BỘ XÂY DỰNG
MINISTRY OF CONSTRUCTION

CURRENT STATUS AND ORIENTATION FOR RAIL DIGITALISATION IN VIETNAM RAILWAY SECTOR



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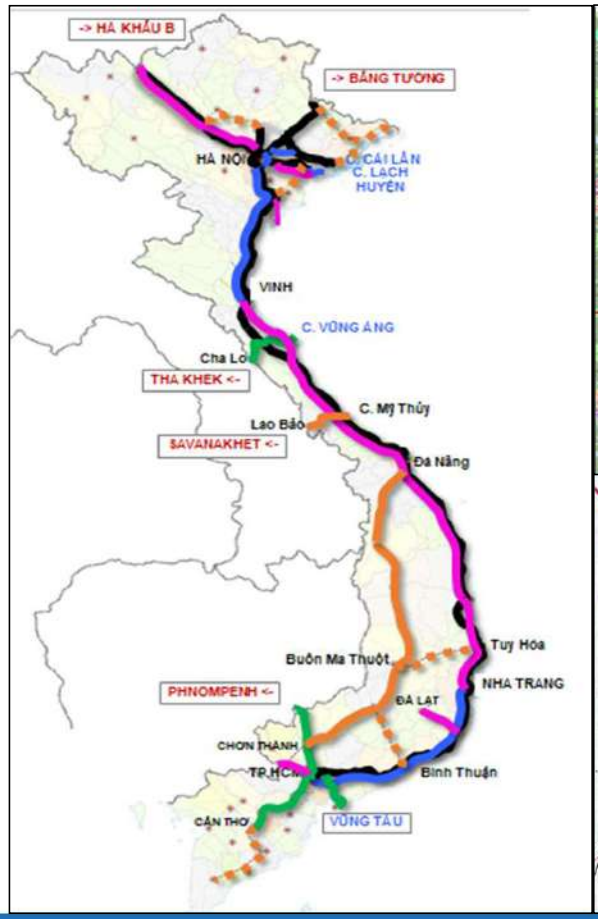
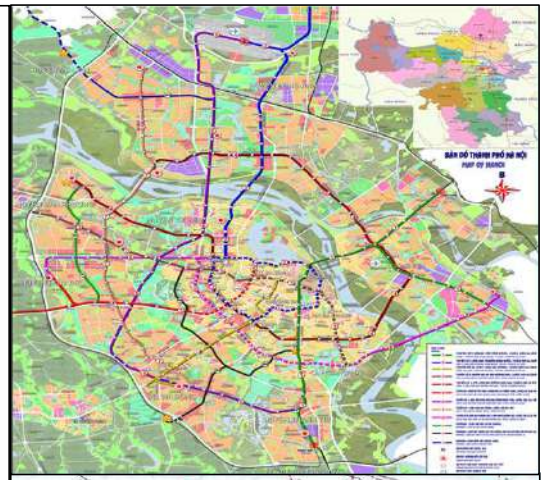
I. CURRENT STATUS

I.1. Overview on Railway Network

- National railway network: 07 routes, total length of 3.159km, with 2.532km mainline; track gaugues: 1000mm/85%, 1435mm/6%, 1435mm & 1000mm/9%; Rail density 7.9 km/1000 km2; 100% single track system;
- Urban railway network: 02 lines in Hanoi (21,6km), 01 line in Ho Chi Minh City (19,7km) being into operation;
- The master plan till 2030: Priotise for North – South medium high speed line (double track, standard gauge, electrification, 1.545 km in length); Promoting cross-border rail connectivity neighbouring countries; Upgrading the exising routes; Developing urban railway systems in Hanoi and HCM city.







I. CURRENT STATUS

I.2. Current Status of Rail Digitalisation

Operation and Manangement of Transport



The electronic ticketing system introduced since 2014 on platforms: Computer, Websites, Smartphones (iOS and Android). The system also provides an annual ticketting database serving data collection, economic – technical statistics

Zalo social platform providing realtime tracking of passenger trains



The cargo transport core management system debuted in 2019. The system serves for management of consignment, payables and receivables. The system provides freight transport information such as position, business transaction status, wagon payload



Locomotive management system is introduced in 2022 to digitalise the paper-based recording of locomotive utilization.



Rolling stock registration and management utilizes the Single window public administration system.

I. CURRENT STATUS

I.2. Current Status of Rail Digitalisation

Management Information System For Railway Infrastructure



VNRA-MIS put into play since 2024 with features: (i) Update by railway infrastructure management companies for contralised manamgement; (ii) Monitorting assets status; Assiting management, maintenance plan, data access and browse, compiling and report (ii) full range of data fields (bridges, tracks, tunnels, signalling and communication, crossings, etc.)

Application of IT in urban railway system



Automatic Ticketing System (*lackage of common ticketing system for interconnect between lines and other mode of public transport*); Computerised timetabling; centralized train monitoring and dispatching from each Operation Control Center.

II. ACTION PLAN FOR RAIL DIGITALISATION

The "Digital Transformation Program of the Ministry of Transport to 2025, with orientation to 2030“ set objectives to develop intelligent traffic systems for all transport sector, to advanced scientific and technological achievements to traffic management and administration.



Build and complete the information technology infrastructure system in serve for the MoC centralised data center, preferably the cloud computing. Utilise big data and artifical intelligence (AI) for collection, management and exploitation of big data sources.



Upgrade and build a shared database and platform application for better management of railway infrastructure and railway vehicle in serve for operation.



Complete the signalling information system, ensuring interoperability with level crossing control monitoring systems to reduce traffic accidents at road-track level crossings.

II. ACTION PLAN FOR RAIL DIGITALISATION



Continue to develop the railway electronic ticketing system ready for connecting data with non-rail information systems in serve for developing transport technology service ecosystem;
Deploy biometric technology at stations to control passengers entering and leaving the station



Complete the construction and put into operatoin the Operation Control Center.



Build an information system to manage warehouses and vehicles to provide logistics services of the railway industry on a digital platform.

II. ACTION PLAN FOR RAIL DIGITALISATION

Special Mechanisms And Policies: Investment guidelines for North-south High-speed Railway Project (1,541km); Development of the urban railway network in Hanoi (410km) and Ho Chi Minh City (355km)



Enterprises are entitled to incentives as high-tech enterprises according to the provisions of the law on high technology during the period of performing scientific and technological tasks serving the Project (exemption from corporate income tax, personal income tax).



General contractors and contractors must give priority to using products, goods and services that can be produced and supplied domestically; Bidding documents must include conditions for commitments from the general contractor and foreign contractor on technology transfer.



The Government prescribes criteria for selecting organizations and state-owned enterprises assigned with tasks or other Vietnamese enterprises to be ordered to provide railway industrial goods and services.

III. CONCLUSIONS

Challenges

- The current IT systems applied in business management in early stage, the signaling and telecommunication yet in technical level system, and CTC, OCC centers in absence are the main challenges for a comprehensive digital transformation on the national railway network.
- VNRA-MIS for infrastructure management to be intergrated to MoC's electronic architecture will be a powerful tool to support the state management. It requires upgrading activities: GIS map utilisation; Digitization of technical records, spatial data; application of AI and Bigdata technology.
- Railway dedicated IT entity/center to deploy, invest, operate, and exploit the railway industry's information technology systems; lackage of IT high-skilled personnel in railway sector.



Opportunities

- The master plan for railway network development is being implemented shall bring in new technologies and modern vehicles, laying a profound foundations for digitalising train management and operation.
- The special mechanisms and policies set directives for project investment and incentives for technology delovepment and technology transfer, where a modern railway system and high skilled manpower to be brought into place.




thank you