

Electrification Hub – topics and opportunities

DRIVELINE

- Smart control
- Next generation propulsion
- Maintenance and propulsion
- Energi efficiency

TEST & VERIFICATION

- Simulation, test & verification
- Enhanced test and verification

INDUSTRIALIZATION

- Production approach
- Life-time management
- Implementation speed and standardization

ON-BOARD ENERGY STORAGE AND CHARGING STRUCTURE

- Charging
- Battery development
- Battery implementation approaches
- Optimization of charging approaches

SYSTEM DEMONSTRATORS

- Smart cities/transport systems
- Logistic operators and systems, nodes for reloading
- Sustainable mines and worksites
- Railsystems
- Harbour
- Electric farm

ENABLERS AND FRAMEWORK FACTORS FOR ACCELERATION

- Business models and ownership structure
- Adopting operational models in rapid transformation
- Policy development
- Digitalization, enabling technologies
 - AI
 - Cybersecurity
- Legal conditions
- Contextual factors
- Transformation management

MARKETS & INTERNATIONALIZATION

- Market entry strategies
- Business case development
- Behaviors and adoption strategies
- Work structures and processes

Examples of themes and topics

ENERGY AND STORAGE SOLUTIONS

- Predictive energy management of fuel cell machine
- Predictive control of fuel cell machine under sourced power system department
- Hybrid distribution transformers
- High voltage particularly HVDC: Measuring volume and surface resistivity under different humidity and temperature conditions.
- Renewable electricity production, HVDC
- Battery charging optimization across different application areas

CIRCULAR ECONOMY

- Second life batteries and the role of AI in business models
- Circular economy – Life cycle analysis of components, and sub-systems, eg when is it time to switch application for batteries

POWERTRAIN

- NVH analysis and optimization of an electric powertrain
- Powertrain installation
- SiC Switch thermal modeling and overload capability assessment

DIGITALIZATION AND AI

- Machine Learning for the early detection of faulty bushings in the manufacturing process.
- Physics-Informed Neural Networks for thermal modelling in power transformers
- Time Sensitive Network (TSN) Configurations on Network Performance in Real-Time Communication
- Investigation of IEEE 802.1 Time-Sensitive Networking (TSN) for applications in Power systems automation

IMPLEMENTATION OF SOLUTIONS - ELECTROMOBILITY

- Developing the business case of a fully electrified construction site
- The effect of current regulations and incentives on the adoption of electrified machines in ports

MARKETING, DESIGN AND INNOVATION

- Messaging and channels to communicate the opportunities and challenges of electrified machines to real estate developers.
- Identifying models and setups to marketing and develop opportunities for Sweden/Korea collaboration on technology development
- Designing new business models for startup/large company collaboration within electrification and energy solutions