamps or I/O devices. In addition to the supported basic components, ELMo is expandable to new user-defined components written in NI LabVIEW® - or can be written by the user.



## Verify

Perform thousands of tests automatically with the internal ELMo programming interface and enable instant validation of the electrical system and communication and control software.

Test automation can be easily performed using NI LabVIEW®, NI TestStand, Python or C programming languages.

220 different component types  
1,400 components  
120,000 cables  
250,000 connections  
4,300 ProfiNET signals  
Calculated in <50 ms\*

\*Desktop PC with NI Real-Time Phar Lap ETS 13.1, operating system Intel® Core™ i5CPU@24GHz, 3GB RAM



# MAIN FEATURES

- 1 Real-time modelling of the electrical system
- 2 Automatic configuration based on circuit diagrams
- 3 Runs with VeriStand from NI

# INTERFACES



TCP/IP connection for automated testing (Raw TCP/IP, Telnet, WebSocket)



User-friendly tools for manual tests



Built-in interface to NI VeriStand

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