

APPENDIX 1 – ATTACHMENT 3

DEMONSTRATION OF FUNCTIONAL AREAS

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1. OVERVIEW OF AREAS

Area	Rationale for selecting this area and priority	Key demonstration topics
Long-term planning	Long-term planning is the foundation for operational stability and resource optimization over extended periods High priority because errors in long-term planning can cause cascading operational issues and inefficiencies	- Establishment of baseline production plans - Scenario-based long-term planning and comparison - Impact analysis on services, timetabling, rolling stock and crew at an aggregated level - Selection and documentation of a preferred long-term plan
Integrated planning	Ensures seamless coordination between planning horizons and proactive management of planned disruptions to reduce impact High priority due to the critical need to minimize operational disruptions and maintain smooth transitions	- Integrated workflows across timetable, rolling stock and crew planning - Management of planned disruptions with controlled propagation of changes - Cross-domain impact analysis and conflict resolution - Coordination and stabilization of an updated integrated plan - Demonstrate the system's ability to quickly re-plan when late changes or deviations occur close to execution.
Real time dispatching	Real time dispatching is crucial for maintaining service reliability and rapid response to disruptions High priority because effective operational control directly impacts service quality and Customer satisfaction	- Real-time operational overview and monitoring - Detection, visualization and handling of operational disruptions - Dispatch actions across services, rolling stock and crew - Decision support, communication and stabilization of operations under time pressure
Communication with crew	Reliable communication with drivers is essential for safety, coordination, and timely operational adjustments	- Self-service access for drivers and group leaders - Calendar-based views of duties and changes - Absence handling and rule-based shift swapping

	Medium priority as communication depends on solid planning and control but is vital for safe operations	• Reallocation or changes on rolling stock and crew
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2. LONG TERM PLANNING

D1: Long Term Planning	
Purpose	Demonstrate how the system supports long-term planning by enabling creation, comparison and selection of alternative production plans across timetable, rolling stock and crew. The purpose of the demo is to assess decision support, transparency of impacts and usability of long-term planning – not detailed configuration or technical implementation.
Scenario	Long-term planners collaborate to establish the annual long-term production plan for an upcoming timetable period. The planners: • Create a baseline long-term production plan based on an approved timetable. • Define at least two alternative planning scenarios by changing service patterns, route models or rolling stock assumptions. • Analyse and compare consequences across routes, rolling stock and crew at an aggregated level. • Select and document a preferred long-term plan based on transparent impact metrics and trade-offs.
User stories	GR2.1, LT1.1, LT2.1, LT3.1
What should the Supplier Demonstrate	The Supplier should demonstrate how the Solution supports long-term planning through a coherent end-to-end scenario, enabling long-term planners to: • Establish a baseline annual production plan based on an approved timetable and master data, showing consistent planning across timetable, rolling stock and crew at an aggregated level. • Develop rolling stock rotations at day and week level, including adding and removing services and demonstrating resulting constraints and plan adjustments. • Create and manage at least two alternative planning scenarios based on different assumptions and compare these using standardized key figures (e.g. capacity, resource demand, cost drivers, robustness). • Demonstrate the impact of key changes (e.g. rolling stock type), including feasibility, capacity effects, and how conflicts or constraints are identified and handled.

	• Select and document a preferred long-term plan, including visibility of assumptions and trade-offs, as input to downstream planning. • Illustrate how automation supports planning by distinguishing between system-generated outputs and planner-controlled decisions. • Derive and visualize long-term crew demand based on the plan, including: ○ aggregated demand over the planning period ○ workload and capacity requirements ○ identification of potential shortages or feasibility issues • Demonstrate how duty structures and roster frameworks are established at long-term level as planning assumptions, without entering short-term or operational assignment.
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3. INTEGRATED PLANNING

D2: Integrated Planning	
Purpose	Demonstrate how the system supports Integrated planning across Timetable Planning, Rolling Stock Planning and Crew Planning when handling planned disruptions within an established Production Plan. The demo shall show how changes are coordinated across domains, how impacts propagate, and how planners maintain a consistent and feasible plan through integrated replanning.
Scenario	Short-term planners collaborate to manage a set of planned disruptions affecting an existing Production Plan within a defined planning horizon. The planners: • Start from an approved Production Plan. • Introduce one or more planned disruptions (e.g. Temporary Capacity Restrictions, planned infrastructure work, reduced fleet availability). • Adjust the plan through integrated replanning across Timetable, rolling stock and crew. • Assess impacts, resolve conflicts, and stabilize a coordinated and feasible updated plan.
User stories	GR3.1, GR7.1, GR2.1, ST1.1, ST2.1, ST2.2, ST2.3, ST3.2, ST3.3
What should the Supplier Demonstrate	The Supplier should demonstrate how the Solution supports integrated planning and handling of planned disruptions through a coherent end-to-end scenario, enabling planners to: • Introduce and manage planned disruptions within an approved production plan, including capacity restrictions, infrastructure work and reduced fleet availability.

	• Perform integrated replanning across timetable, rolling stock and crew, demonstrating how changes are coordinated and propagated across domains. • Demonstrate the end-to-end process from disruption (e.g. absence) to stabilized plan, including handling of uncovered duties and rule violations. • Apply changes using both manual planning actions and system-supported optimization and illustrate how these approaches complement each other. • Perform partial and full cancellations of train services (single trains and train series), with consistent propagation of changes across timetable, rolling stock and crew. • Identify, resolve and stabilize infeasible plans by adjusting rolling stock, timetable and crew in a coordinated manner. • Analyse and visualize cross-domain impacts of disruptions, including conflicts, infeasibilities and rule violations. • Evaluate alternative resolution strategies and clearly demonstrate trade-offs between timetable changes, rolling stock usage, crew feasibility and use of alternative transport. • Modify train consists and demonstrate controlled propagation of changes to relevant planning objects. • Maintain traceability of disruptions, decisions and plan changes, showing how the integrated plan evolves over time. • Demonstrate effective communication and coordination across roles and processes, ensuring that updates are shared and aligned throughout the replanning process.
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4. REAL-TIME DISPATCHING

D3: Real-time Dispatching	
Purpose	Demonstrate how the system supports Real-time Dispatching by enabling dispatchers to monitor, coordinate and manage train operations in execution, including, handling of operational deviations and restoration of stable operations. The demo shall show how the Solution provides real-time situational awareness, decision support and coordinated control across Timetable, Rolling stock and Crew during day-of-operation.
Scenario	A Real-time Dispatcher is responsible for monitoring and managing train operations during an operational day. During the scenario: • The operation starts from an approved and released Production plan. • One or more operational deviations occur (e.g. delays, cancellations, rolling stock failure, crew unavailability).

	The dispatcher must assess the situation, coordinate corrective actions, and stabilize operations.
User stories	RT1.1, RT2.1, RT2.2, RT3.1, RT4.1, RT5.1, RT6.1, ST3.1
What should the Supplier Demonstrate	The Supplier should demonstrate how the Solution supports real-time dispatching by enabling dispatchers to: - Identify and visualize uncovered services, conflicts and constraint violations as they occur. - Monitor disruptions through real-time alerts and filtered views, showing affected services, resources and dependencies. - Perform dispatch actions such as swapping, splitting, merging, reallocating and cancelling services, including partial and full cancellations for both individual trains and train series, with consistent propagation across Timetable, rolling stock and crew. - Apply changes with immediate validation against rules and constraints (e.g. competence, certification, working time and operational restrictions), including clear alerts and controlled handling of violations. - Modify train consists and demonstrate controlled propagation of changes to relevant planning objects and external dependencies. - Track deviations end-to-end, from detection through analysis, decision, mitigation and resolution. - Demonstrate rapid replanning when late changes or disruptions occur close to execution. - Demonstrate how operational changes are handled both through manual actions and through integration-driven updates where relevant. - Demonstrate decision support through alternative solutions and visibility of trade-offs, supporting effective resolution of disruptions. - Demonstrate handling of multiple concurrent disruptions across the network. - Demonstrate mitigation of key operational scenarios, including rolling stock failures and resulting equipment gaps, sudden personnel absence and resulting staffing impacts and infrastructure-related disruptions and predefined response handling - Demonstrate how rolling stock constraints such as maintenance deadlines and usage limits are considered in dispatch decisions where relevant. - Demonstrate coordinated handling across roles and processes, ensuring that all changes remain consistent across timetable, rolling stock and crew. - Demonstrate business continuity capabilities in the Solution in case of a drop in service availability for critical components.

5. COMMUNICATION WITH CREW

D4: Communication with Crew	
Purpose	Demonstrate how the Solution supports effective, reliable and user-friendly communication with crew by providing clear self-service access, structured workflows and targeted communication related to rosters, duties and operational changes. The demo shall show how drivers and group leaders are kept informed, can interact with plans, and acknowledge critical changes in a controlled and auditable manner.
Scenario	A driver and a group leader interact with the solution during normal operations and when changes occur. The scenario includes: • Viewing assigned duties and rosters. • Receiving and acknowledging changes to planned work. • Submitting and managing absences. • Initiating and handling shift swaps according to rules and agreements.
User stories	RT3.1, ST4.1, OP1.1, OP2.1, OP3.2, OP4.1, OP6.1
What should the Supplier Demonstrate	The Supplier should demonstrate how the Solution supports communication with crew by enabling dispatchers and planners to: • Self-service interfaces for drivers and group leaders with role-based access, optimized for mobile and desktop use. • Calendar-based views showing base rosters, duties and assignments, with clear visual highlighting of changes, updates and deviations. • Targeted communication and notifications related to plan changes and operational updates, delivered through the platform. • Show an example of this flow from the OneTrack Solution out to the crew, and back to the OneTrack Solution again • Read-and-acknowledge functionality ensuring that critical messages and changes are received and confirmed by affected personnel. • Absence management workflows, including submission, approval, rejection, status tracking and visibility of absence history. • Rule-based shift swapping, initiated by crew or group leaders, with automated validation against agreements, competence and restrictions, and controlled approval workflows. • Integration with external calendars where relevant, ensuring consistent visibility of duties and assignments.

	• Traceability of communication and acknowledgements, including timestamps and status, supporting follow-up and audit. • Usability and responsiveness of the Solution, supporting frequent interactions by drivers and group leaders in daily operations. • Clear distinction between informational updates and actionable requests, reducing noise while ensuring critical messages receive attention.
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