

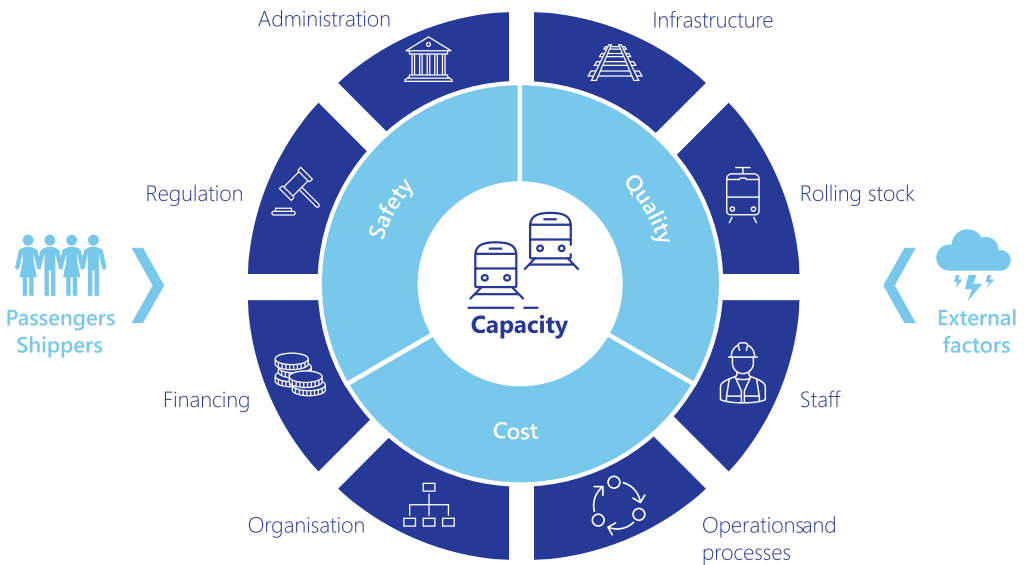


# More tracks aren't the answer to everything

Eleven fields of action for more capacity, stability and reliability

# New construction and upgrades remain essential. However, usable capacity will only increase once all elements of the railway system are working together.

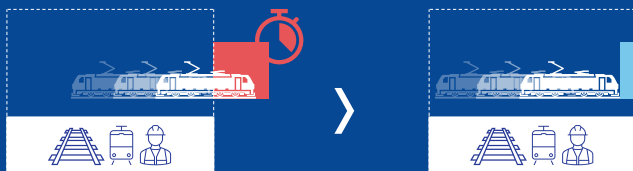
In order to meet public demand for sustainable transport options in both passenger and freight transport, sufficient infrastructure capacity must be provided. A key challenge is that the construction and upgrading of rail infrastructure are very costly and time-consuming. A further approach should therefore be to utilise existing capacity more efficiently, whilst focusing not only on the infrastructure but on the transport system as a whole: in addition to infrastructure measures, mode-specific planning, robust and systematic timetable planning and operations, as well as improved utilization of staff and rolling stock, can all contribute to optimising capacity utilisation.



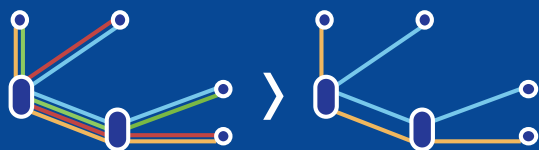
## Capacity is created through consistent systems thinking.

# Five changes of perspective

How can we deliver on our promises?



How can the offer and the system be made as simple as possible?



How can transport services be operationally separated?



Where and how often do you really need to stop?



Do all trains really have to go to the main station?



# Making reliability the foundation



## Improve stability

Stable rail operations are essential for making reliable use of existing capacity. Realistic journey and dwell times, sensibly allocated reserves, robust timetables and sufficient available resources limit delays and prevent them from spreading throughout the network.



## Boost resilience

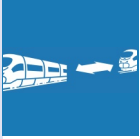
Disruptions cannot be completely avoided, but their impact can be significantly limited. Standardised disruption management plans, suitable diversion options, targeted redundancies and readily available information help to maintain operations even in the event of a disruption and to restore them swiftly to a stable state.



## Reduce dependencies and complexity

Numerous operational interdependencies make the rail system prone to disruption and complicate planning and scheduling. Systematic timetables, the avoidance of duplicate services, a reduction of unnecessarily long train runs, conflict-free routes, simplified track layouts, standardised processes and a targeted (operational) separation of services create a clearer and more efficient system.

# Mobilising existing capacity



## Optimise journey and track allocation times

The shorter the time a train occupies a section of track, a set of points or a platform track, the more flexibility there is for other trains or for stabilising buffers. Optimisation rather than a replacement only, optimised block sections, higher speeds through points, and modern signalling and safety technology, including on-board equipment, can specifically reduce occupancy times.



## Harmonise transport services

Significant variations in speed, stopping patterns and driving dynamics increase capacity utilisation, particularly on heavily used mixed-traffic routes. Standardising speeds, alternating service or omitting stops, and encouraging driving behaviour that conserves capacity enable more consistent train intervals and reduce overtaking conflicts.



## Strengthen the nodes

Railway stations and their access routes often determine the efficiency of entire lines and networks. Low-conflict routes, an even distribution of trains, tangential connections to relieve pressure on terminus stations, short passenger transfer times and targeted passenger flow management increase capacity and stability at transport hubs.

# Thinking about offer and resources as a whole



## Optimise planning and create the right conditions

Good planning decisions require reliable data, suitable tools, clear interfaces and practical guidelines. A well-coordinated suite of tools, transparent and unrestricted access to information, coordinated site planning and continuous improvement processes make it possible to assess alternatives at an early stage and to exploit existing potential proactively, pragmatically and consistently.



## Size to meet demand and ensure compatibility

The performance of the rail system is limited by its weakest link. Timetables, infrastructure, rolling stock, staff, stabling facilities and maintenance must therefore be coordinated and aligned with actual demand. The establishment of binding planning requirements enables the long-term and sustainable development of the system.



## Consider door-to-door travel

For passengers and shippers, it is not the journey of a single train that counts, but the reliable arrival at the final destination. Short walking distances between platforms, guaranteed connections, well-coordinated pre- and onward transport, and the integration of different modes of transport improve the entire travel chain and enable rail capacity to be utilised in a way that better meets demand.

# Strengthening responsibility and competence



## Raise awareness amongst all stakeholders

Capacity optimisation is not merely a technical task: it requires shared priorities and a comprehensive understanding of the system. Expertise, transparent information, clear strategic guidelines and long-term funding help policymakers, management, planners and operational staff to take into account the impact of their decisions on the system as a whole.



## Develop attractive working conditions

An efficient rail system requires a sufficient number of qualified and motivated staff. Good training, opportunities for development, appropriate scope for decision-making, social recognition and supportive automation help to attract and retain staff and deploy them effectively within the organisation.

**Capacity is a fragile resource: managing capacity carefully and holistically is more important than you might think!**

# Advancing Infrastructure

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