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In how far can digitalisation help in the revival of railways in Mexico?

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Motivation

Mexico has not much been on the international radar of the railway industry for long. Since the decline of passenger and cargo services of the once state-owned operator FNM (Ferrocarriles Nacionales de México) between the 1960's and 1980's and the massive privatisation of the entire railway system in 1995 – 1997, the current system is dominated by two major concessionaires. The latter control most of the cargo traffic and infrastructure which has a length of 26,914 km, transporting 89 million ton-km* (vs. 33,000 km and 123 million t-km in Germany). One of the collateral effects of the privatisation was the almost complete disappearance of passenger rail. Today, apart from the metro and light rail systems in Mexico City, Guadalajara and Monterrey, only a suburban train line and three semi-touristic train services exist in the country. Although freight traffic has continuously increased during the past two decades, the Mexican railway system has somewhat suffered: the cargo concessionaires are monopolists on their own infrastructure with few access rights for other private operators, there are no fixed timetables, capacities are blocked due to inefficient signalling which leads to the fact that the infrastructure capacities cannot be used, e.g. by passenger or other cargo trains, safety of tracks and crossings are also a big issue. In other words, the state of the Mexican railway system is far from where it could be in terms of efficiency, transport capacity for cargo and passengers, safety, interoperability and legislation. The needs might be as simple as they are complex due to the different interests of the various stakeholders and parties involved.

To improve and oversee the technical, operational and economic situation of the Mexican railway system, the National Regulating Agency (ARTF, equivalent to the EBA in Germany) has been founded in 2015. In the past years, strong links have been built also to the German railway industry, followed by the establishment of the Mexican-German Railway Cluster whose purpose is to incentivise and enable the exchange of solutions, concepts and resources between both countries.

Objective of the Workstream

After informing all participants on the status, strengths and issues of the Mexican railway system, the main purpose is to identify, structure and prioritise possible technical solutions in the fields of digitalisation, signalisation, software or operations in order to modernise Mexico's railways and increase transport volumes. The organisers will prepare concrete real-life examples such as mixed-traffic operation between cargo and passengers trains which is nowadays not possible in Mexico among others use cases.

The objective is to reflect in how far best practices from Germany and Europe can be re-used in Mexico while discussing which adaptations are necessary in order to ensure their deployment in Mexico and Northern America. This exercise takes into account local requirements, technical and cultural differences.

At the end of the Workstream, the participants will design a roadmap depicting which respective (digital) technologies and solutions could be implemented into the Mexican Railway system, when and by whom.

The Workstream will also allow for all participants to better get to know the Mexican and North American Railway system while offering the possibility to build a network across countries and cultures.

Methodology and Organisation

- Moderators: Jonathan Chavez, Miguel Abreu Camilo, Mauricio Villarreal, (Stefan von Mach)
- Presentations & Introductions:
 - Status and the „Gran Visión“ of the Mexican Railway System, ARTF (Mexican Railway Authority), David Camacho, President of the ARTF (confirmed)
 - Assessment of mixed traffic tram-train operation, in underutilized railway lines in Mexico: The Case Study of Xalapa, Veracruz, Mauricio Villarreal
 - What can Mexico's Railways learn from Germany/ Europe, Mexican Railway Cluster