

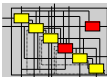
A continental career in freight handling and locomotive management



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Railway Systems Engineering comes of age

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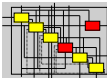
Overview

- Introduction
- Before Rail Systems Engineering
- MSc course
- After graduation
- Summary

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Introduction

A system is

- an entity
- with a functional purpose
- within its environment.

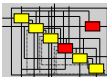
Input, output, resources, constraints

Interacting elements can be

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Introduction

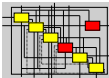
Interacting elements can be organisations, people, facilities,
policies, documents, hardware, software,
and, and

- Our customers are people
- People finally act and set the direction and pace

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Before Rail Systems Engineering

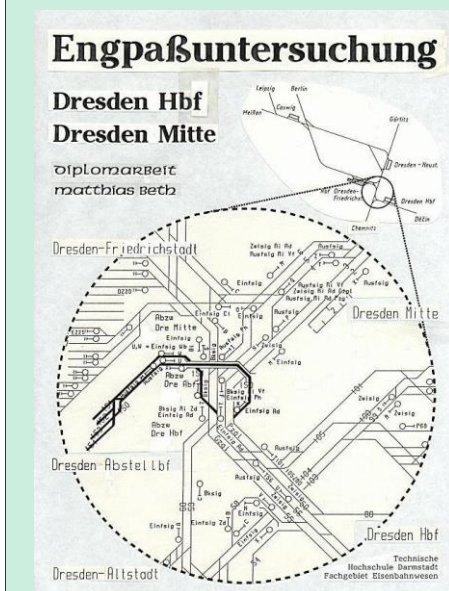
- 1993 graduated in Germany,
- Dipl.-Ing. in civil engineering
- Dissertations in railway subjects – non-civil engineering

Slide No: 7

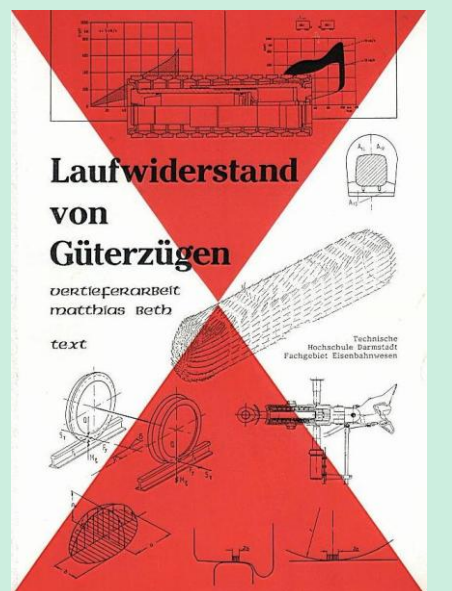
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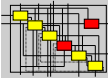
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Traffic control in the Dresden rail network



Mechanical resistances of freight trains





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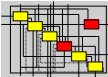
Before Rail Systems Engineering

- Worked in several areas of guided transport including
 - Track construction and maintenance,
 - Operation of tram, trolleybus, guided bus,
 - Consultancy, Korean High Speed line, early stages,
 - Quality and safety management,
 - International intermodal rail transport,
 - Freight operations and safety management (EBL),

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Kombiverkehr International intermodal transport

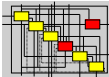
- largest private operator,
- many players involved,
- technical issues,
- organisational issues,
- legal issues,
- distance problem solving.





Lokomotion International rail freight transport

- "First in industry" experiences
 - Locomotive issues
 - Untried international legal rules
 - Operational staff with own locomotives each



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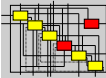
Safety and Operations Manager

- Eisenbahnbetriebsleiter - a dying breed of German origin
- A single person with broadly based specialist knowledge, responsible for all railway safety issues of the railway company:
 - Tuition for operational personnel,
 - Organisation of railway operations,
 - Health at work issues,
 - Maintenance,
 - Procurement,
 - Changing legal environment,
 - not only as a control or supervisory body,
 - but to guide actively.

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MSc course

Great experience & international practice (as you know)

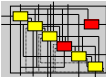
Personally:

- Privately financed
- Legal holidays and unpaid leave to attend
- Travel by rail and boat (Mainz – Cologne – Brussels – Oostend – Folkestone – London – Sheffield)
- And finally: 2004 MSc Eng in RSE

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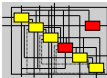
After graduation

- 2004 Sheffield, MSc Eng in RSE
- 2004 Rotterdam, Ops & Safety Manager ERS Railways BV
- 2008 Antwerp, Fleet Director, Angel Trains Cargo
- 2009 Mainz, Birmingham, independent consultant
- 2012 Frankfurt, senior systems manager for DB Schenker Rail
- 2016 ??

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ERS Railways, Rotterdam

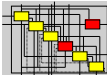
- Privately owned
- International organisation & staff
- Streamlined white collar staff
- Operational staff with locomotive handover



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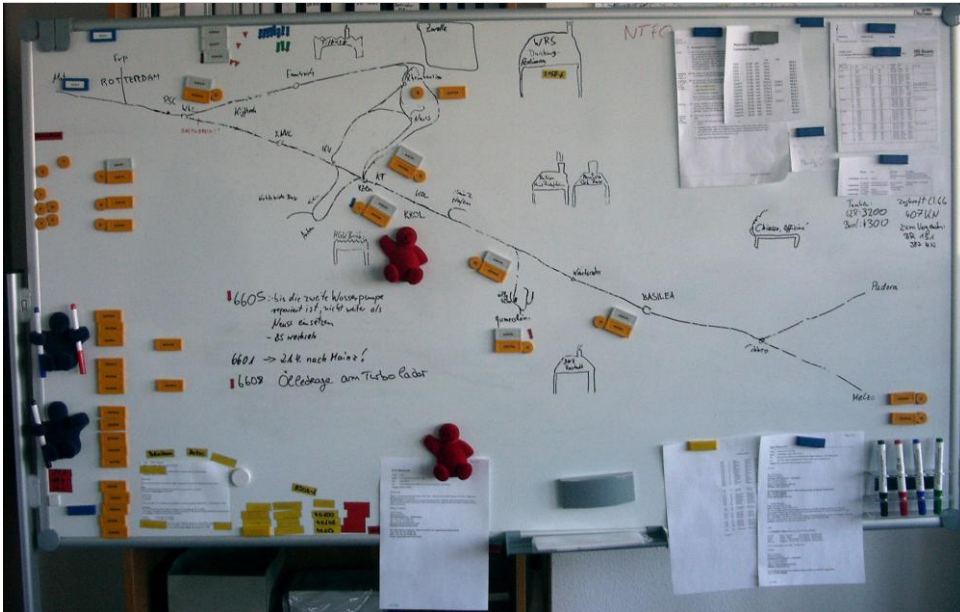
Safety Management System

- Europe: The Safety Management System organisation
 - Safety aspects lie in the hands of different persons
- ERS Railways' structure
 - Country manager DE was a sales person,
 - Country manager NL-BE was a business analyst
 - Fleet Manager was responsible for 19 main line locos and 957 wagons, but just one person assigned to him
 - Safety Manager responsible for
 - Safety Management system
 - Hindsight safety issues, e.g. reports, checks
 - General Manager is a non railway person

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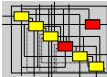
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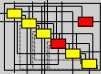
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European Motive Power

Left/ right track orientation
Signalling
Train protection systems
Track gauge
Brake systems
Head signal
Driver position



Can go anywhere!!

Can it ??

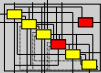
Radio communication
Vehicle / Loading gauge
Brake properties
Tail signal
Axle loads
Language

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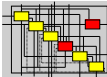
Angel Trains Cargo, Antwerp

- 2008 Fleet Director
- Technical director
- 10 staff (3 administrative and 7 technical of various nationalities)
- technical responsibility for about 220 diesel and electric locomotives hired out to freight operators all over Europe.
- made redundant shortly after RSB sold AT

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Independant Consultant

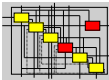
2009 independent consultant,

- Peru - Ferrocarril Nor Andino Cajamarca - Bayowar 2009
- French railway engineers course in B'ham,
- Odd job support to the Rail Systems Eng'g staff,
- Germany, heritage railway, to secure non existing funding,
- Near East, pre-planning for the re-gauging of a freight line,
- Russian Railways' executives, British Railway perspective,
- East Africa, fast rail line rehabilitation, famine situation,
- Independent Competent Person (ICP) Programme.

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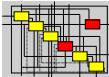
Wheel disk slip



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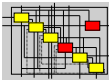
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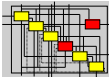
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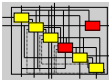
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Slide No: 27

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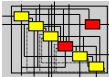
Wheel disk slip



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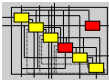
Wheel disk slip



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Railway Systems Engineering comes of age

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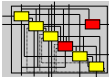
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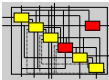
Wheel disk slip



Slide No: 31

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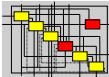
Wheel disk slip



Slide No: 32

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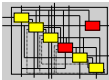
Wheel disk slip



Slide No: 33

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Wheel disk slip

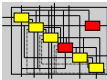


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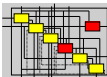
Wheel disk slip

- What now, Mr. Beth?
- Physical situation
- Rule book
- Carry on with the test runs

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Wheel disk slip

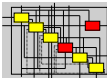
- Thinking the system through
- Degraded mode
- ❖ A test is not done to achieve the desired outcome!
- ❖ A test has an open result

After degraded mode, reset the system.

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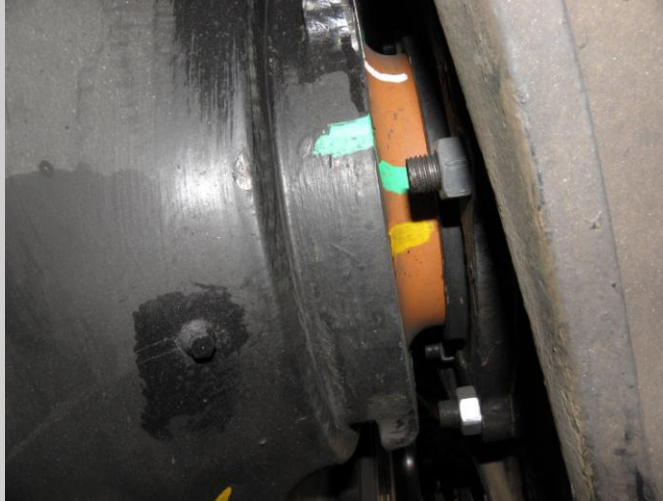
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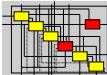
Wheel disk slip



Slide No: 38

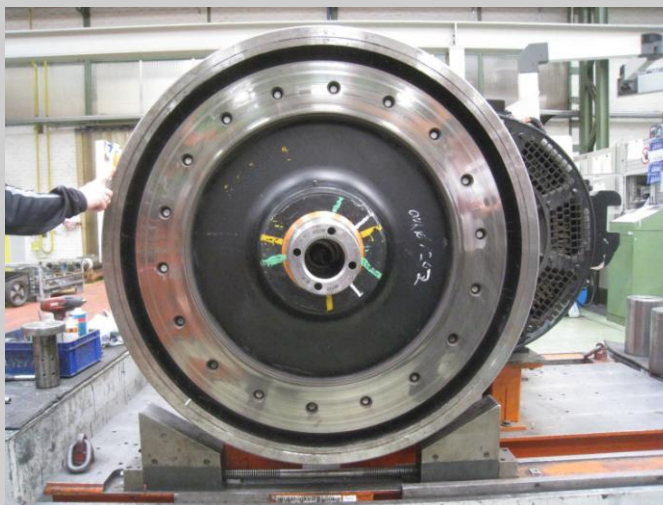
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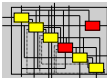
Wheel disk slip



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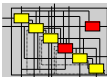
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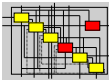
Wheel disk slip

- Next steps
 - Visual inspection of the wheel–axle interface
 - Mechanical tool devised, developed, tested, used
 - Software change
 - Axle replacement

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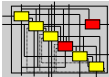
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- Thank you very much for your attention

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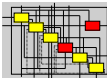
Wheel disk slip



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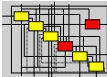
Wheel disk slip



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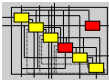
Wheel disk slip



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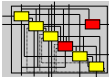
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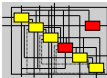
Wheel disk slip



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- Thank you very much for your attention

Slide No: 48

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U A continental career in freight handling and locomotive management B

- Learning objectives
- Railways are a seriously complex system, but still worth working
 - People run the railways

Matthias Beth