



Resource Planning and Management for Efficient Railway Operation

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Wabtec overview

Freight segment

Equipment



>20%

Of the world's rail freight is moved by a Wabtec locomotive

Services



2.5M

Messages monitored daily on Wabtec locomotives

Components



>30%

Of content on a Freight car capable of being Wabtec

Digital Electronics



>30%

Of North American freight moved through ports managed by Wabtec software

Transit segment

Transit



>15%

Rail passenger cars equipped with Wabtec safety critical components

Why optimize the network?

Network:

Integrated system

- Tracks & Terminals: Topology
- Locomotives
- Railcars
- Workers / Crew
- Operating Plan



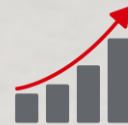
Increase network fluidity through improvements to the operating plan and automatic detection and resolution of conflicts across the entire network



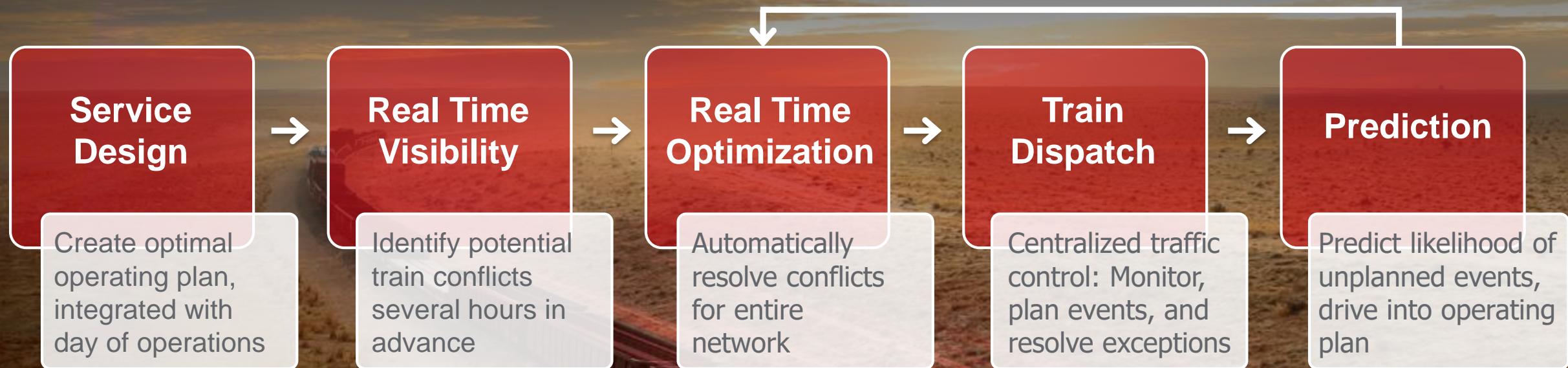
Improve on-time performance through increase in network velocity, reduced train miles, fewer unplanned events



Reduce costs through reduction in expired crews, increased asset utilization, and efficient operating plan



Expand market share through improved service and performance



Wabtec's Line of Road Optimization & Automation Playbook

Integrated Rail Planning and Execution Systems

Integrated Rail Planning and Execution Systems

Planning (Week to 5 years)

Execution (0 to 72 hours)

Mechanical System

Provide a reliable locomotive and car fleet to execute the operating plan

Service Design Rail Planning System

Create and maintain an efficient operating plan to move the forecasted traffic

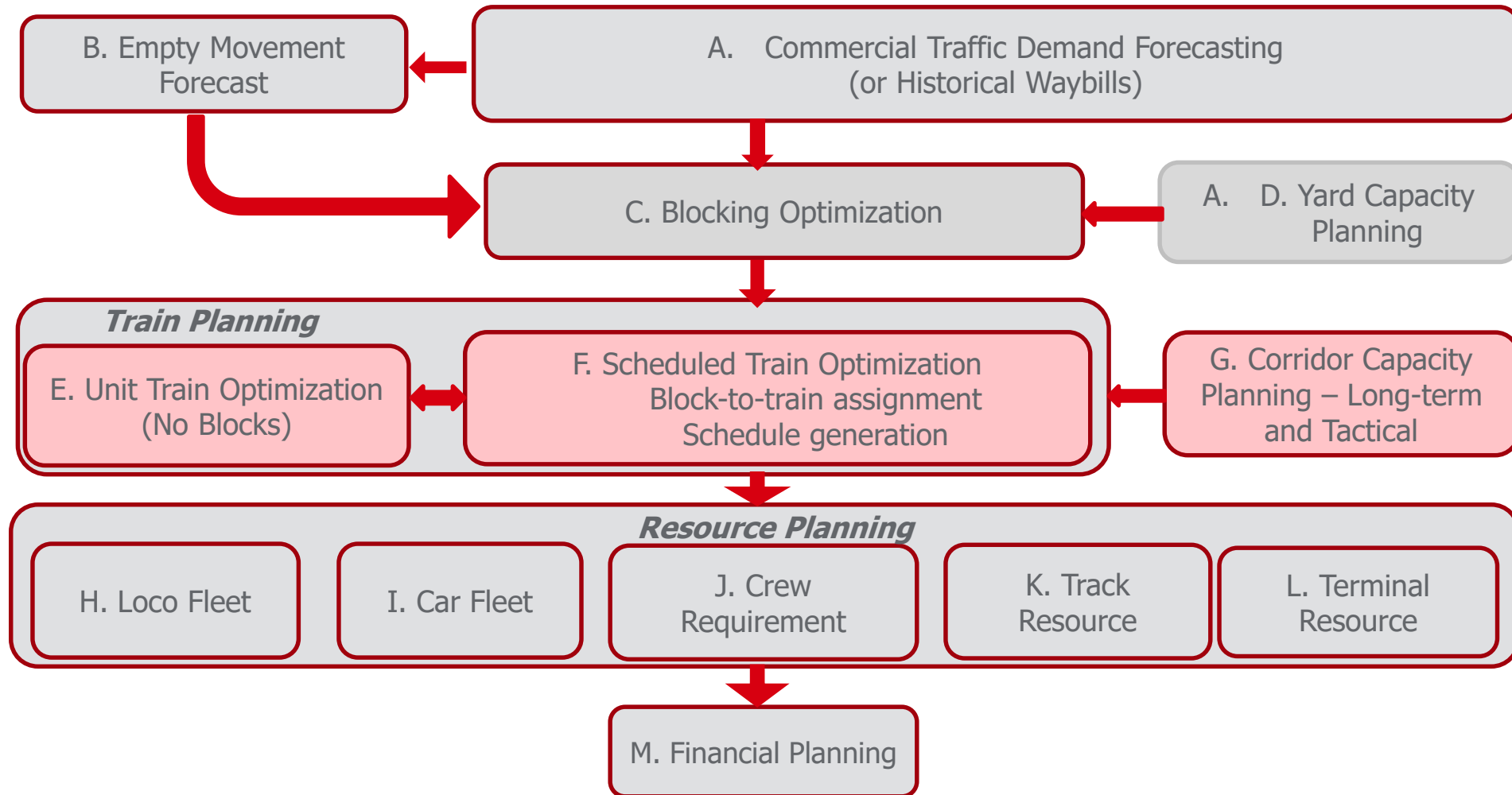
Network Operations Execution System

Execute the operating plan in a safest and efficient manner

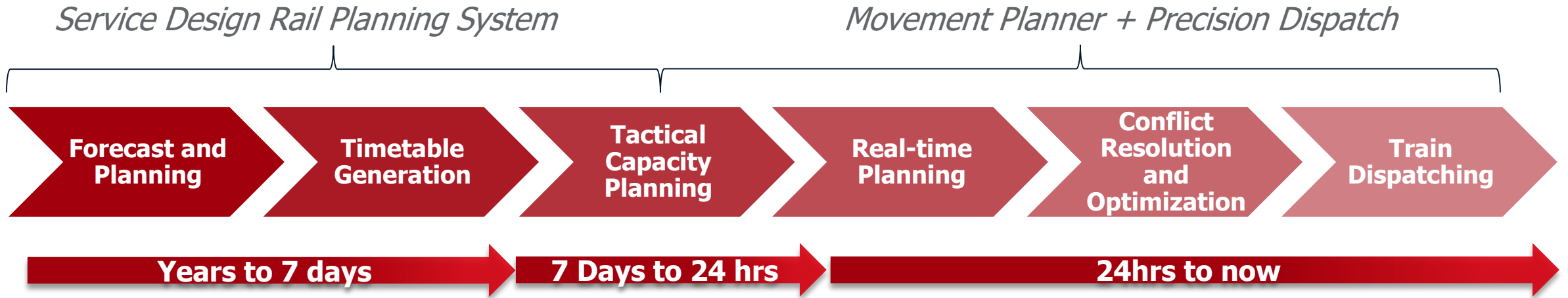
Engineering System

Provide a reliable rail infrastructure consisting of tracks, yards and signal systems to execute the operating plan

Importance of Resource Planning – Service Design Example



Resource Planning Phases



Examples of Resources to Plan:

- Locomotives
- Cars
- EOTs
- Line of Road (Mainline)
 - Track
 - Crews and Taxis
 - Inspection and Maintenance
- Terminal
 - Yard Tracks
 - Switching Crews and Locomotives
 - Inspection Crews
 - Yard Track Maintenance
- Locomotive Shop and Servicing Centers
- Car Shop and Servicing Centers



**Accelerating the future
of transportation**