

Abstract Swiss Congress Traffic Psychology

1. **Title:** The impact of Railway digitalisation and automation on personnel tasks and roles
2. **Abstract:**

In several projects at the German Aerospace Center, we investigate upcoming changes of workplaces in the railway domain with increasing digitalisation and automation. Focus of our research is the impact of these changes on personnel tasks and roles on one hand, observing here a clear shift from manual tasks to mainly supervision and monitoring. On the other hand, we investigate the psychological effects of these new task environments, in simulator as well as field studies. Here, we look primarily at attention processes, workload, task performance, and the concept of Situation Awareness. Since Situation Awareness (a mental representation of the current situation) is essential for reacting quickly and appropriately, it is an important question how to obtain this Situation Awareness also in higher automation levels. The insights we gain from our studies we apply in a user centred design process of future railway workplaces, for example for train drivers and rail signallers. Also, we look at high levels of automation and how a workplace for remotely controlling trains in the case of disruption could look like. Recent research results of our projects will be presented.
3. **Agreement to release of abstract:** agreed
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5. **Keywords:** automation, digitalization, Railway System, Human-Machine Interaction, Interface design