THEME- C: SESSION-2 DIGITALIZATION OF UTILITIES, DIGITAL TWINS AND DIGITALIZATION ROADMAPS

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Introduction

Dynamic Documentation
- Find the doc. you need in seconds through interactive 2D/3D filtering together with the spatial viewer module
- Upload and manage all files
- State-of-the-art matching and tagging functionality

Training
- Complete training program can be uploaded
- 3D or VR training with no risks attached
- Dynamic way to create an experience database

Asset properties
- 3D BIM data directly from CAD
- BOM, spares, 3rd party product information
- Currents, loads, voltage levels, network and more

Edge Intelligence
- Data subscription from Main comp. based on signal subscription through MIMS
- IoT real time data and aggregation and storage
- REST-APIs, OPC, Modbus and custom.

Flexible integrations
- 3rd party system integrations
- Pick and choose modules
- Combine features based on your needs
- Customize the dashboard based on the relevant persona

Spatial Navigator
- Detailed dynamic 3D and 2D models in the dashboard
- Connect and pair 3D and 2D models with asset files, signals, alarms and events

Timeline scheduler
- Past, present and future user activities
- Connect files and models to a specific point in time
- Plan and add upcoming tasks

Safety
- HSE color perimeters in 3D for transparency and clarity
- Preparation in 3D before doing it in reality
- Supports work activities e.g., lockout tagout procedures
- Improve your muscle memory

Analytics & Reports
- Reliability & Availability risks transparently analyzed with state-of-the-art methods
- Supports Reliability Centered Maintenance
- Automated reports generated by the system for deeper insights

Plant Disturbance Analyzer
- Fast and easy time series analysis using high resolution Transient Fault Recordings
- Automated uploads of TFRs

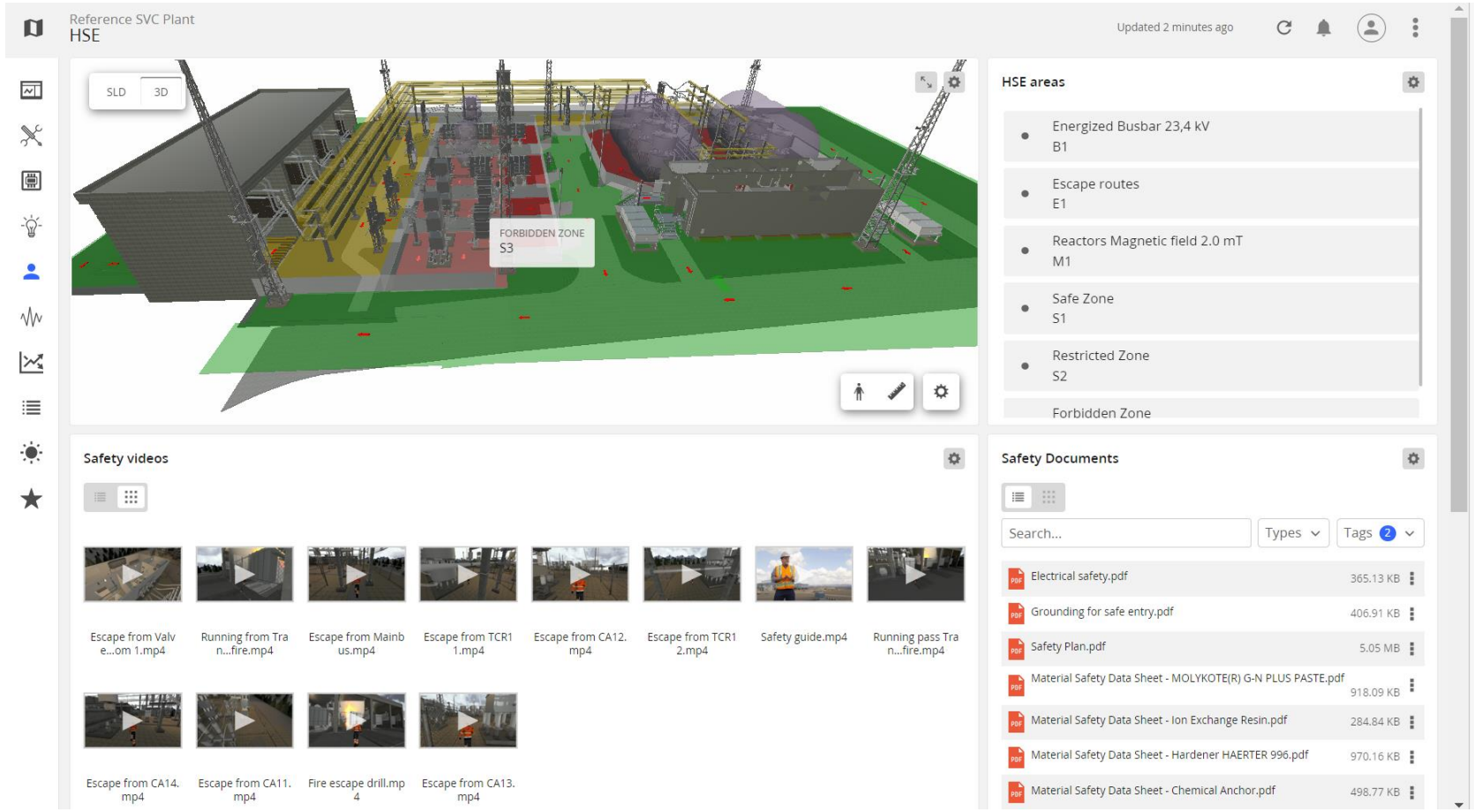
Relevance

- Digital Twin **IdentiQ** platform is an integration of different modules that cohesively stand together to provide standalone and combined functionality.
- These are developed using concepts of artificial intelligence and thereby possess an intuitive user interface allowing a smooth and easy-to-understand navigation throughout the system.
- The feasibility to incorporate a spatial navigator on the platform for the visual representation of 3D/2D model along with the timeline scheduler can be used for tracking the history of activities while also, enabling the planning of the upcoming activities.
- **IdentiQ** supports creation of an experienced and an interactive database for all dynamic documentation purposes and easy maintenance.
- The mapping of asset and properties to the corresponding documents enables easy access and continuity of workflows.
- IdentiQ supports training documents in the form of different media files like virtual or augmented reality ensures to make this platform a virtual training tool enabling upskilling of personnel effectively
- Reliability and availability risks are transparently analyzed with the state-of-the art methods using analytics and reports.
- Customization for 3rd party software integrations enables easy collaboration using the platform.

- IdentiQ: Step into clarity

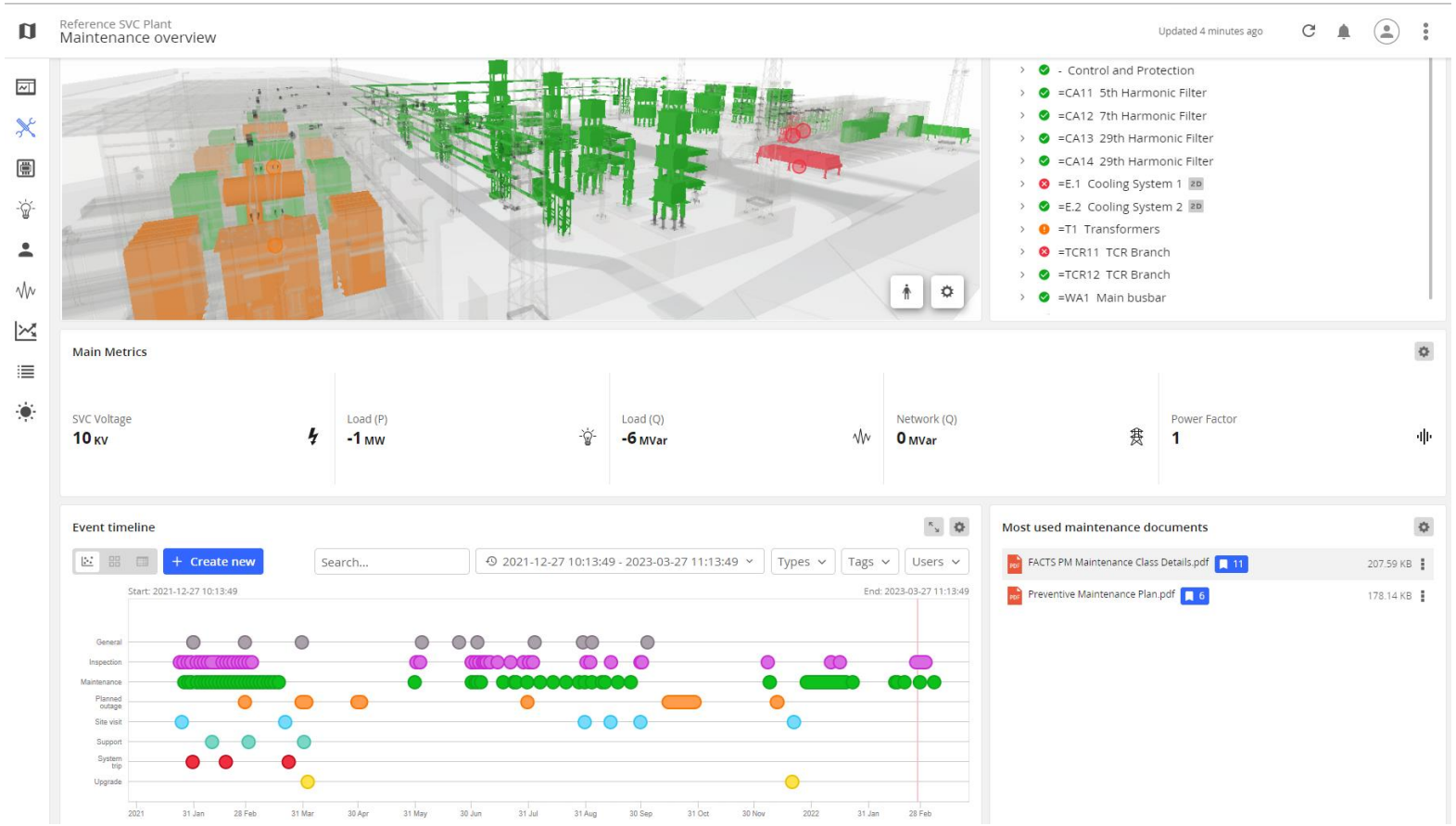
HSE, Training, Documentation

- Color perimeters to differentiate different zones
- Escape route is from each area can be captured.
- Safety course materials and safety documents are supported for educating and creating awareness in a more visual and dynamic way.
- Training videos, AR/VR, photos and various integrated tools
- Supports different and standard documentation, files
- Training manuals, book marking, easy access



Asset Performance Management

- Asset management helps the user to deep dive into each asset
- Type of activities on the asset like maintenance, inspection, planned outage, system trip.
- The user can change the timeline accordingly.
- System events and alarms
- All available drawings and documents related to the asset.
- Color coding for representing health status.
- History of activities on an asset can be tracked.
- Future activities on an asset can also be scheduled.



Asset Performance Management

- Visualization based on the data from the system.
- Performance KPIs, actual vs targeted, impact analysis, analytics, pro-active actions.
- RAM (Reliability Availability Management)
- Upgradation for lifecycle enhancement
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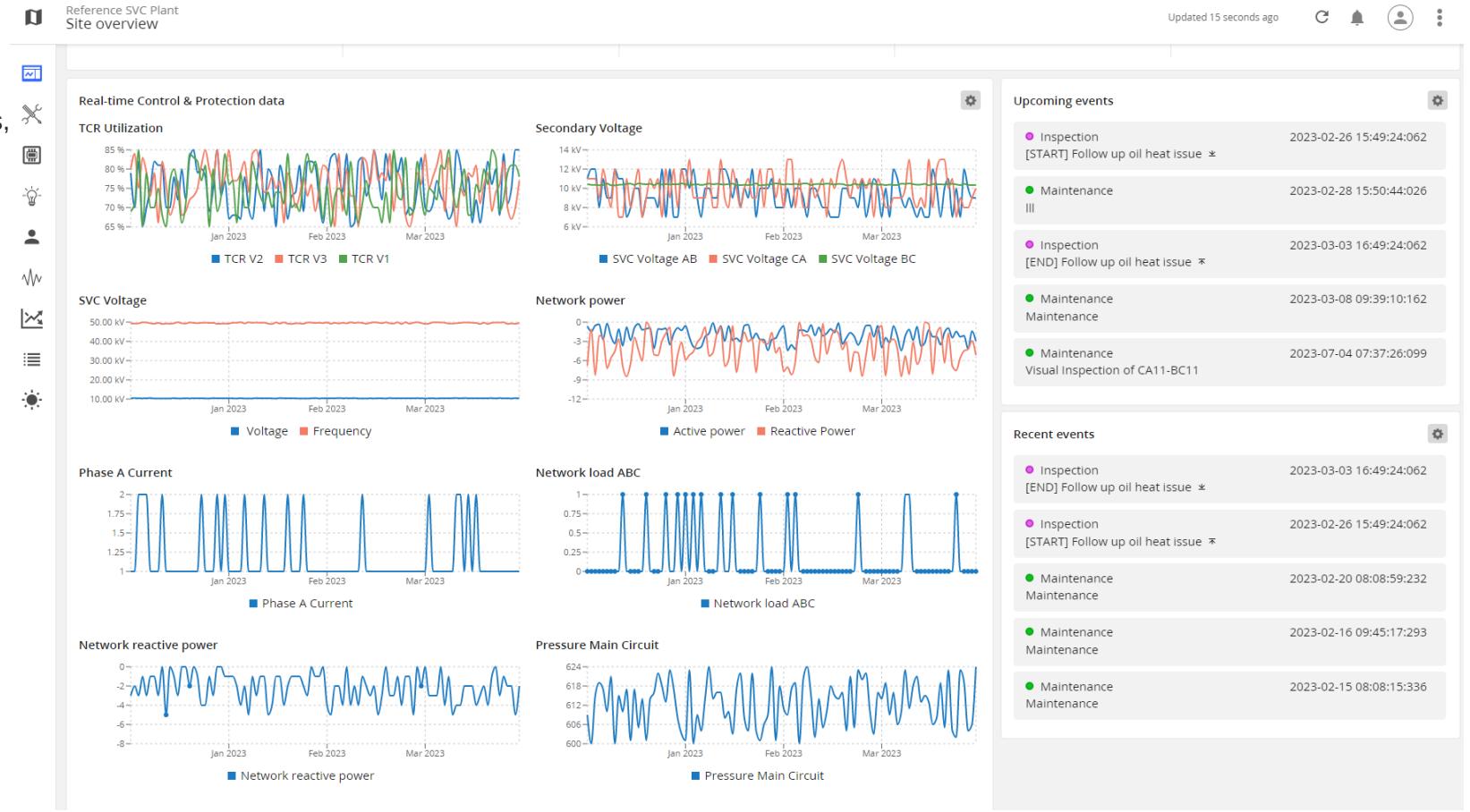
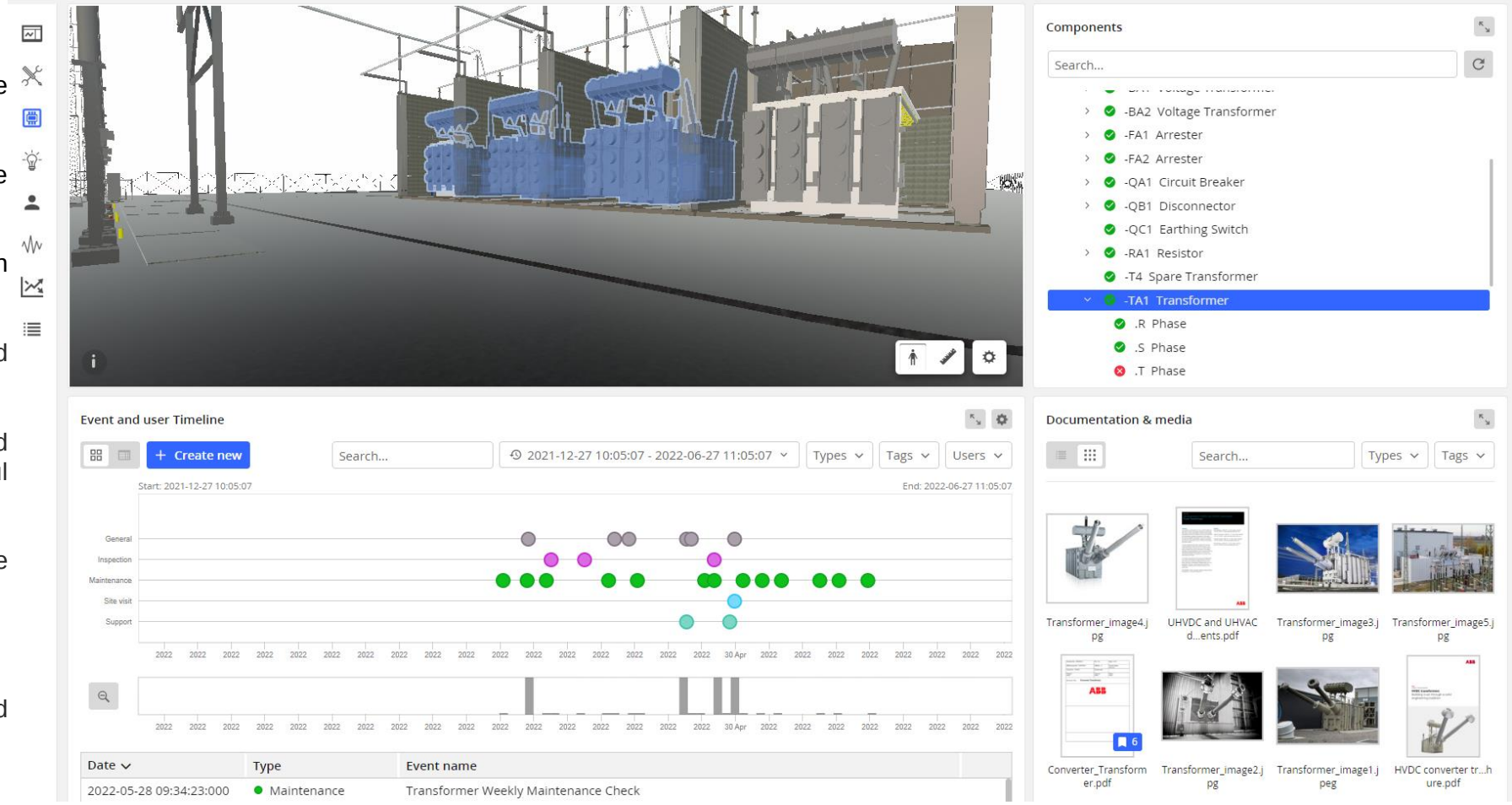
- Upgradation for performance enhancement.



Use Case

Digital Twin for City infeed HVDC Station

- A power outage or blackout can result in a massive economic loss in any METRO city.
- VSC HVDC systems ensures a secured, reliable and green power supply.
- IdentiQ enables the life cycle management of such city infeed HVDC station.
- IdentiQ improves the asset performance and trouble shooting time, reduce the downtime etc.,
- The historic data on any critical asset can be used to analyze the performance, providing meaningful insights.
- IdentiQ brings every information under one platform.
- Safety trainings are optimized.
- Planning the site activities in simple and transparent way



Key Takeaways/ Recommendations

- Key Takeaways/Recommendations:
- Digital Twin based IdentiQ platform enhance the performance KPIs, efficient life cycle management of critical infrastructure like HVDC station.
- IdentiQ representing the complex HVDC stations and provide information in short time, more intelligent and transparent way
- IdentiQ is very useful in HSE, Training and documentation management
- IdentiQ built in with activity based Scheduling, Intelligent and pro-active measures for handling emergency, diagnostic tools for analysing faults etc will help in improving the asset performance
- Analytics tool based RAM management will help to improve the asset performance by minimising the down time

Thank You

For discussions/suggestions/queries email: ***isuw@isuw.in***

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Links/References (If any)