DLR

IFS Institute of Transportation Systems

TECHNISCHE UNIVERSITÄT DRESDEN

Chair of Railway Signalling and Traffic Safety Systems

Signalling system solutions for secondary lines in 2015

Dipl.-Wirtsch.-Ing. Timo Beier
Dipl.-Ing. Jörg Schurig (TU Dresden)
Dr.-Ing. Bärbel Jäger

DLR, Institute of Transportation Systems
Braunschweig

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Content

- **The current and forecasted situation on secondary railway lines**
- **The scope of the cooperation (objective and process) between the German Aerospace Centre and the University of Dresden**
- **Conclusion**

The characteristics of secondary lines clarify the relative low operational requirements

Track characteristics of secondary railway lines

- Mostly single track (except stations)
- Mostly not electrified
- A lot of level crossings, mostly not protected by technical equipment
- Relative low track velocities
- Medium or low density traffic lines

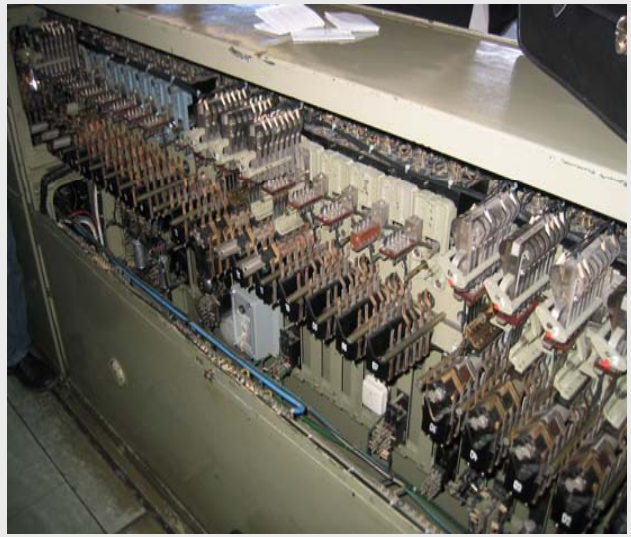
Due to high costs the existence of many secondary railway lines is endangered

Operations control and signalling systems in use

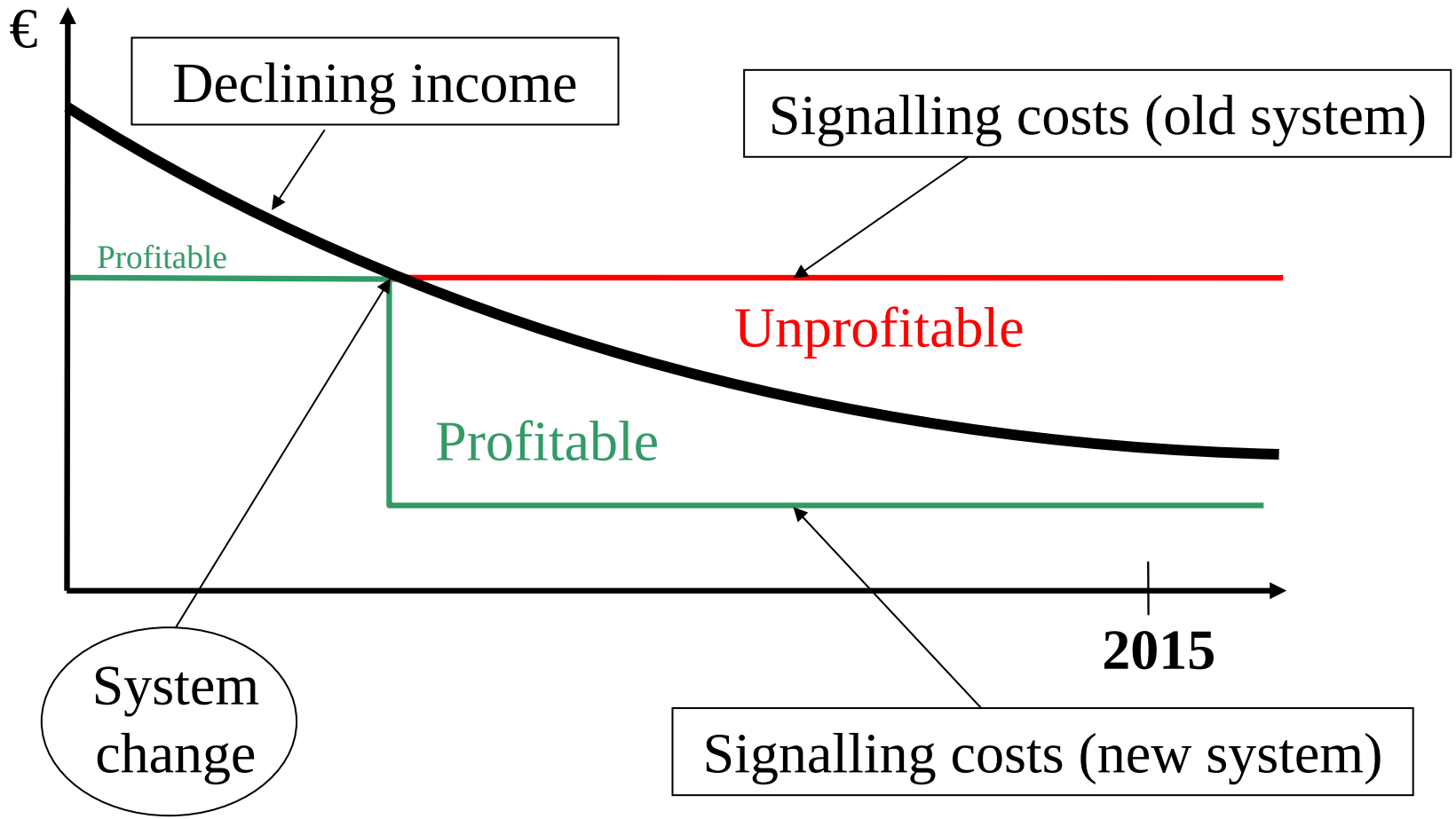
overaged

man-power intensive

High costs for operation and maintenance



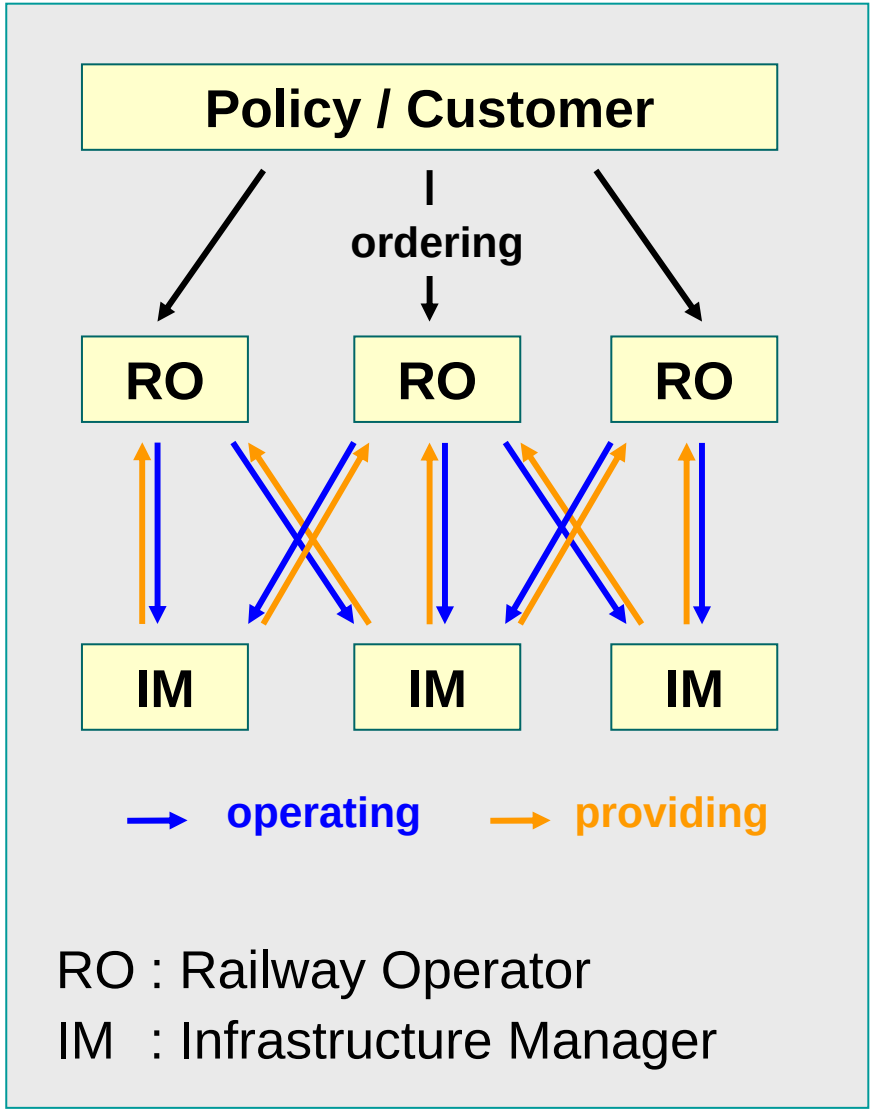
To retain the profitability of a line often a system change is required



Due to the Liberalisation the complexity of the railway market increases

Effects of the Liberalisation:

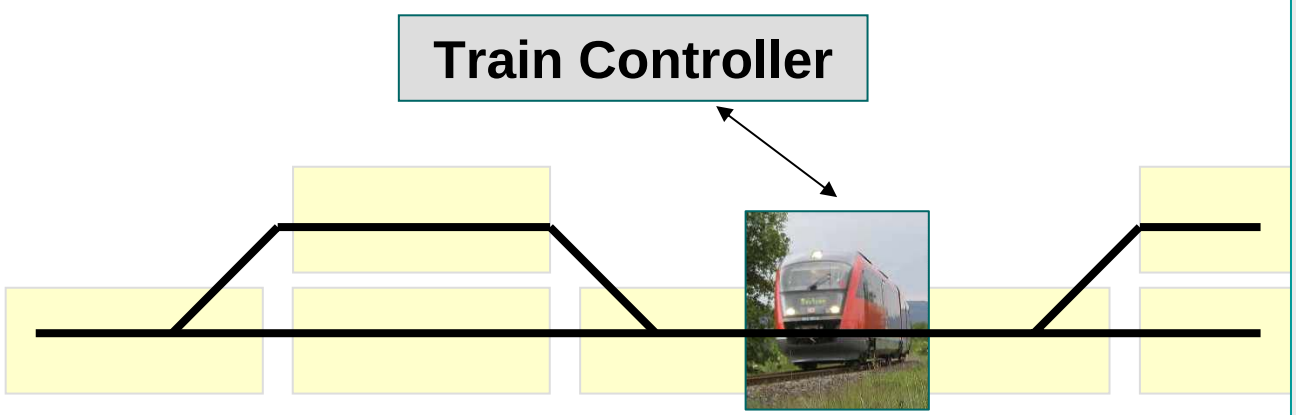
- Change of state-owned into privately organised railway companies
- Separation of the train operation from the infrastructure management
- Increasing number of railway companies
- Rise of competition, rise of cost pressure



Operation on low density lines can even be realised without any technical support

Basic system solution:

- Train order is controlled by an external train controller
- Field elements are controlled by vehicles



No existence of a systematically and consistent approach for a system solution

Low cost system approaches for the operations control:

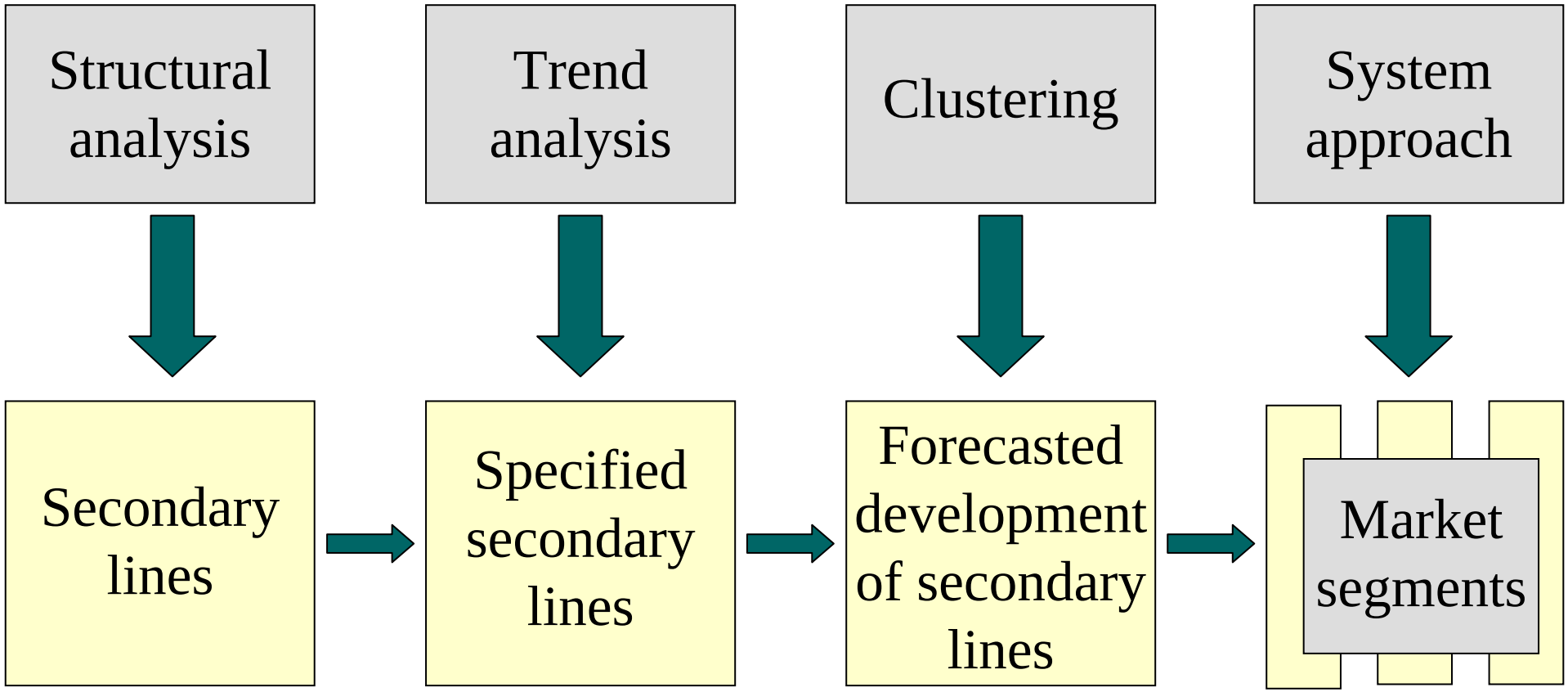
- Different approaches for a technical support exist
- In German-speaking area at least 11 different systems are in use
- Single solutions
- No consistent approach
- Rare exchange of experiences

Objective of the cooperation

- Achievement of system approaches for an economical and safe operation of secondary lines
- Based on a consistent and systematical consideration of secondary lines

Within the process suitable approaches for system solutions will be identified

Process:



Process summary

- **Analysis of the current and forecasted situation on secondary railway lines**
- **Derivation of the real existent requirements**
- **Identification of different market segments according to the requirements**
- **Identification of suitable system approaches for the market segments**

Mobile on-board equipment

Effects:

- Decrease of costs due to reduction of track-side equipment
- Easier exchange of rolling stock between different infrastructure systems

Conclusion

- **The existence of many secondary railway lines is endangered**
- **A reduction of operational costs is necessary**
- **The Liberalisation enforces the cost pressure**
- **A consistent approach is necessary to maintain secondary lines for the future (no single solutions)**
- **The introduced cooperation shall achieve system approaches based on a systematical consideration of the requirements on secondary lines**

Thank You for your Attention!