STAFF WORKSHEET

Driver

Train driving
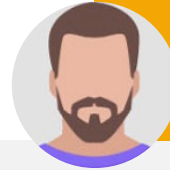
Train driving
Driver

Today

Current ways of working

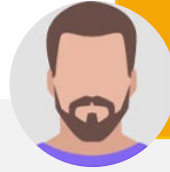| Human	Activity / Tasks & Processes	Organization & Culture	IT Systems & Tools	Competencies & Training
H1: National individuals: *Most professionals are nationals, which helps communication and cultural integration. However, this limits diversity and global perspective.* **H2: Mainly male:** *The workforce is predominantly male, creating challenges for gender diversity and inclusion.* **H3: Mix of generations:** *Young and experienced staff work together, balancing innovation and expertise, though differences in work styles may arise.* **H4: Still vocational:** *The job is seen as a vocation, fostering commitment but less attractive for candidates focused on financial benefits.* **H5: Hiring difficulties:** *Talent shortages and uncompetitive conditions make recruitment hard, requiring new strategies.*	**A1: Manual Driving:** *Driving the train manually, requiring full attention and control.* **A2: Person-to-person Communication:** *Direct communication from the driver with control centers to coordinate operations and ensure safety.* **A3: Route Book Management:** *Reading, interpreting, and applying information from the Route Book, including speed limits and other operational instructions.*	**Cu1: Safety culture:** *A strong safety culture, driven by the company's actions, shapes the mindset and behavior of train operators.* **O1:** *Physical company's premises enable face-to-face interaction and collaboration among peers.* **O2:** *Limited internationalization reduces the need for foreign operational knowledge, keeping processes nationally focused.* **O3:** *Management practices remain traditional, which ensures stability but may slow modernization.*	**I1: Current Locos/MU:** *Drivers play a main role in train movement, ensuring traction and operational control.* **I2: Tablets:** *Portable devices support digital communication and operational tasks, improving efficiency and reducing paperwork.* **I3: Paper (written orders):** *Traditional written instructions are still used for certain procedures, maintaining a backup for critical operations.* **I4: ERTMS:** *The European Rail Traffic Management System introduces advanced signaling and control, enhancing safety and interoperability across networks.*	**C1: General training:** *Drivers generally receive standardized training without much individualization.* **C2: Presential focus:** *Training is mainly delivered in person, ensuring direct interaction.* **C3: Language:** *The mother tongue is primarily used, facilitating understanding but limiting international adaptability.* **C4: Differentiation:** *Freight and passenger train drivers receive distinct training, emphasizing accountability and decision-making for each context*

Train driving
Driver

Drivers of transformation:
DT1: Automatic Train Operation (ATO) and autonomous vehicle
DT2: Digitalisation (zero paper...)
DT3: Generation change ; New ways of working (home office, 4-days week...)
DT4: Versatility; Ageing workforce / New Employees
DT5: Trainers' ability, New training tools

New ways of working

In BLUE the changes that will have the biggest resistance to change

By 2030

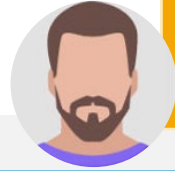| Human	Activity / Tasks & Processes	Organization & Culture	IT Systems & Tools	Competencies & Training	Learning Lab scope of study
H1: National and foreign drivers: For national traffic, some foreign drivers are enrolled, while international routes rely on contracted foreign drivers.	**A1: ATO (e.g.GoA2):** Automatic Train Operation at Grade of Automation 2, where the system handles driving tasks but requires driver supervision and intervention when necessary.	**O1: Driver distribution:** Drivers work in isolation without dedicated physical premises, and many are highly specialized, focusing on a single line or engine type.	**I1: Advisory systems:** Development and widespread use of advisory systems integrated into locomotives, providing real-time guidance to improve safety and efficiency.	**C1: Individualized training:** Training becomes personalized, adapting content to each driver's future assignment and responsibilities, improving relevance and effectiveness.	**Main challengers for cultural change**: **CH1**: Lack of anticipation **CH2**: Misunderstanding the meaning of the change **CH3**: Fear of the unknown **CH4**: Poor leadership **CH5**: Poor vision and strategy
H2: Gender inclusion: There is a gradual inclusion of women in the workforce, though representation remains limited.	**A2: Digital orders:** Operational instructions and updates are received automatically on tablets in digital format, reducing reliance on paper and improving efficiency and accuracy in communication.	**O2: Internationalization:** The organization is moving toward greater internationalization, requiring adaptation to cross-border operations and standards.	**I2: Tablets:** Tablets remain in use, continuing to support digital communication and operational tasks.	**C2: Digital training format:** Presential training is replaced by remote, digital learning methods, increasing flexibility and reducing logistical constraints.	
H3: Generational shift: Retirement of older generations is leading to a stronger presence of younger professionals, changing work dynamics.	**A3: Person-to-person Communication:** Direct communication with RU and IM control centers to coordinate operations and ensure safety.	**O3: Generational change:** A new generation of drivers is entering the workforce, bringing new perspectives and a different mentality compared to traditional practices.	**I3: Digital orders:** Written operational instructions are now received digitally, replacing paper-based processes and enhancing accuracy and speed in workflows.	**C3: Language:** The use of the mother tongue remains the standard, ensuring clarity but limiting international adaptability..	**Enablers to facilitate the change:** **E1**: Strategy Definition **E2**: Mentoring / Tutoring **E3**: Individual coaching **E4**: Personalized (ex: office or field staff) and innovative training (ex: Gamification) **E5**: Corporate culture **E6**: Innovative organization
H4: Less vocational profiles, difficulties of retention: The job is no longer seen as purely vocational, resulting in high turnover and significant challenges in hiring and retention.					

MIND4 CHANGE

Train driving
Driver

Drivers of transformation:
DT1: Automatic Train Operation (ATO) and autonomous vehicle
DT2: Artificial Intelligence (AI) / Machine Learning (ML) / Deep Learning (DL)
DT3: Relationships at work
DT4: Versatility
DT5: New training tools,

By 2040

New ways of working

In BLUE the changes that will have the biggest resistance to change

Human	Activity / Tasks & Processes	Organization & Culture	IT Systems & Tools	Competencies & Training

H1: Foreign drivers: Contracting foreign drivers becomes a normal practice, especially for international routes, ensuring operational flexibility.

H2: Gender inclusion: A higher presence of women is expected, improving diversity and representation in the workforce.

H3: Generational renewal: The driver workforce will be mostly composed of new generations, bringing fresh perspectives and digital adaptability.

H4: Less vocational profiles, difficulties of retention : The profession is no longer seen as purely vocational, leading to higher turnover and significant challenges in hiring and retention.

A1: ATO (e.g. GoA3): Implementation of Automatic Train Operation at Grade of Automation 3, where the system manages driving tasks, and the driver acts as a supervisor with minimal intervention.

A2: NLP communication: Use of Natural Language Processing for machine-to-human communication with the IM control center, improving clarity and reducing errors.

A3: Digital orders: Operational instructions are automatically received on tablets in digital format, eliminating paper and streamlining processes.

O1: Isolated distribution of drivers, with no physical premises dedicated to them, resulting in a fully decentralized management approach.

O2: Internationalization of operations, enabling drivers to work and rotate among several independent companies, fostering flexibility and global collaboration.

O3: New generation of drivers with a modern mindset, more aligned with technology and innovative work practices.

O4: Driver's movement among companies: Integration of drivers who previously worked for competing companies, hiring experienced talent from organizations traditionally focused on providing driving services.

I1: Development of advanced advisory systems integrated within locomotives, designed to assist drivers in real-time decision-making and improve operational efficiency.

I2: Creation of tablet-based applications that support drivers in managing safety protocols, providing intuitive tools and alerts to ensure compliance and reduce risks.

I3: Implementation of digital platforms for receiving and processing written orders, replacing traditional paper-based methods with secure, streamlined electronic communication to enhance accuracy and speed.

C1: Implementation of individualized training programs tailored to each driver's specific needs, skills, and experience level, ensuring a more effective learning process.

C2: Transition to fully digital, non-presential training formats, leveraging online platforms to provide flexibility and reduce logistical constraints.

C3: Adoption of automatic translation tools to overcome language barriers, enabling seamless communication and standardized training across international teams.

C4: Adjustment of selection requirements driven by automation and digitalization, prioritizing technological proficiency and adaptability as key competencies for future drivers.

Learning Lab scope of study
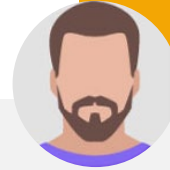
Main challengers for cultural change:
CH 1: Lack of anticipation
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Enablers to facilitate the change:
E1: Strategy Definition
E2: Mentoring / Tutoring
E3: Individual coaching
E4: Personalized (ex: office or field staff) and innovative training (ex: Gamification)
E5: Corporate culture
E6: Innovative organization

This is a tentative analysis following the methodology agreed within MIND4CHANGE Working Group as described in How-to Guide Staff worksheets.pdf. MIND4CHANGE Working Group encourages railway operators to do this exercise internally.

Train driving
Driver

UIC

New ways of working

In BLUE the changes that will have the biggest resistance to change

After 2040

| Human | Activity / Tasks & Processes | Organization & Culture | IT Systems & Tools | Competencies & Training |

Human

H1: **No distinction in contracting national or foreign drivers**, promoting equal opportunities and a standardized recruitment process across regions.

H2: Elimination of gender-based perceptions within the profession, fostering inclusivity and diversity in the workforce.

H3: Completion of the driver workforce with individuals from new generations, bringing fresh perspectives and adaptability to modern technologies.

H4: Shift away from purely vocational profiles, emphasizing broader skill sets and digital competencies to meet evolving industry demands.

Activity / Tasks & Processes

A1: **ATO (e.g. GoA4)**: Implementation of Automatic Train Operation (ATO) at Grade of Automation 4 (GoA4), enabling fully automated driving with minimal human intervention while maintaining safety standards.

A2: **Deployment of machine-to-machine communication systems** between locomotives and control centers, ensuring seamless data exchange and operational coordination under human supervision.

Organization & Culture

O1: Isolated distribution of drivers, with no dedicated physical premises, leading to a decentralized and flexible operational model.

O2: **Internationalization of the workforce, allowing drivers to rotate among several independent companies**, promoting collaboration and adaptability across borders.

O3: New generation of drivers with a modern mindset, embracing technology and innovative approaches to work.

O4: Recruitment of drivers who do not belong to the Railway Undertaking (RU) but are **hired from specialized companies providing professional driving services**.

IT Systems & Tools

I1: Development of advanced advisory systems integrated within locomotives, designed to assist drivers with real-time guidance, performance optimization, and safety recommendations during operations.

I2: Creation of tablet-based applications that help drivers manage safety protocols effectively, offering intuitive interfaces, alerts, and compliance checks to reduce operational risks.

I3: Implementation of digital platforms for receiving written orders electronically, replacing traditional paper-based methods with secure, streamlined communication to improve accuracy and efficiency.

Competencies & Training

C1: Implementation of individualized training programs tailored to each driver's skills and experience, ensuring personalized learning and improved performance.

C2: Transition to non-presential, fully digital training formats, leveraging online platforms to provide flexibility and reduce logistical constraints.

C3: Use of automatic translation tools to overcome language barriers, enabling standardized training and communication across international teams.

C4: Changes in selection requirements driven by automation and digitalization, prioritizing technological proficiency and adaptability as essential competencies for future drivers.

Learning Lab scope of study

Main challengers for cultural change:
CH1: Fear of the unknown
CH2: Poor leadership
CH3: Misunderstanding the meaning of the change
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Enablers to facilitate the change:
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MIND4 CHANGE

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Thank you
for your attention

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