neovendi

projects | engineering | digital transformation

flexible. open. responsible.

Actively shaping modern mobility.

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Topics
That's how we support digital transformation.

Our special areas
develop.

manage.

qualify.

Hello, I am Neovendi.
I would like to introduce myself.

We, at Neovendi GmbH, are active as a management consultancy and service provider for the developmental support of digital control and safety technology in international rail traffic. Our areas of expertise are systems engineering, qualification management, method and process consulting as well as research and development projects. We develop, manage and qualify the modern mobility of the future and thus make our active contribution to the optimization of modern traffic and mobility concepts.

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This is how we support the digital transformation.

Technological innovations and
Employee development go hand in hand:

Technological development

International standardization of development results

Didactic implementation with concrete training programs

Functional planning and installation of training and work sites

R&D / Technology development	Test & trial (Lab, Field)	Didactic implementation	Plan training sites
Specifications	International standardization	Trainings programs	Set up work & training sites
Project management, Project control	EULYNX / RCA / SCI-X / Shift2Rail — ETCS, ATO, FRMCS	Conduct trainings	
Procurement, Commissioning	Prequalification CCS		
Qualified technologies	Command, control and signalling (CCS)	Qualified employees	

We participate and support.

develop.

Innovative transport services of the future

Modern mobility is based on the interoperable idea. Smart and efficient use of existing data and the provision and generation of new mobility data form one of the central tasks of our development work.

Digital control, command and signaling

The future of the rail network will be shaped by the digital interlocking system (DSTW). It forms the basis for greater reliability and economic efficiency as well as for modern rail operations with significantly higher capacities.

Mobile communication standard

A transition to the new radio standard FRMCS (Future Railway Communication System) enables a variety of new applications and contributes to the goals of increased capacity and more punctuality. Through our active participation in projects for technical and economic solutions, we offer guidance on the migration path from old to new.

SMART RAIL CONNECTIVITY CAMPUS

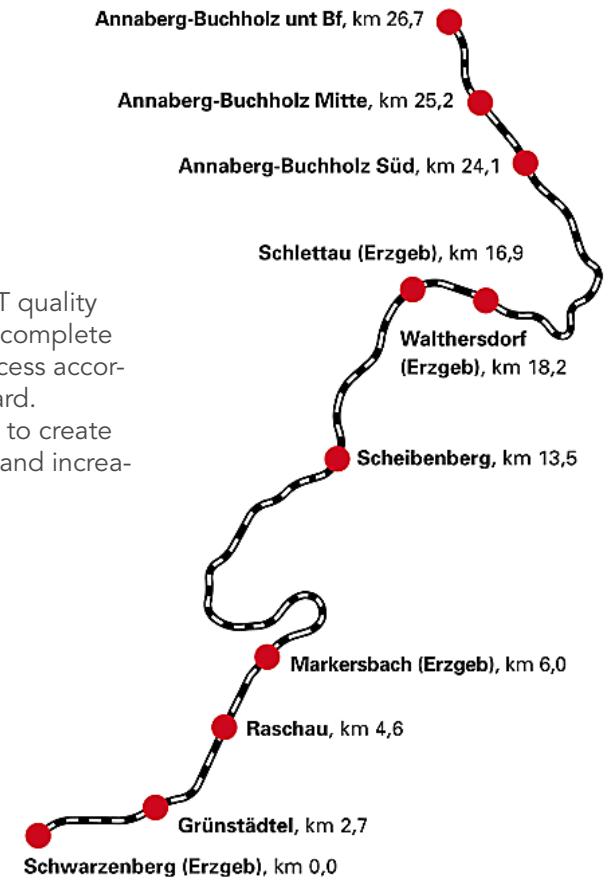Berg- und Adam-Ries-Stadt
ANNABERG-BUCHHOLZ

Automatic Train Operation (ATO)

Safety, efficiency and sustainability are a particular focus in the development of autonomous driving. To support ATO, new mobile communications standards for railroads are needed so that data based on these values and in real time for this purpose are available. All results of our work in the ATO projects for autonomous trains (WP1 to WP5) with TAURO (Technologies for the Autonomous Rail Operation) are applied in „Europe's Rail".

Software developement

In the field of testing and IT quality assurance, we support the complete software development process according to the ISTQB® standard.
The primary goals here are to create transparency, acceleration and increased efficiency.

Annaberg-Buchholz unt Bf, km 26,7

Annaberg-Buchholz Mitte, km 25,2

Annaberg-Buchholz Süd, km 24,1

Schlettau (Erzgeb), km 16,9

Walthersdorf (Erzgeb), km 18,2

Scheibenberg, km 13,5

Markersbach (Erzgeb), km 6,0

Raschau, km 4,6

Grünstädtel, km 2,7

Schwarzenberg (Erzgeb), km 0,0

* EULYNX is an initiative of the European railroad infrastructure operators.
* Europe's Rail is a JU made up of the EU, the European Rail Infrastructure Operators and the rail industry.
* OCORA (Open CCS On-board Reference Architecture)
* Shift2Rail is a European initiative for the development of modern rail operations.
* Linx4Rail is a project within Shift2Rail.

EULYNX interface standardization

The European digitization initiative EULYNX defines and standardizes the interlocking interfaces of the future digital control, command and signaling (CCS). Through our activity in the EULYNX initiative, we support the expectations of politics and society by making our contribution to climate protection, improving punctuality, and promoting interoperability.

EULYNX *

Europe's Rail *

Shift2Rail *

OCORA *

LinX4Rail *

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develop. manage. qualify.

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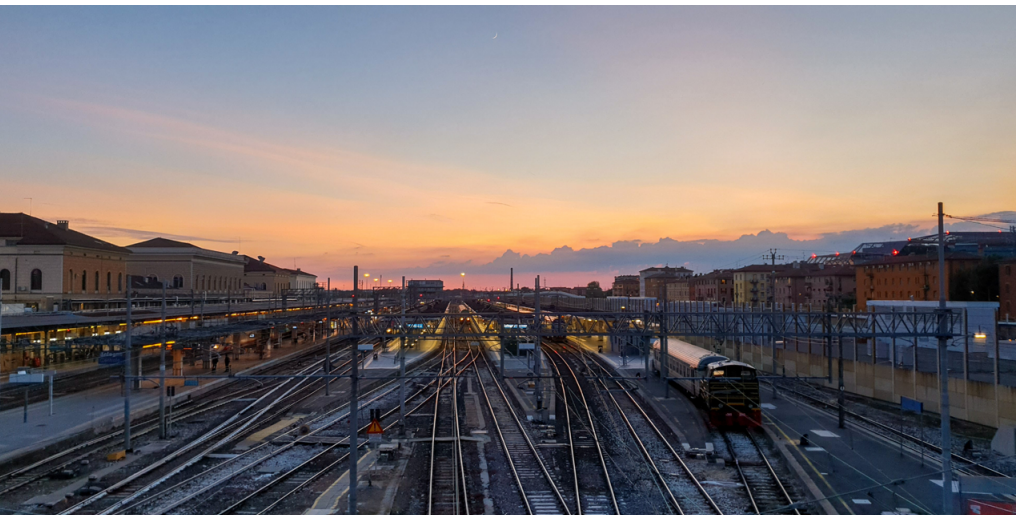
We train!
MBSE-Trainings on page 17

EULYNX & MBSE System Engineering

Package 1 – Trainings
5 days training with theory & practice

• General goals of the training
• Learning objectives of the training
Day 1: Introduction to MBSE, ARCADIA, Capella
Day 2: Demonstration of ARCADIA and Capella Exercise
Day 3: SysML™,
EULYNX MBSE HandsON Windchill® Modeler – Teil 1
Day 4: EULYNX MBSE HandsON Windchill® Modeler – Teil 2
Day 5: Formal Methods

Package 2 - Development Clusters
Interoperability in each country
across Europe Objectives:

Objectives:
• take into account the different
country-specific requirements
• create new formal models and integrate
them into the new EULYNX Baseline
documents.

Package 3 – EULYNX Baseline Doc.

• What is important for your own product
development?
• What information can be found where?
• How to interpret and use the EULYNX
baseline documents, files and information?
• Where are the differences in the provided
information?
• Which tools / programs are needed?
• How are the interfaces, protocols and
subsystems used?
• What is the current status of EULYNX
development?

Package 4 – Tenders
Security in the requirements needed

• Functional performance descriptions
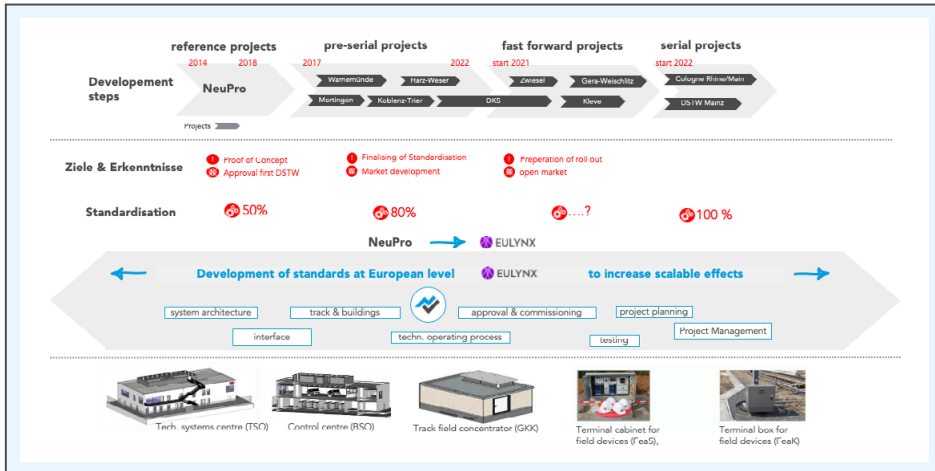• Tender specifications
• Prequalifications

Package 5 – Engineering
Accompany the process and improve
certainty of action

• Practical guidance and support
• Engineering performance with MBSE
techniques in the implementation and
application of EULYNX requirements
• Direct web reference to the customer product
• Safety
• Cost efficient development
• Acceleration of product development
• Application of tools & methodologies
• Know-How Transfer

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Technical project management

Digitalization of the rail infrastructure will enable unused capacities to be utilized in the future. The technological leap is an important component for more flexible and capacity-optimized driving. Our expertise here is primarily operational project control as well as supplementary consulting services in project management.


Support in the planning of training and data centers

In the development and planning of technical and operating sites, data centers as well as training sites and their facilities, we provide significant support in project development as well as in process support. Interface management also plays a central role here. The professional coordination of various trades is the basis for the successful implementation of these demanding construction projects.

Solve problems.
sustainable. competent.

International cooperation

With our activities in qualification and prequalification tasks for digital control, command and signaling (CCS), we support international rail infrastructure companies in fulfilling the requirements as a supplier in the area of the new CCS for Germany.
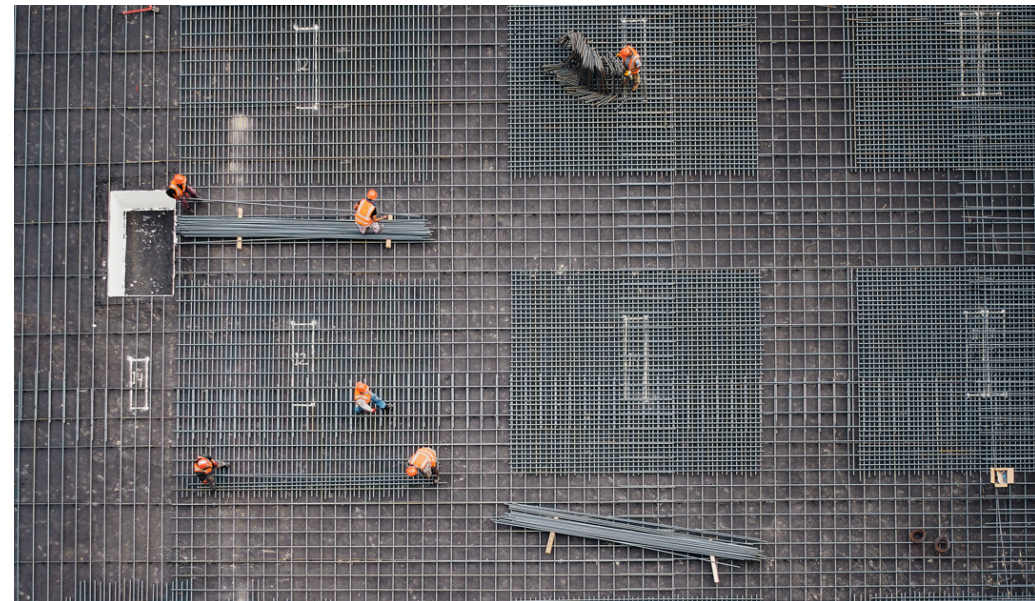
manage.

European Train Control System (ETCS)

In the design of the new interoperable rail operational systems, a particular focus is on the networking of the whole of Europe. Thanks to the valuable diversity of experience from the „old" and the „new railroad world" in our teams, we are working in an interdisciplinary manner on the common, overarching goal.

Many of our projects and development work are directly related to ETCS developments. The main focus of our activities is on modern railroad operational systems, the development of specifications of signaling products or the consulting of development and approval processes according to CENELEC standard EN50126, EIGV, VV-GluV or risk management procedures according to CSM-VO.
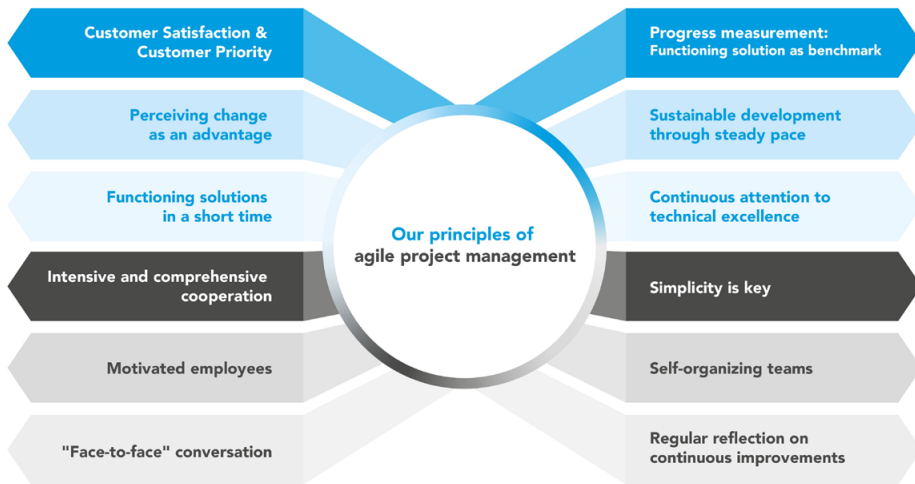
Good ideas
are born in dialog.
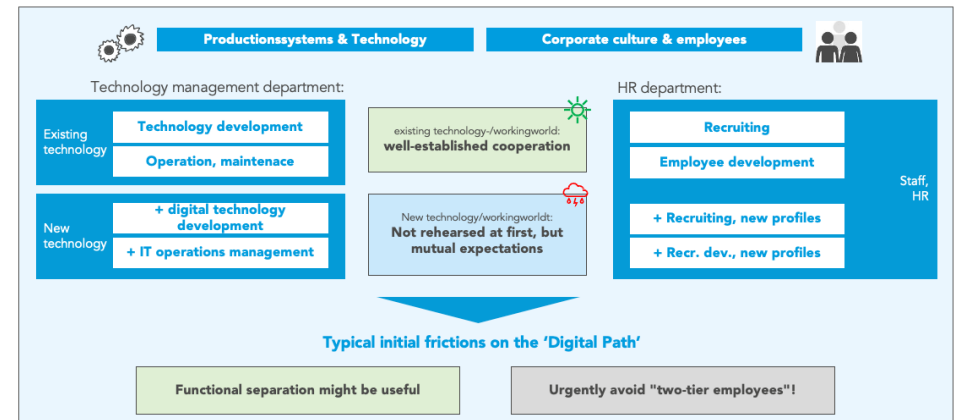
Interaction of business units in the digital transformation

Today, a cooperative network with creative conversations is one of the foundations for the development and promotion of new and existing technologies. The dialog must be constantly expanded and stimulated with new approaches. For this connection, we are an important interface for the promotion of modern, sustainable and intelligent mobility.We support our customers in recognizing the connections between technology and human resources management in good time and transforming them into successful digitization management - that's what we call „Digital Transformation!".

Projekt Management (PMO, PS)

With our work in various projects in the areas of ETCS, CCS, DSTW, and EULYNX, we pursue the goal of supporting the acceleration of projects and passing on our experience through know-how transfer and „best practice" solutions. Our experience and knowledge are related to the coordination, control, management and review of the projects. The focus of our work is our customer with his requirements and wishes, which we integrate and implement appropriately for the success of the project.
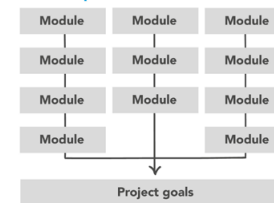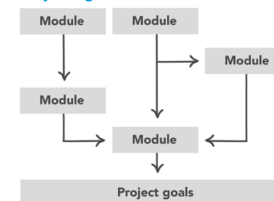
flexible.
open.
communicative.

Customer Satisfaction & Customer Priority

Perceiving change as an advantage

Functioning solutions in a short time

Intensive and comprehensive cooperation

Motivated employees

"Face-to-face" conversation

Progress measurement: Functioning solution as benchmark

Sustainable development through steady pace

Continuous attention to technical excellence

Simplicity is key

Self-organizing teams

Regular reflection on continuous improvements

Our principles of agile project management

Module plans (PMO, PS)

Our module plans serve as a planning and implementation tool for particularly complex project plans. In our national and international projects, this tool is used as an important aid in project control. In contrast to traditional project management tools, module plans not only analyze the chronological course of the project, but also focus in particular on the content-related challenges and that in great detail. The starting point is always a detailed definition of objectives.
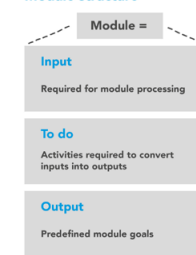

Representation: Thematic pillars

Module · Module · Module
Module · Module · Module
Module · Module · Module
Module · Module

Project goals

Representation: Subject logical structure

Module · Module
Module
Module · Module
Project goals

Module structure

Module =

Input
Required for module processing

To do
Activities required to convert inputs into outputs

Output
Predefined module goals

Module progress

Module — Module not yet started
Module — Module in progress
Module — Module completed
Module — Module at risk/ module success critical

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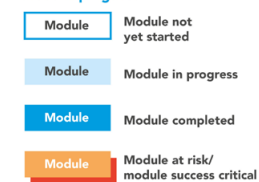
qualify.

Model-based Systems Engineering (MBSE)

The training is specifically designed to provide a basic understanding of the general concepts of MBSE and how these concepts can be applied in various railroad projects.With our basic training on the structure and use of formal systems as well as their tools, we teach the three pillars of model-based systems engineering. We train how to recognize the difference between specific and generic methodology and how to correctly interpret an MBSE specifica-tion. In addition, we explain verifica-tion and validation techniques as an important part of the MBSE process to increase reliability and efficiency.

MBSE in the ERJU System Pillar:
The training also introduces the ARCADIA- metho-dology and its principles.

5 days training with theory & practice

Our 5 packages on EULYNX and MBSE on page 9

General objective
By attending this training, participants will be able to list the three pillars of MBSE (tools, language and methodology) with correct explanation, identify the difference between specific and generic methodology of MBSE approach and relate the general concepts of MBSE applied in specific railroad projects. Participants will learn to correctly interpret an MBSE specification, successfully apply modeling concepts using a tool, and explain the know-how of verification and validation techniques as part of the MBSE process.

Themenschwerpunkte

Day 1 – Introduction to MBSE, ARCADIA, Capella

Day 2 – Demonstration of ARCADIA and Capella Exercise

Day 3 – SysML™, EULYNX MBSE HandsON Windchill® Modeler – Teil 1

Day 4 – EULYNX MBSE HandsON Windchill® Modeler – Teil 2

Day 5 – Formal Methods

MBSE: Trainings-Roadmap

Nov. 2021	Dec. 2021	Jun. 2022	Oct. 2022	Mar. 2023	2023	2023
Rome, Italy	Rome, Italy	Stockholm, Sweden	Potsdam, Germany	Utrecht, Netherlands	London, United Kingdom	Prague, Czech Rebulic

EULYNX *

ARCADIA *

Capella *
Open Source MBSE Solution

OMG SYSTEMS MODELING LANGUAGE
SysML™ *

ptc
windchill® modeler *

* EULYNX is an initiative of the European railroad infrastructure operators.
* ARCADIA (Architecture Analysis and Design Integrated Approach) is a method for system analysis.
* Capella is a trademark of the Eclipse Foundation.
* SysML™ (System Modeling Language) is a graphical modeling language.
* PTC windchill® modeler is a trademark of Parametic Technology GmbH for system specification.

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Bringing people together.
networking technologies.

Other training topics:
Training programs on behalf of customers
Planning and moderation of workshops and seminars on behalf
of customers

Control, command and signaling (CCS)
With our activities in qualification and
prequalification tasks for the digital
control, command and signaling (CCS)
we support international railroad infras-
tructure companies and interlocking
suppliers to meet the requirements as a
supplier in the field of the new CCS and
MBSE applications (EULYNX) for the
standardization of national interface
methodology and harmonization accor-
ding to European requirements.

Are you with us ?

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