WITH ELEVATORS TO THE TOP
FROM A LOCAL TO A GLOBAL STANDARDAZATION & AUTOMATION IN ENGINEERING

Nuria Alvarez | 26.09.2024 | Eplan Forum 2024

TKE MOVE BEYOND

ABOUT ME

- Industrial Engineering in Electronics and Automation
- Master in Business Administration
- PMP certified

20y experience in Elevator Industry R&D

Engineering Processes & tools

- Product Development
- Product Standardization
- Product Configuration
- ECAD/MCAD/PDM
- System Integration

Organization – Improvement - Project Management

Passionate about implementing innovative and streamlined engineering processes to sustain and develop company competence

Nuria Alvarez

Project Manager (PMP)

Engineering Tools. ECAD Tool lead

TKElevator

ABOUT ELEVATOR INDUSTRY

18 mn

elevators and escalators move more than

1 bn

people every day

ABOUT TKE

50,000+

We are a team of over 50,000 colleagues

24,000+

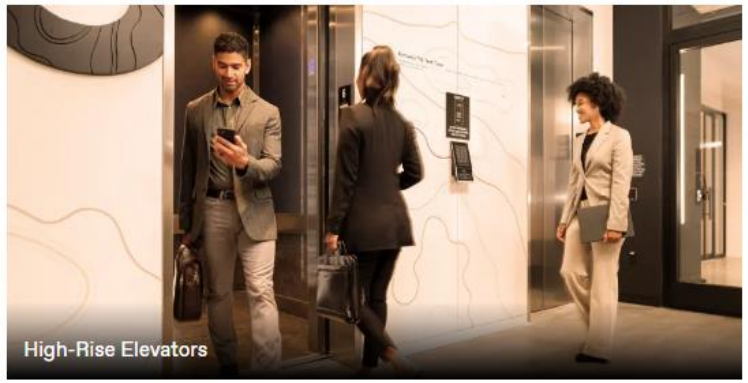
With more than 24.000 best-trained technicians

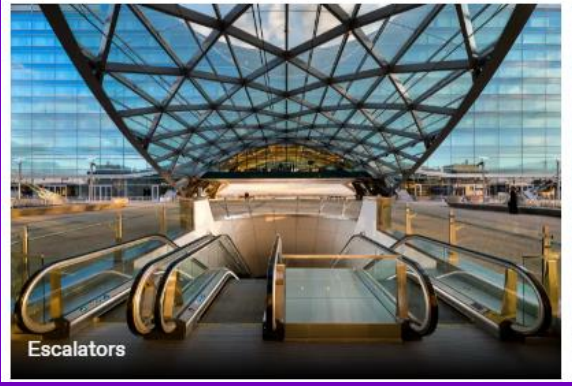
100+

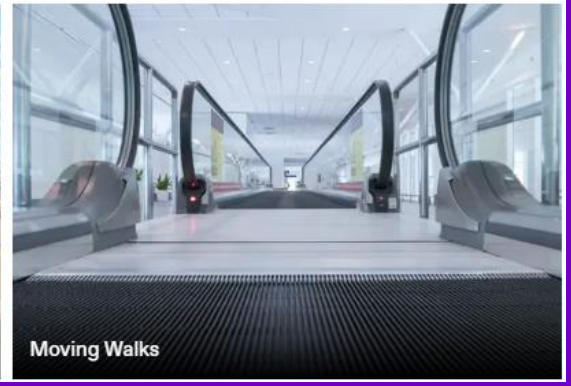
We serve customers in over 100 countries

1,000+

From more than 1,000 locations worldwide







ABOUT TKE

Striving to move the world

Shape cities of the future

Making life easier, more efficient and comfortable

"People"

"Passion for technology"

"Sustainability"

"Industrial leading portfolio"

"Digitalization"

ELEVATOR BUSINESS PARTICULARITIES

HIGHLY CONFIGURABLE PRODUCT. DEPENDENCIES

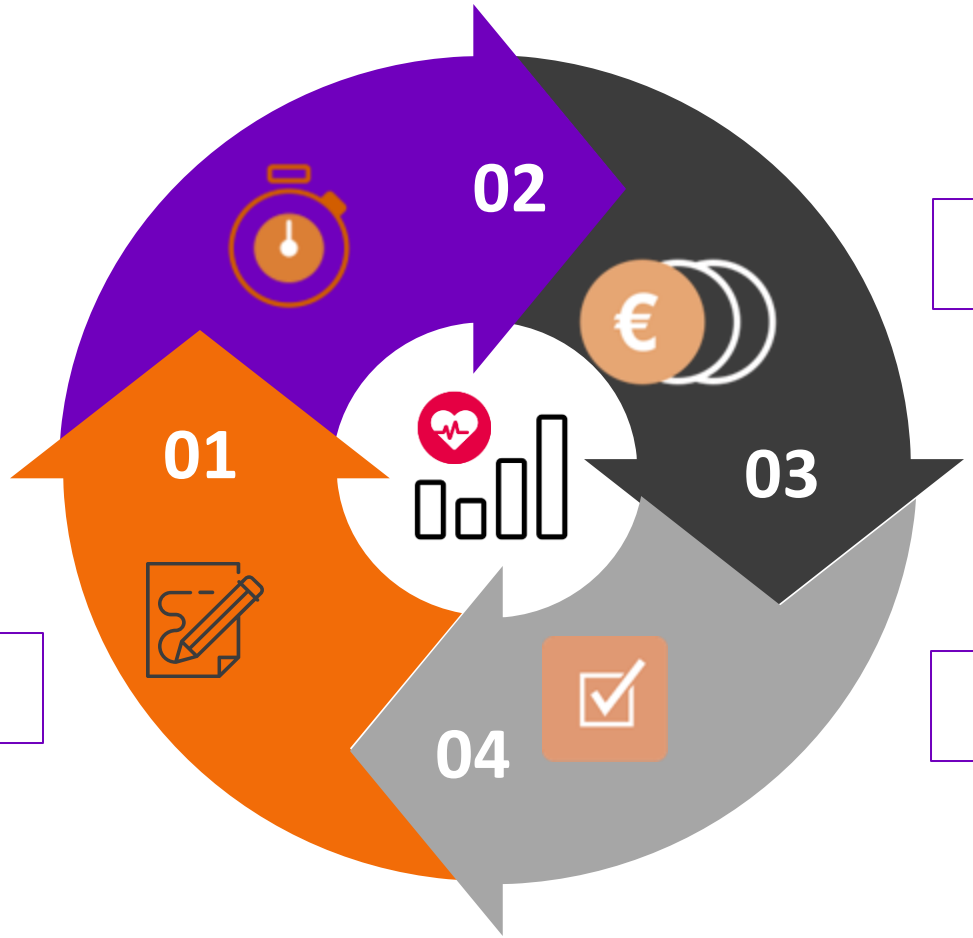
- Options & variants
- Local regulations
- Different markets & Countries
- Elevator shaft in Building

ELEVATOR BUSINESS PARTICULARITIES

HIGHLY CONFIGURABLE PRODUCT. MEET CUSTOMER NEEDS

Delivery time

Cost



Configured Product

Quality

ELEVATOR BUSINESS PARTICULARITIES

HIGHLY CONFIGURABLE PRODUCT. HOW?

Delivery Time

ETO

Engineering to Order

15%

AUTOMATE ENGINEERING

85%

CTO

Configure to Order

Delivery Time

Manual Engineering Process

Touchless system from Order to Manufacturing

ELEVATOR BUSINESS PARTICULARITIES

HIGHLY CONFIGURABLE PRODUCT. HOW?

Time-to-market

Product Lifecycle management

Standard Product Development

Product Design

Industrialization

Customer Order

Product Configurator

Configurable product

150% Standard Product

Options and variants

Modular and Parametrized Design

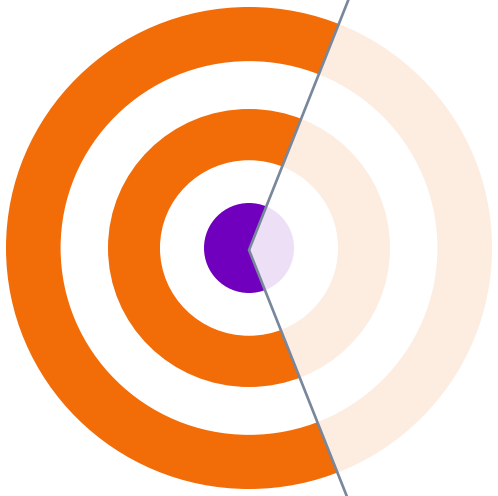
Automated Product Configurator

MOVE BEYOND

SELECTING THE DESTINATION
TOWARDS A COMMON ELECTRICAL PLATFORM

ANALYSE BUSINESS CHALLENGE

BUSINESS GOALS

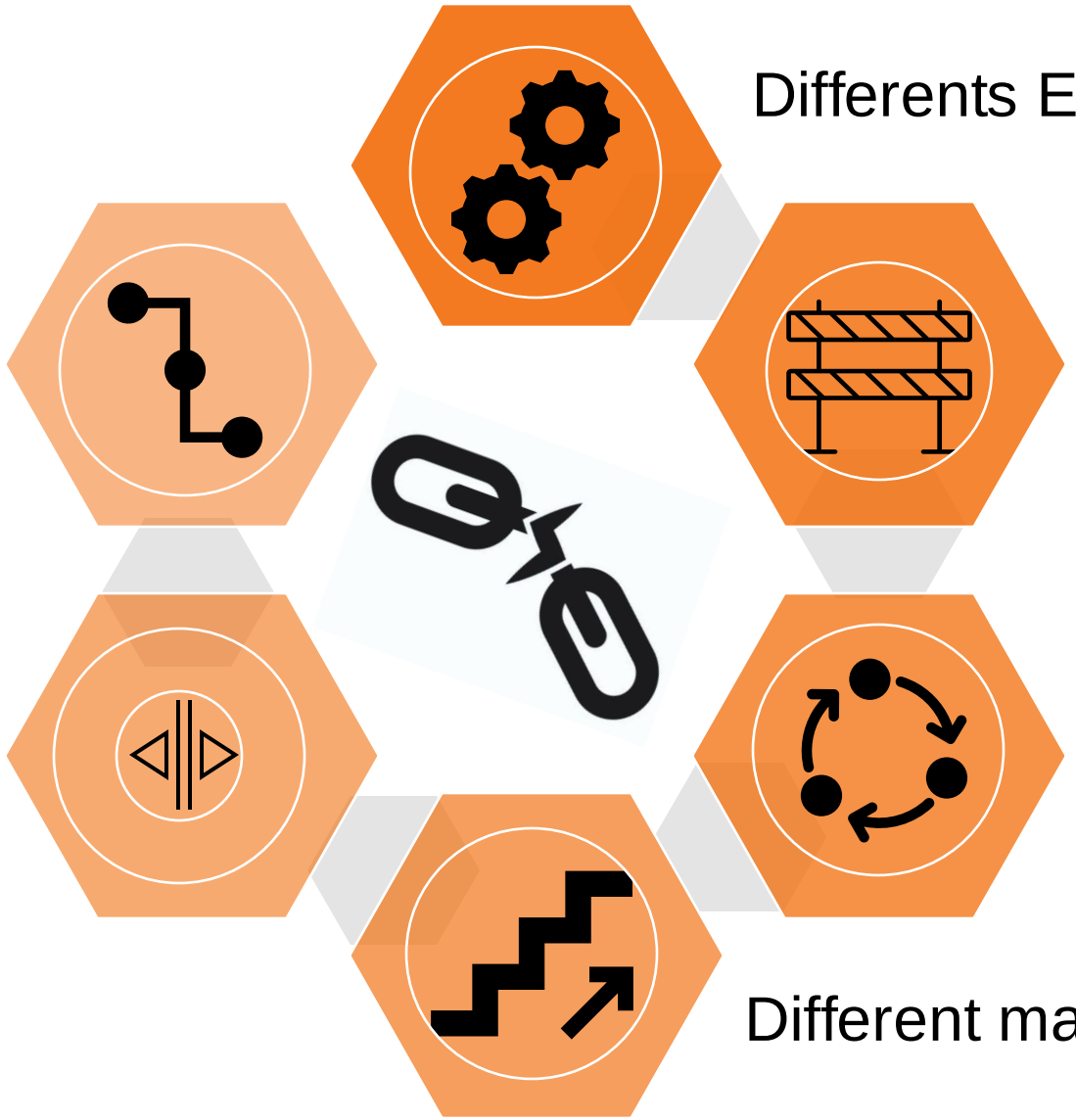


- Efficient Collaborative Design
- Global Product Platforms
- Portfolio Rationalization
- Reduce Time to Market

Ensure Electrical Engineering Automation

ANALYSE BUSINESS CHALLENGE

AS IS (2020)



Differents ECAD & Platforms

Barriers for design collaboration between sites

Manual Efforts and rework

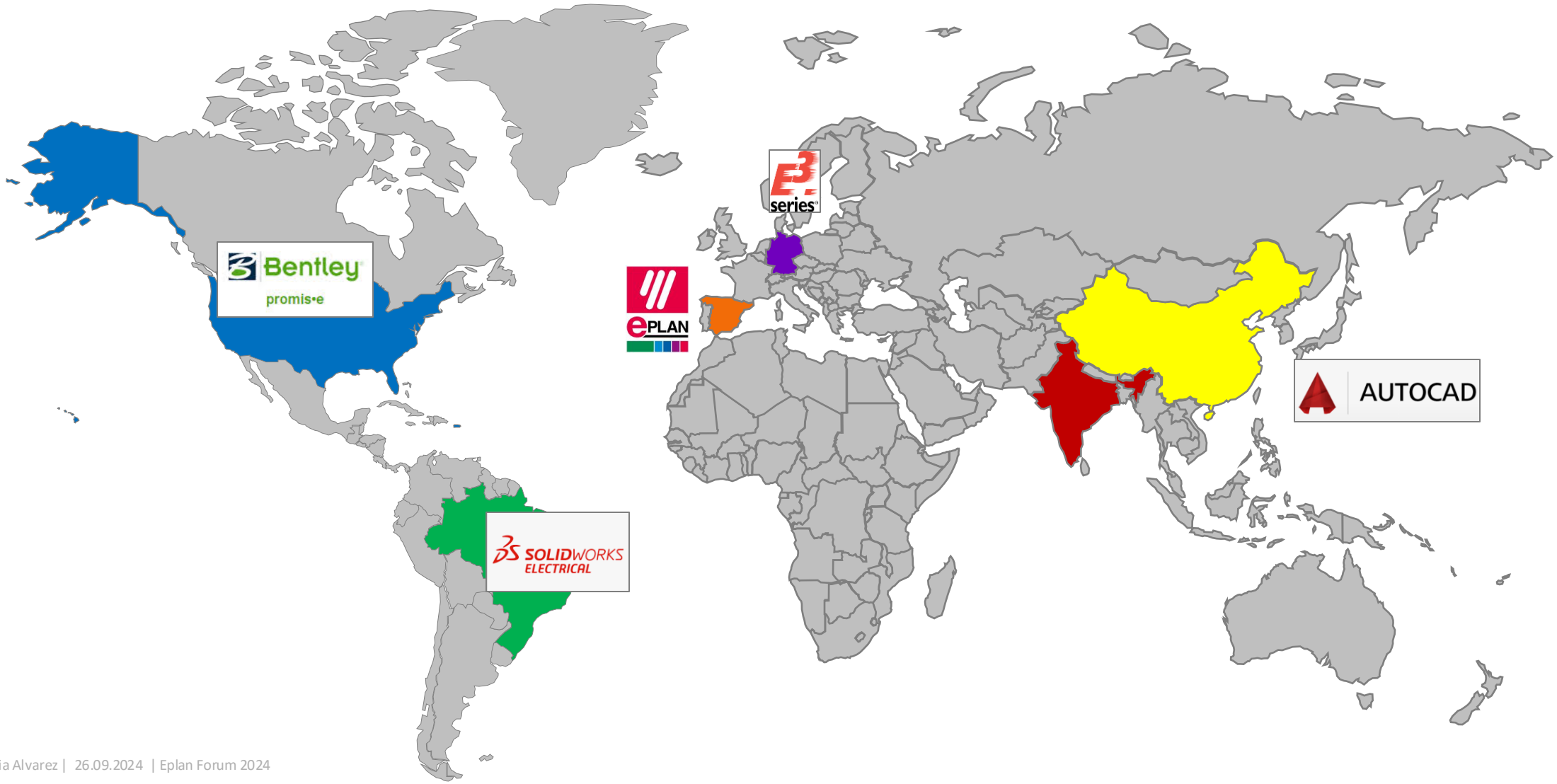
Different maturity levels

MECH vs ELECTRICAL separate BOM´s

Poor integration R&D and MFG

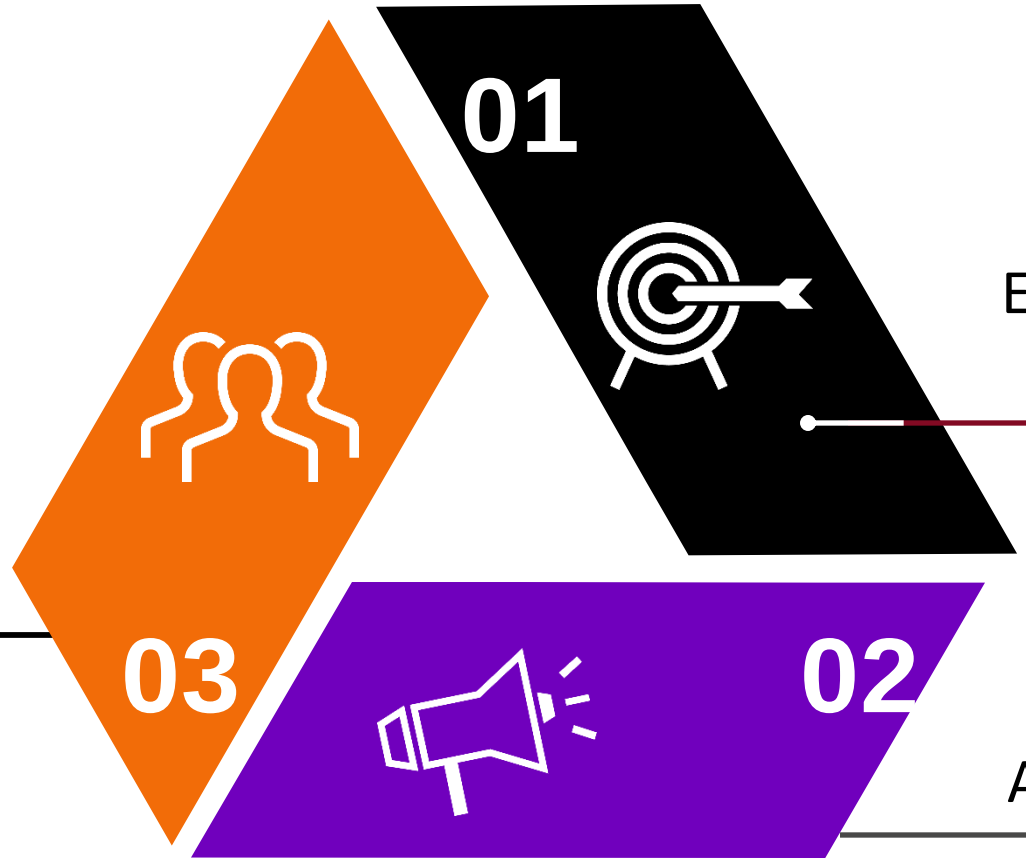
ANALYSE BUSINESS CHALLENGE

AS IS (2020)



ANALYSE BUSINESS CHALLENGE

TO BE



ECAD tool Harmonized
Integrated in TKE IT

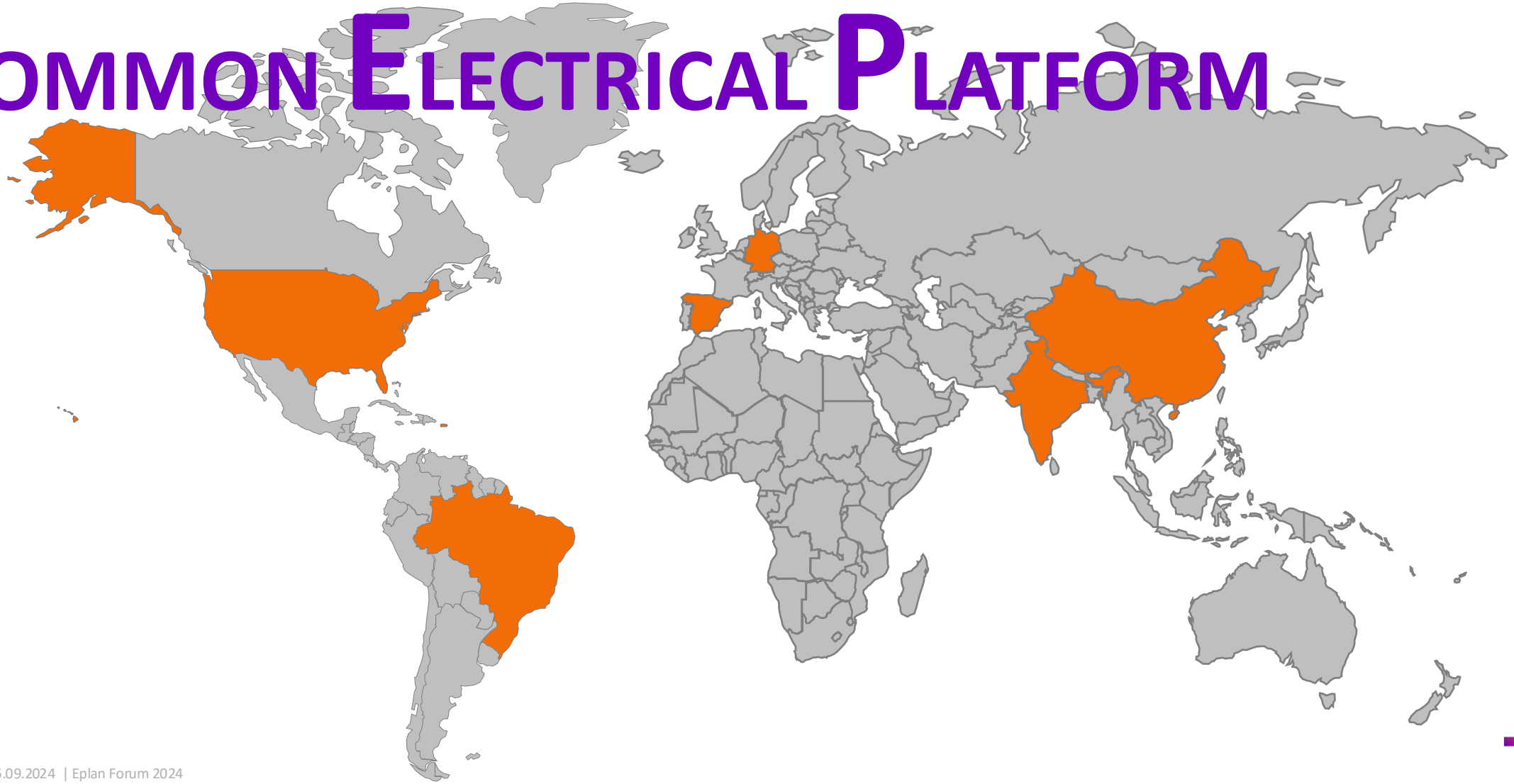
TKE Electrical Design
standards

Automation & Integration

ANALYSE BUSINESS CHALLENGE

TO BE

COMMON ELECTRICAL PLATFORM



TRAVELLING. DEALING WITH ENABLERS AND CHALLENGES

ECAD TOOL SELECTION
ANALYZING AND BENCHMARKING PROCESS

DEPARTMENTS

- Development (PDC)
- Manufacturing (MFG)
- Service (FLD)
- Information Technology (IT)
- Procurement (PSM)

SITES

- Korea
- China
- India
- Spain
- Germany
- Brasil
- US

REQUIREMENTS

- Functional requirements
- IT Architecture
- Integration with Tools
- License Model
- Global support
- Maturity and Market presence

ECAD TOOL SELECTION
MAKING DECISION

Functional assessment

IT assessment

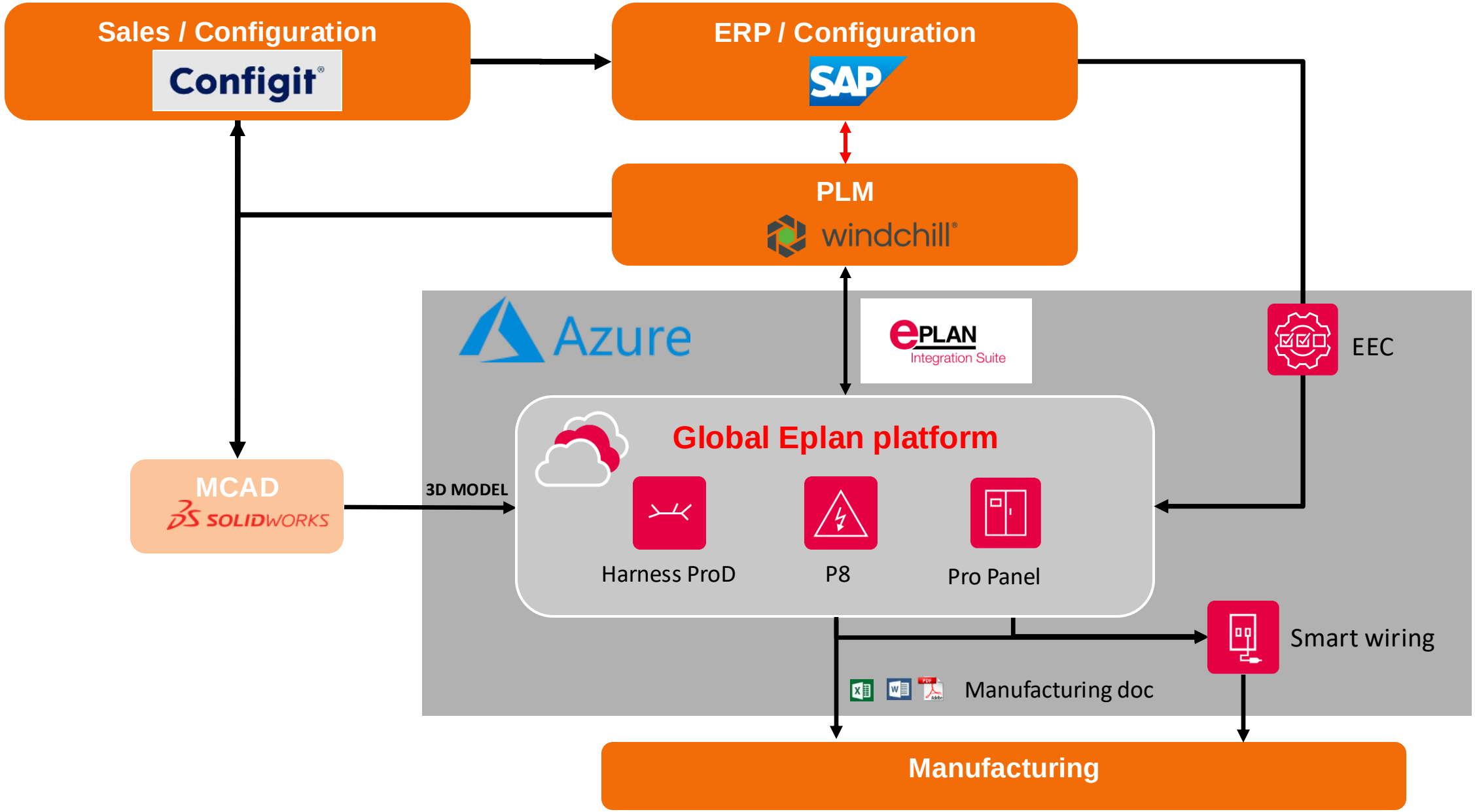
PSM

ECAD TOOL SELECTION

WHY EPLAN. KEY DIFFERENTIATORS

- Standard Product Portfolio
- Integration with TKE Tools
- Global Support
- Experience in TK group
- Presence in the market

SOLUTION. DEFINING PROCESS AROUND EPLAN



SOLUTION. DEFINING TKE ECAD STANDARDS

ET GLOBAL ENGINEERING STANDARD

TPT_1.2.1. Document: ET- ECAD Global Governance Process

TPT_1.2.2. Document: ET- Part creation and management

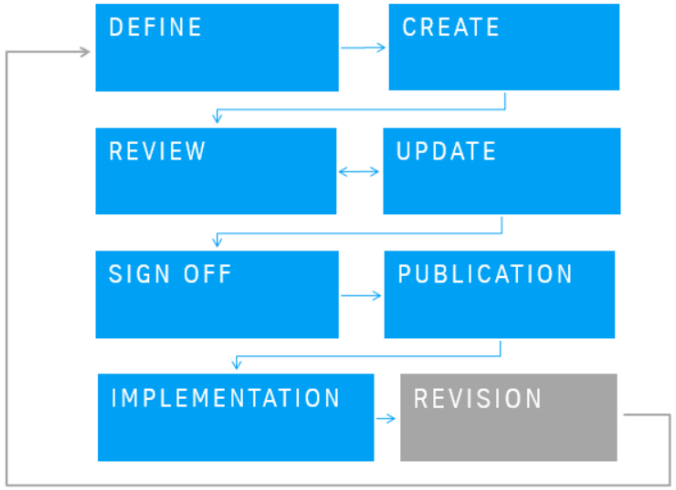
TPT_1.2.3 Document: ET- Schematics Drawing Guideline

TPT_1.2.4. Document: ET- Layout Drawing and Cabinet Harnesses

TPT_1.2.5. Document: ET- 3D Harness guideline

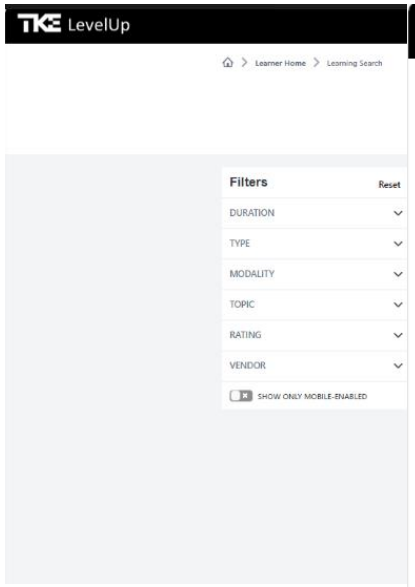
TPT_1.2.6. Document: ET- ECAD Drawing Configuration

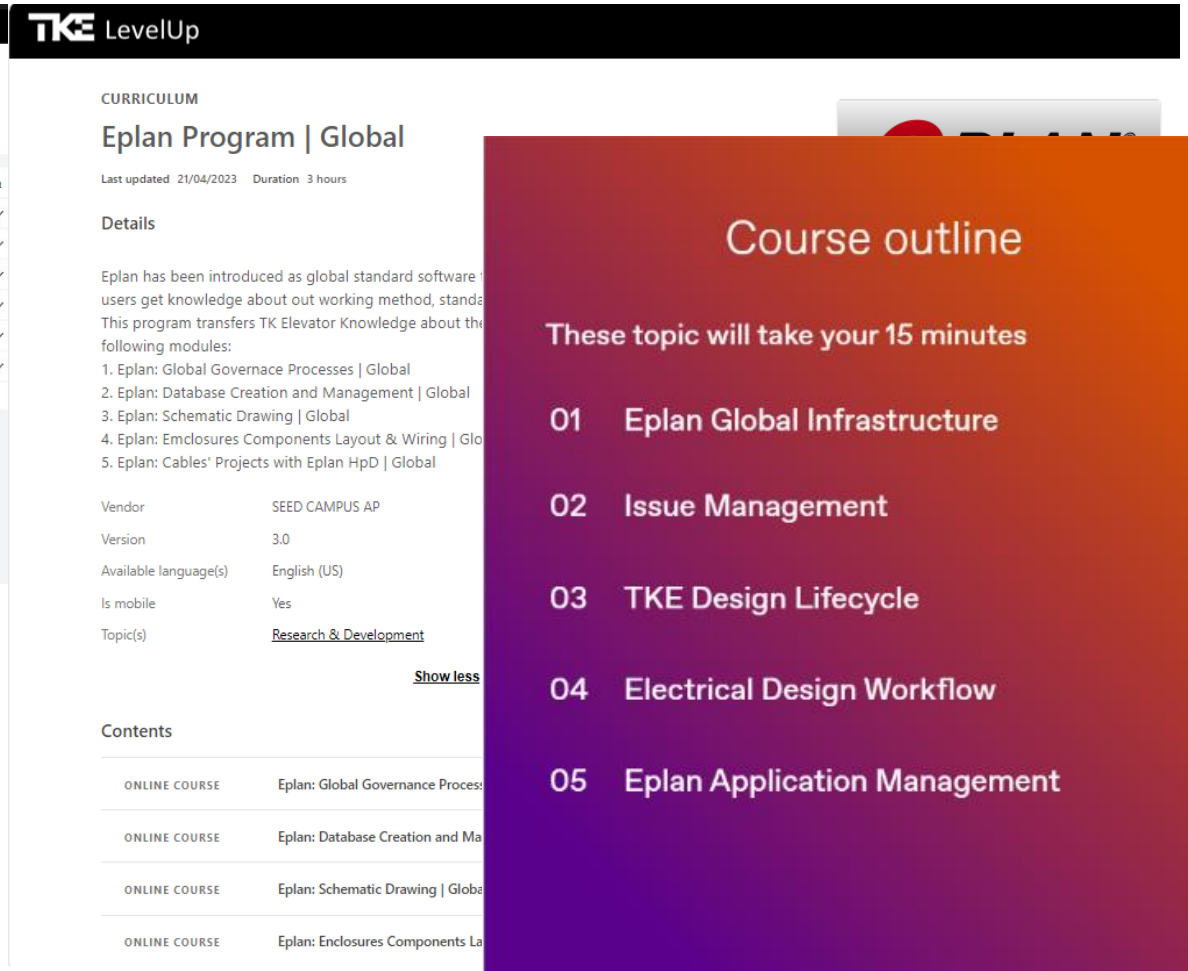
Guideline Creation Process

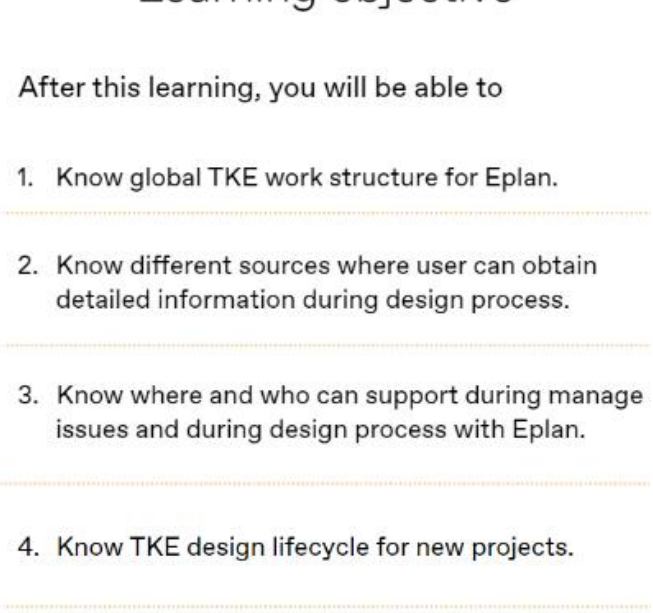


SOLUTION. PROMOTING AND ENSURING TKE ECAD STANDARDS

ELEARNING FOR ECAD TKE STANDARDS



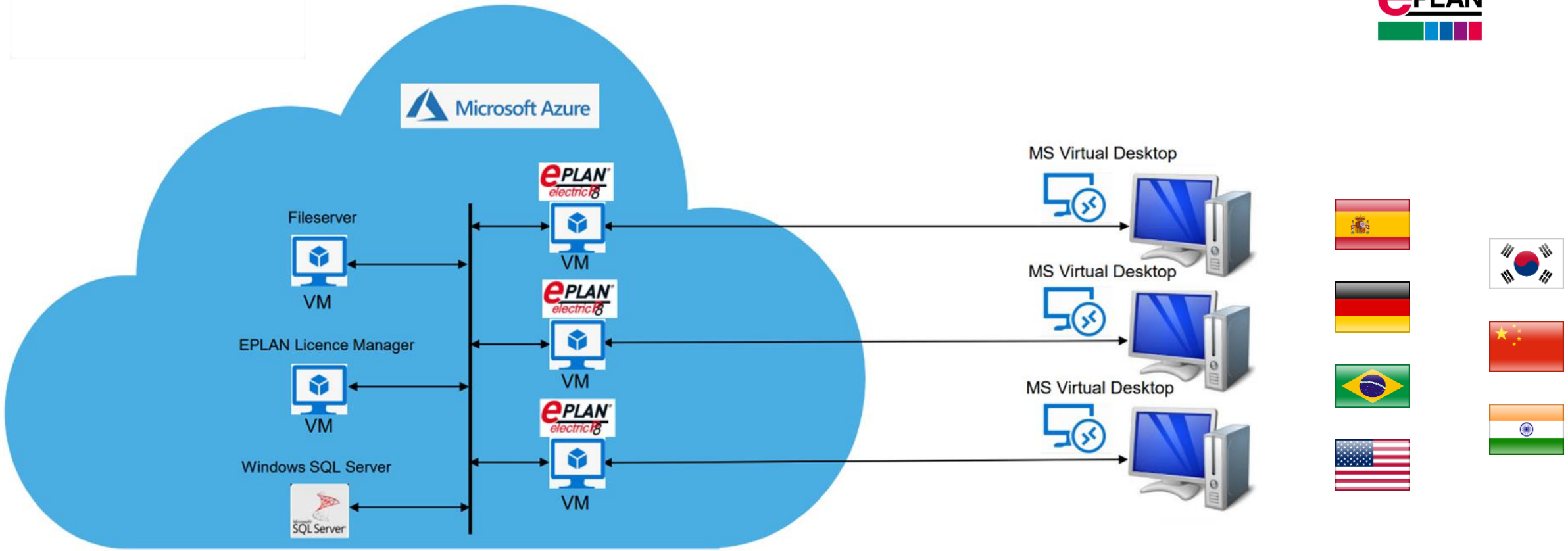




IT ARCHITECTURE FOR A COMMON ELECTRICAL PLATFORM

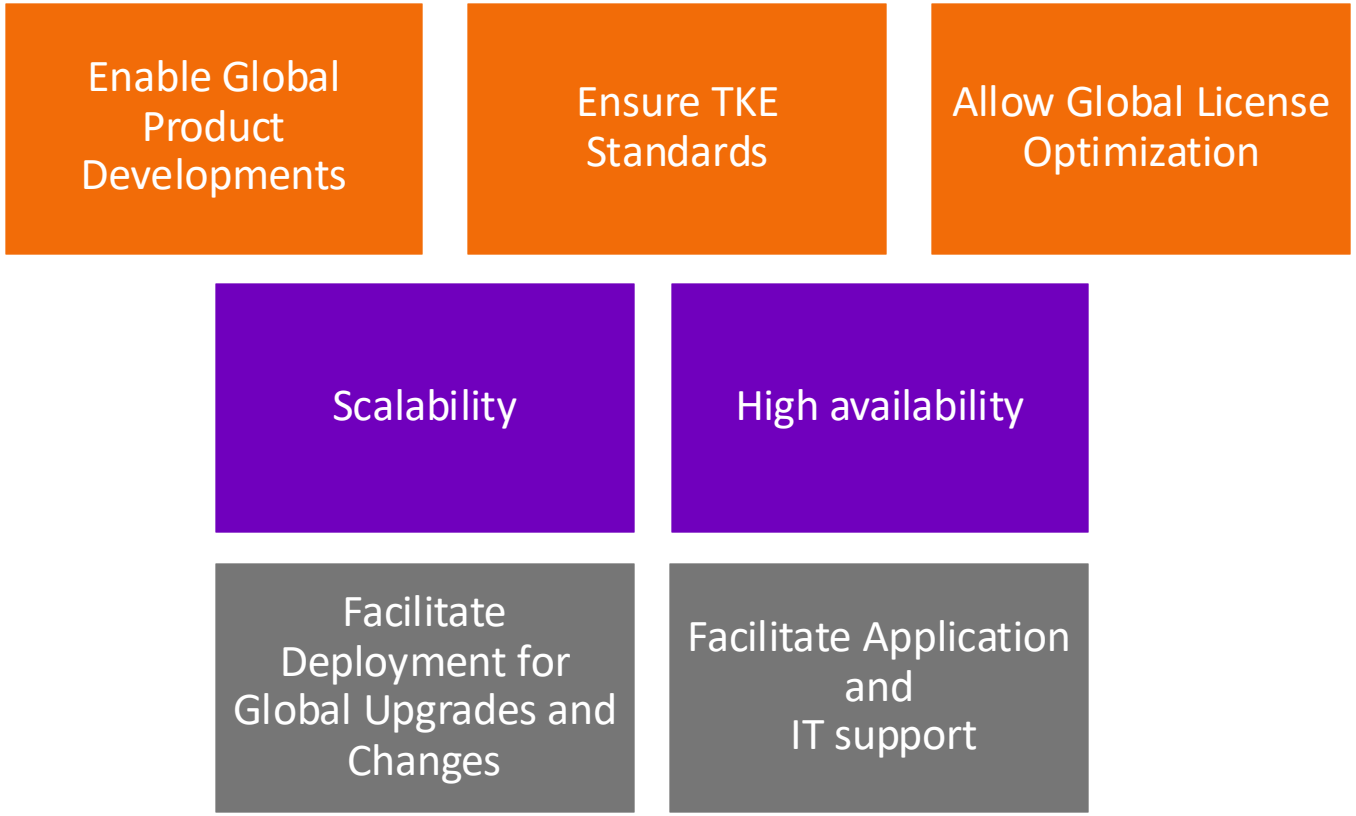
ENABLING CONCURRENT DESIGN AND GLOBAL STANDARD MASTER DATA

Eplan in Azure Virtual Desktop



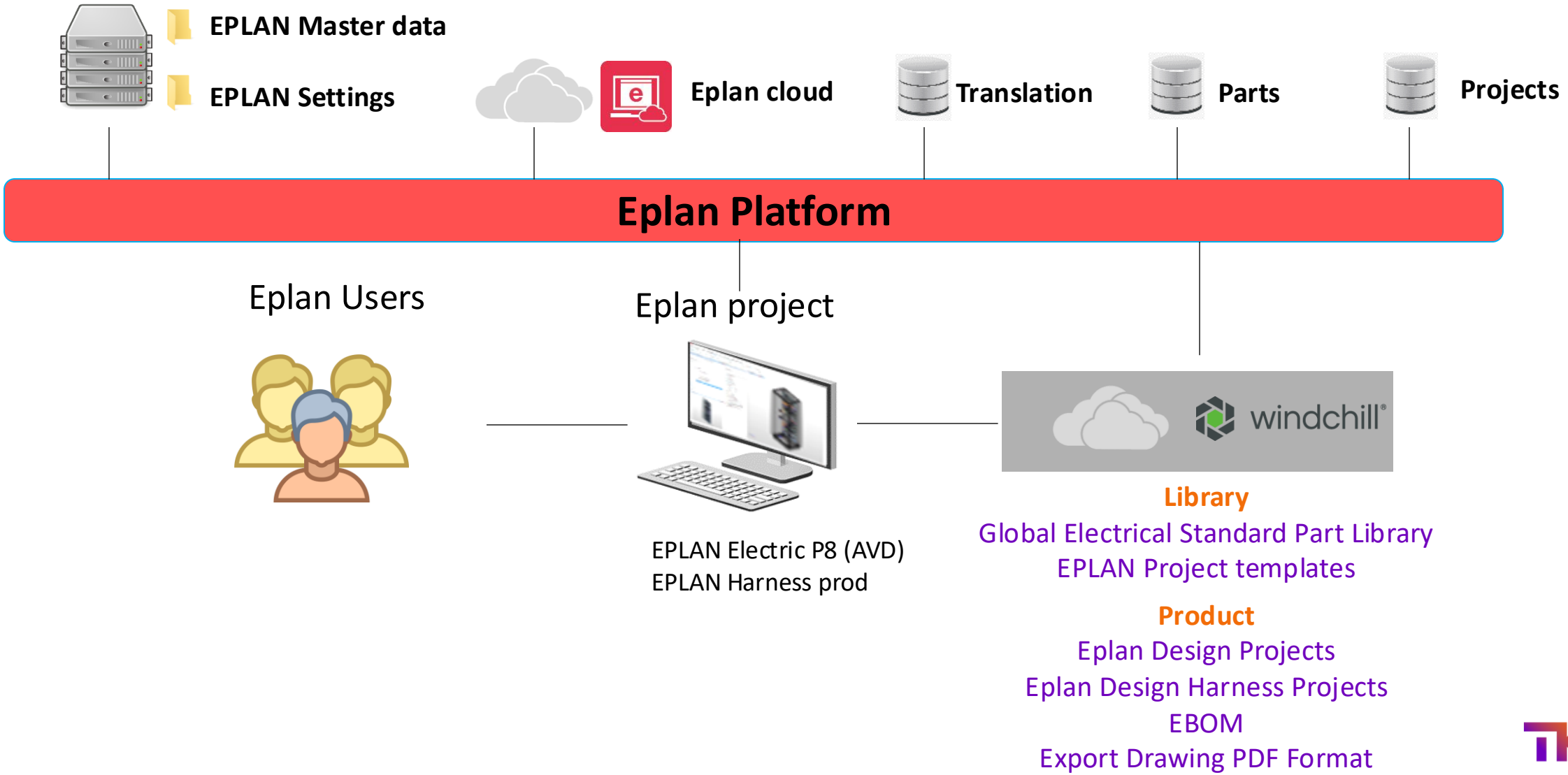
IT ARCHITECTURE FOR A COMMON ELECTRICAL PLATFORM

EPLAN IN AZURE VIRTUAL DESKTOP. BENEFITS



EPLAN-WINDCHILL INTEGRATION

ENABLING ELECTRICAL PRODUCT DATA MANAGEMENT



ELECTRICAL ENGINEERING CONFIGURATION

MAKING DECISION ON ELECTRICAL CONFIGURATION TOOL

- Automate Schematics, 3d layout and other disciplines
- Eplan standard tool – Commercial OOTB
- Support complex rules
- Eplan Future proof solution

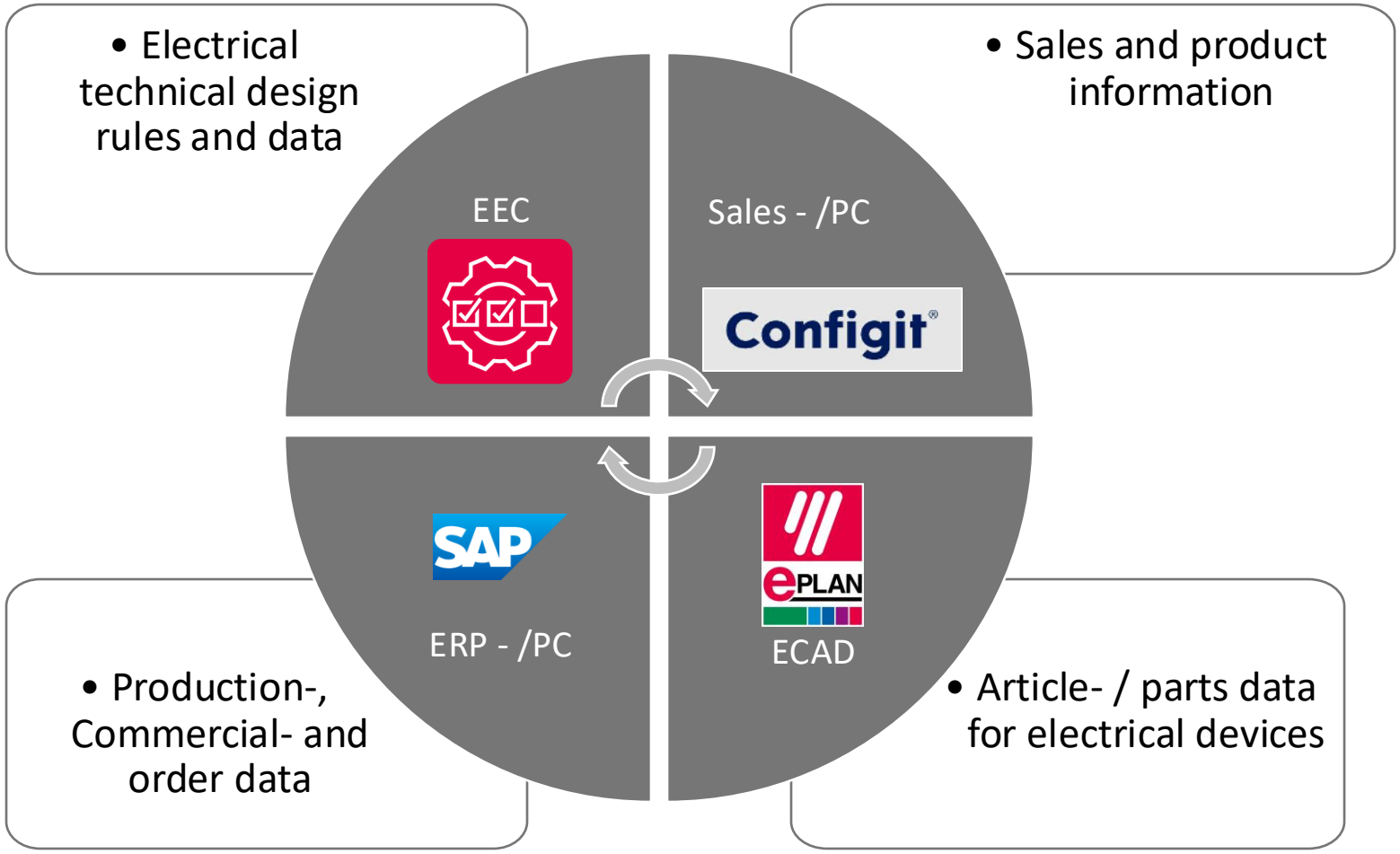
- New tool, no previous experience in TKE
- Require programming skills for Electrical Engineers

☞ **Eplan Engineering Configuration (EEC Pro)**

Future proof Eplan standard solution to fit TKE requirements of EEC Electrical Engineering configuration

ELECTRICAL ENGINEERING CONFIGURATION

DEFINING BOUNDARIES BETWEEN CONFIGURATION TOOLS



ELECTRICAL ENGINEERING CONFIGURATION.

LESSONS LEARNT. BENEFITS

- Scalable solution. Benefits from early stages
- Structured model data for standards, know-how and collaboration
- All requirements covered without programming
- Easy to modify configuration for design changes

Easy onboarding for Electrical Engineers !!!!

Key is product knowledge no EEC tool experience

2x Sites automatically generating in EEC productively

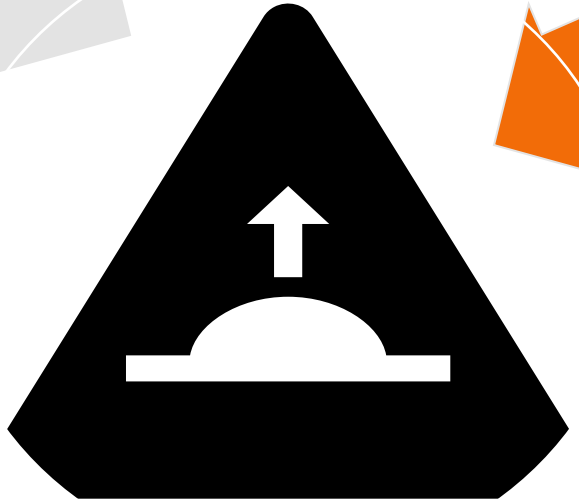
3x Running pilots

CHALLENGES

GLOBAL ALIGNMENT

PARALLEL PROJECTS

PRODUCTION FIRST



COMPLETE EPLAN PORTFOLIO SUPPORT

TEAM CHANGES

ACHIEVEMENTS

Global collaboration design
Distributed teams in different sites
collaborating concurrently in Global Product Developments

Reduce IT operation costs

Improved application support

Fast deployment
for new users, global template changes
and upgradesmanual drawings

Standard Reusability
Adaptability of implementation even
if Product Development changes

Develop Electrical Engineering Automation
5x sites automatically generating schematics in Eplan EEC

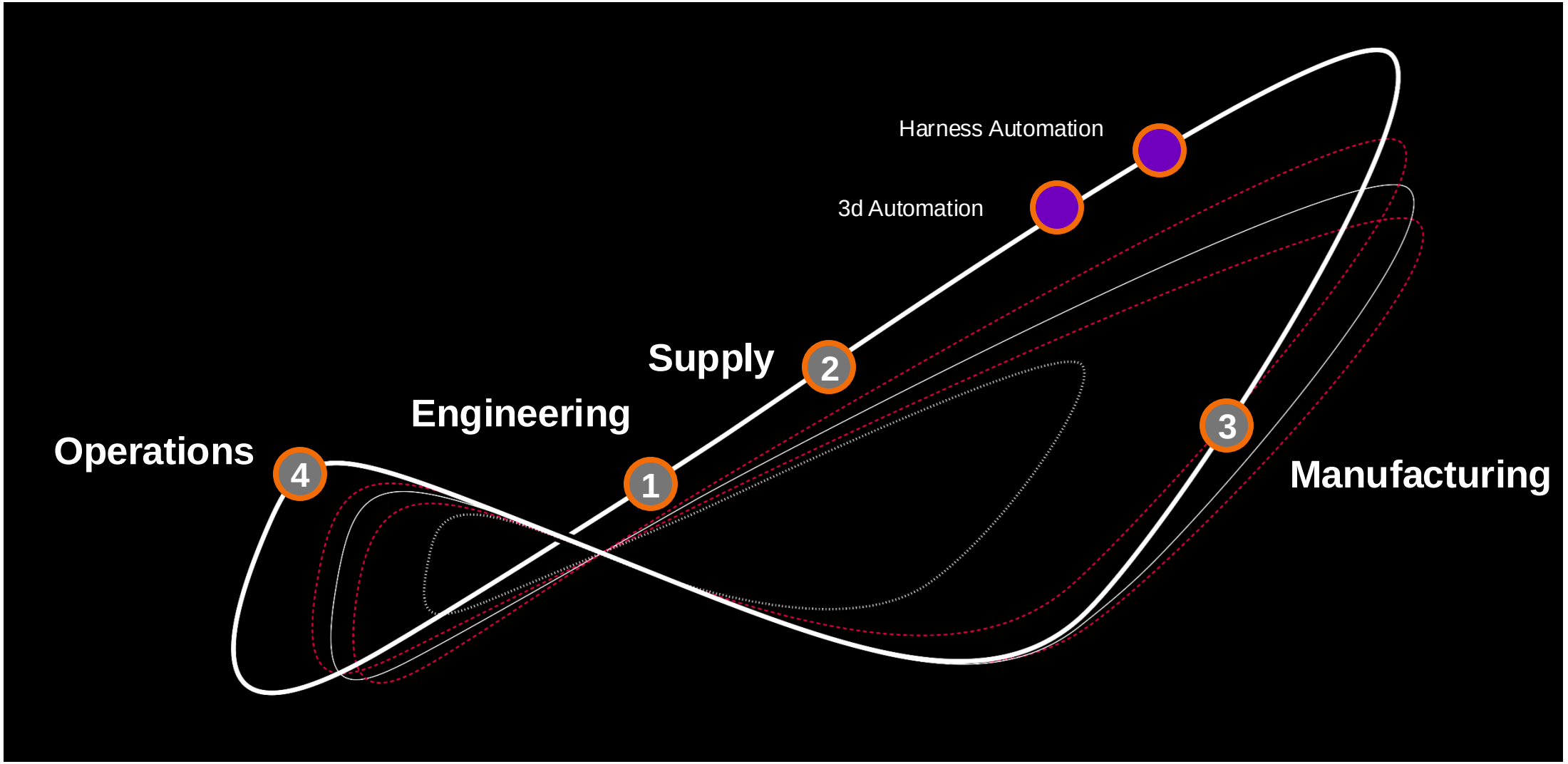
Eplan-Windchill integrated
Electrical Design Data managed in Windchill

Optimize License Utilization
Global licenses shared across different time zones
Reduce operation costs

VERTICAL AND HORIZONTAL DEVELOPMENT. IMPROVING THE VALUE CHAIN

FUTURE CHALLENGES

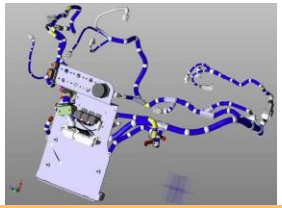
CLOSING GAPS IN ENGINEERING AND BRINGING BENEFITS TO OTHER AREAS



FUTURE CHALLENGES

Automatic configuration of Panels

Automatic configuration of Harness



Integration with Manufacturing

Integration with Service Installation & Maintenance

MOVE
BEYOND