Final Event 24-25<sup>th</sup> of May 2022

Industrial feedback

## Typhoon HIL Industrial Feedback







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### Typhoon HIL in PANDA



Opportunity to learn from and collaborate with key players in the Automotive/e-mobility market

#### **☞** Real-time V&V solution provider for the project

- Hardware solution for Power Hardware-in-the-Loop (P-HIL) tests
- Hardware innovations

#### Software related development

- **©** EMR Library
- Demonstration of cloud-based co-simulation of a full electrical vehicle
- Work with multiple softwares or standalone.











### HARDWARE - Building the real-time testbeds



#### Modular solution that:

- Fits in a standard testbed
- Works for both physical and cloud-based tests
- Meets partner-specific specifications



- Support for connecting e-drive system substages
- Connection with dSPACE controllers
- The HIL Connect 2
  - Support for Cinergia power amplifiers and thermocouples for battery testing
  - © Connection with dSPACE modules
- Contributed to new <u>interface product</u> development.





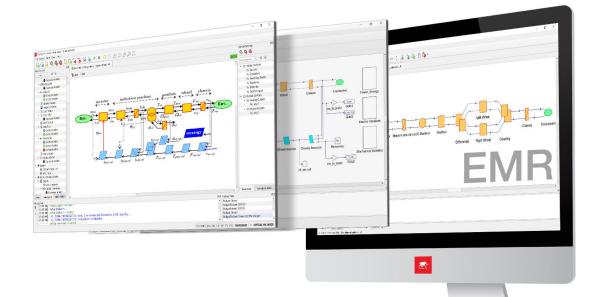




### SOFTWARE - New ways of using components



- Opportunity to develop the EMR formalism further
  - Collaboration on the EMR summer school
  - © EMR library available for download for free
  - Simcenter AMESIM-Typhoon HIL EMR converter tool greatly reduced time to build HIL models
- Fuel cell component in sources library
- © EV components library
- Communications library
- 3 3rd party SW tools integration























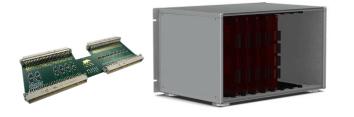
## Looking beyond PANDA...

#### **NEW HW PRODUCTS**

- Voltage buffer interface card UTCN
- Modular HIL Connect interface



- University partners HIL facilities
- Showrooms and training rooms
- Siemens-Amesim cooperation
- Approaching joint existing EV customers with new functionalities









# Thank you for your attention!

#### www.project-panda.eu



























