Effects of Vertical Separation in the railway sector

Vertical separation, competition and coordination

Didier van de Velde (inno-V)

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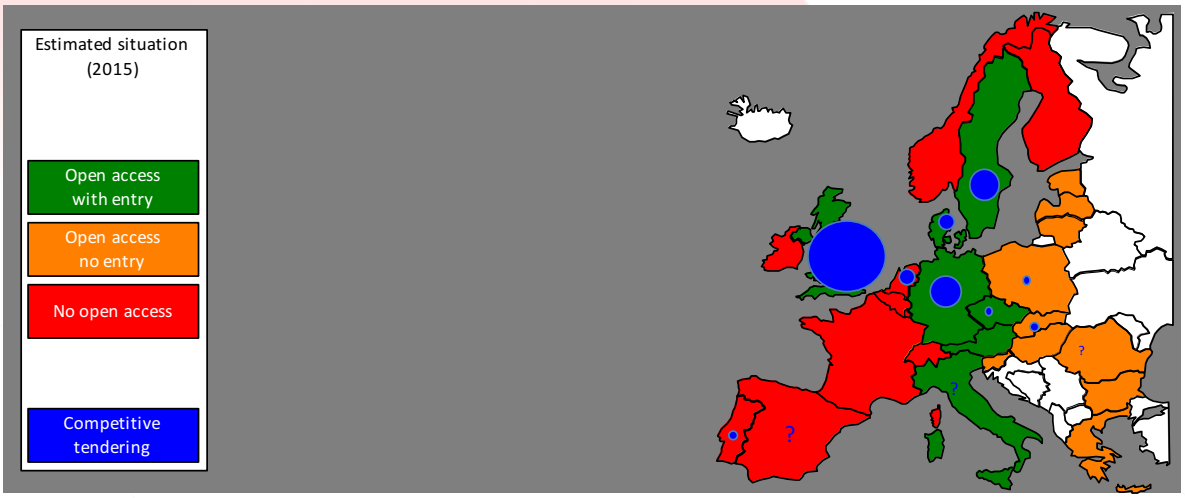
Competition in the railway sector



Vertical separation:
A problematic solution to a problem…

Inefficiency / Lack of customer orientation	Problem
Efficiency / More customer orientation	Wish
Need for more competitive pressure	Probably a good idea
Competitive tendering and/or open access	Perhaps, but there are also other options
Fairness and no barriers to entry	A requirement that is difficult to realise
Full vertical separation	Radical solution that could be costly in longer run due to coordination losses

EVES-Rail: Economic effects of Vertical Separation in the railway sector

inno-V	inno-V consultancy (Amsterdam, NL) **Didier van de Velde**
UNIVERSITY OF LEEDS Institute for Transport Studies	ITS, University of Leeds (GB) **Prof. Chris Nash** **Andrew Smith**
KOBE UNIVERSITY	Kobe University (JP) **Prof. Fumitoshi Mizutani** Fukuyama Heisei University (JP) **Shuji Uranishi**
VU UNIVERSITY AMSTERDAM	VU University (Amsterdam, NL) **Mark Lijesen**
civity Management Consultants	civity management consultants (Hamburg/Berlin, DE) **Frank Zschoche**

- **Pre-existing academic resarch**
  - No evidence that unbundling is better/worse
  - Many deficiencies
    - Data quality,
    - Coding of structural options,

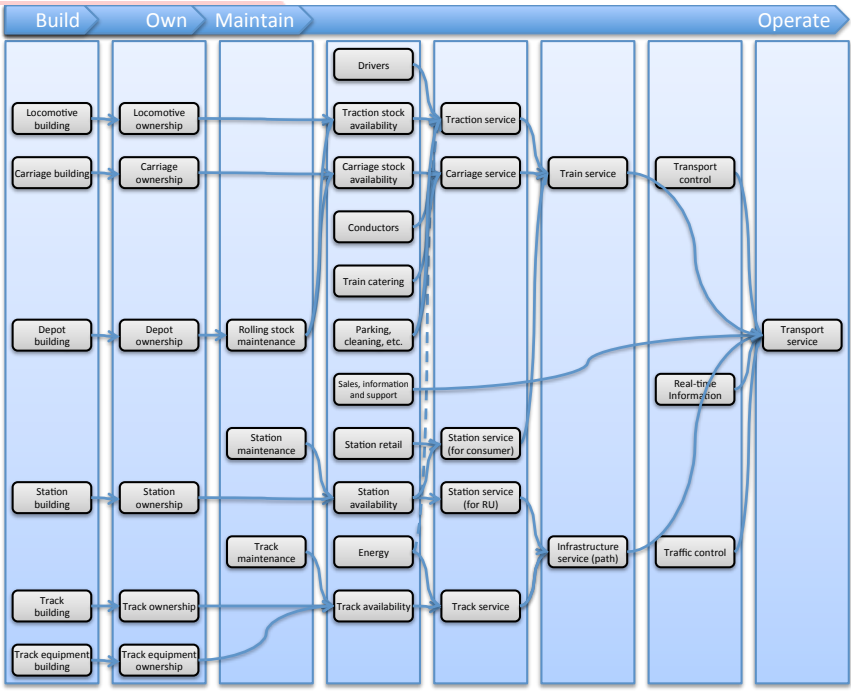
- **EVES-Rail report**
  - More and better data
  - More refined approach
    - Vertical separation, holding company, vertical integration
    - Traffic Density
- **Quantitative research** (key findings)
  - **No evidence that vertical separation is unconditionally superior or inferior to other structural options**
  - **At higher traffic densities, vertical separation increases costs**
  - And at a higher share of freight in total revenues, vertical separation increases costs

  → **Coordination issues**
  - Competition does not appear to work better or worse under vertical separation

  → Universal vertical separation is likely to increase total costs
- **Qualitative approach (value chain analysis)**
  - Further investigation of incentive misalignment issues

Value chain analysis

- Decomposition in elements of the value chain



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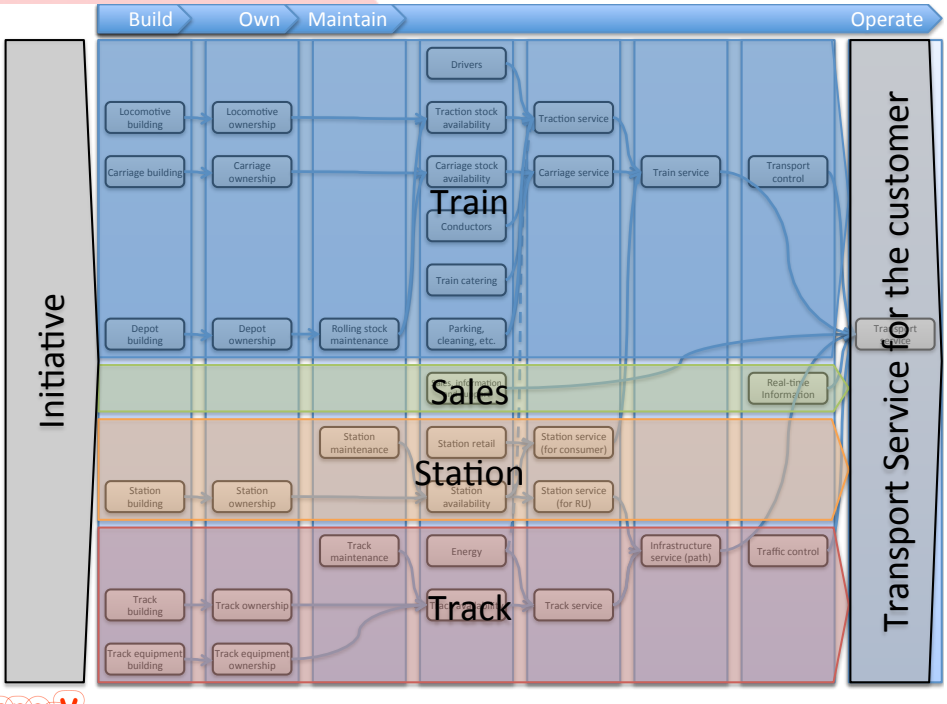
Value chain analysis

- Typical layers of any transport systems
- But rail vertical separation is not that simple
- Many different regimes across Europe!



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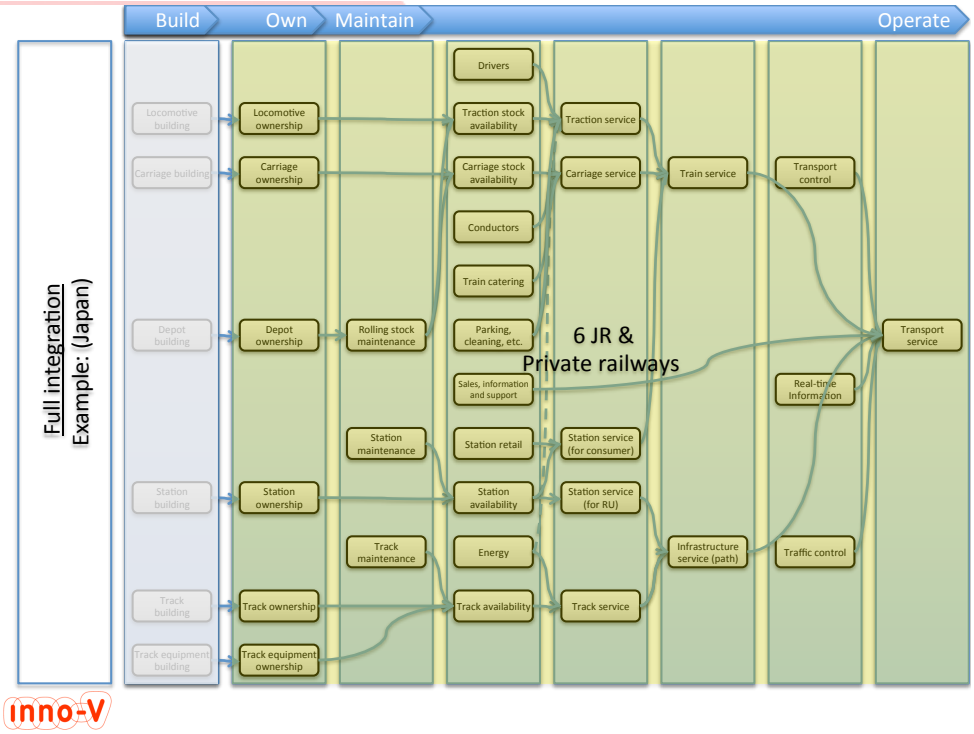
Value chain analysis

- **Japan**
  - Full vertical integration
  - Regional operators
  - Privatisation
  - Stability (no tendering)
  - High efficiency
  - High customer focus



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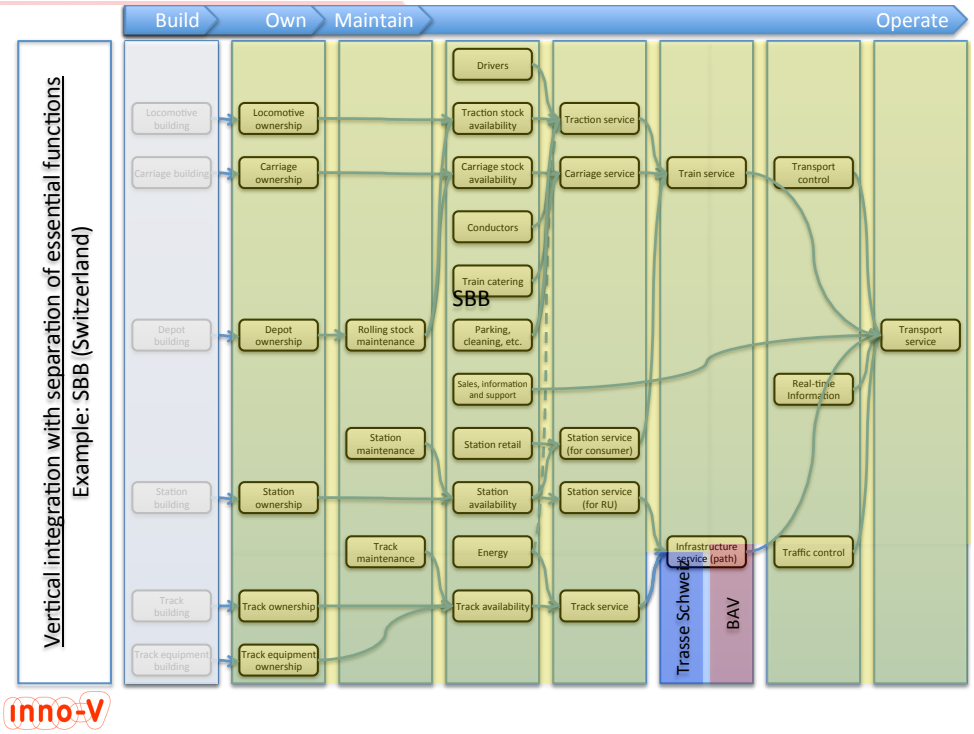
Value chain analysis

- **Switzerland**
  - Integrated operator
  - No tendering
  - Highest performance (in Europe)



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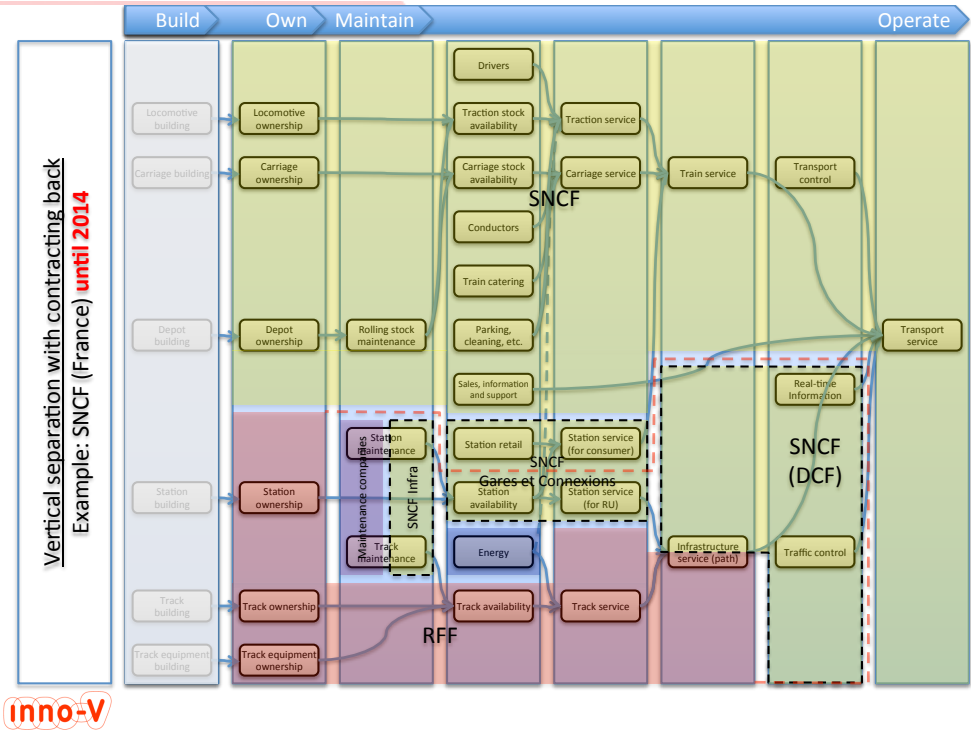
Value chain analysis

- **France**
  - Vertical separation until 2014
  - In 2015 moved to a less separated regime
  - No competition (yet)



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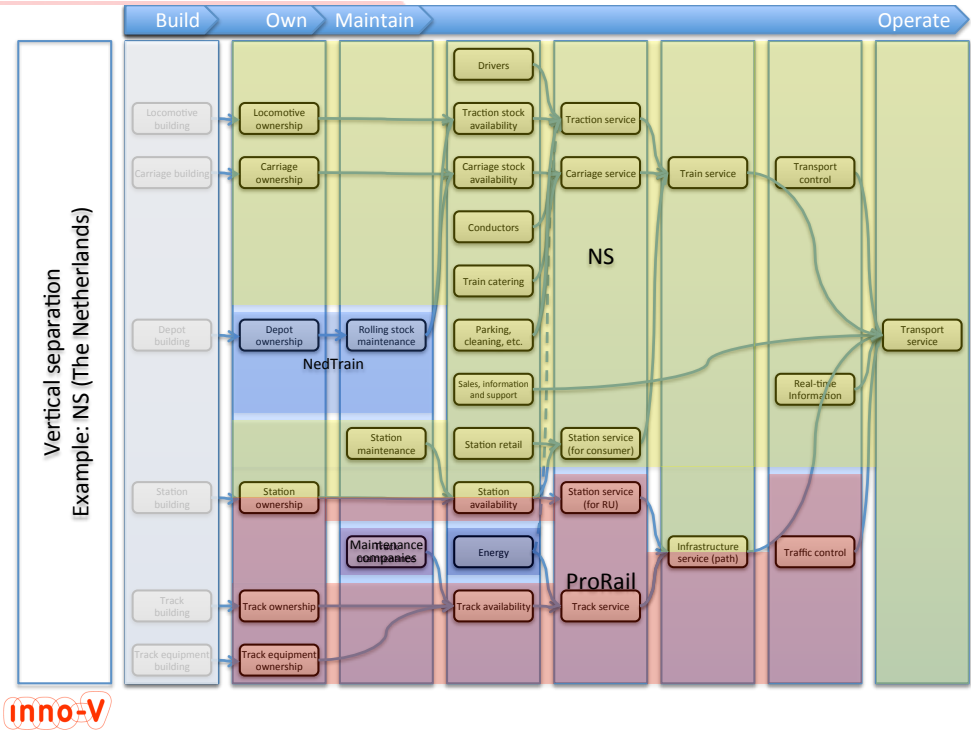
Value chain analysis

- **Netherlands**
  - Vertical separation
  - Tendering on branch lines
  - High performance (in Europe)
  - Coordination issues leading to coordination focus



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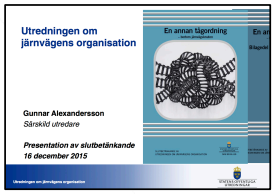
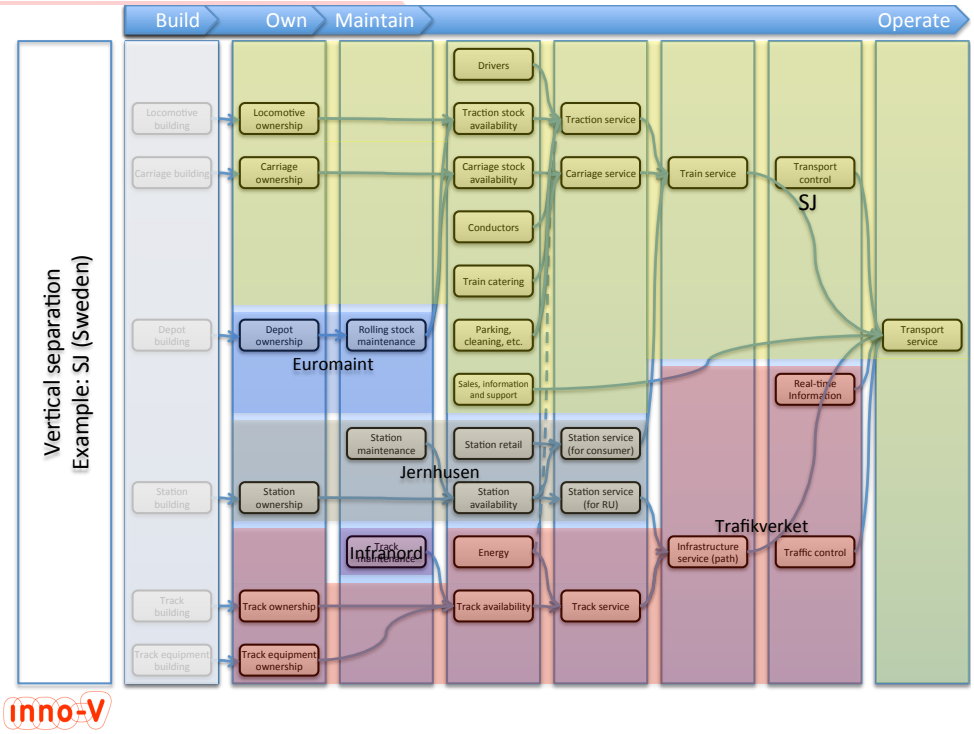
Value chain analysis

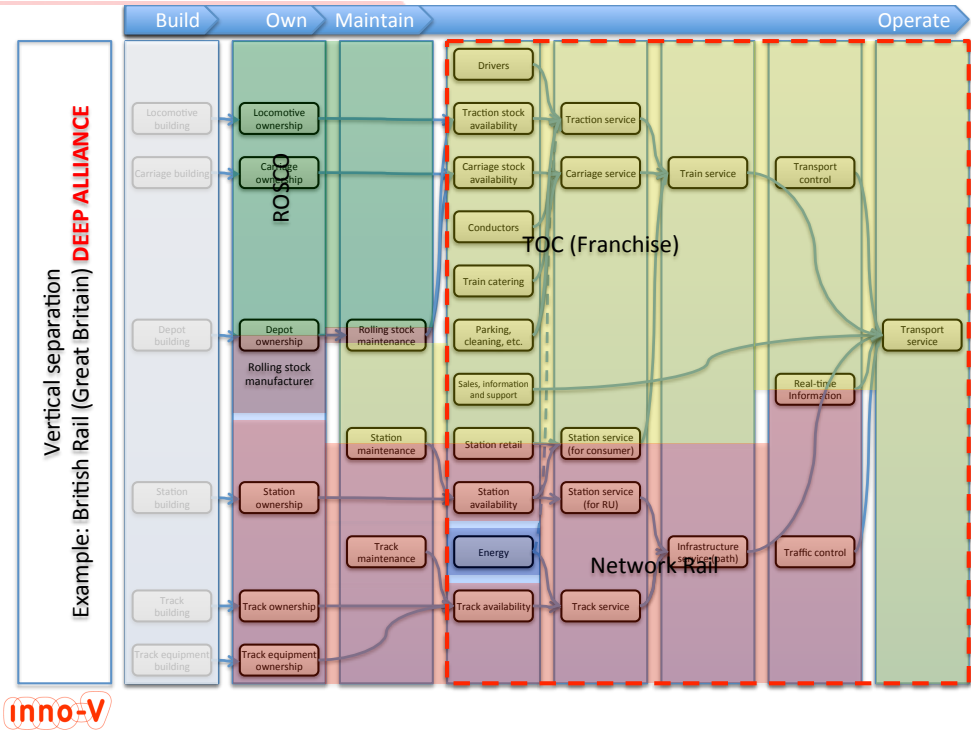
- **Sweden**
  - Full separation
  - Open access and tendering
  - Railway investigation finalised in December 2015





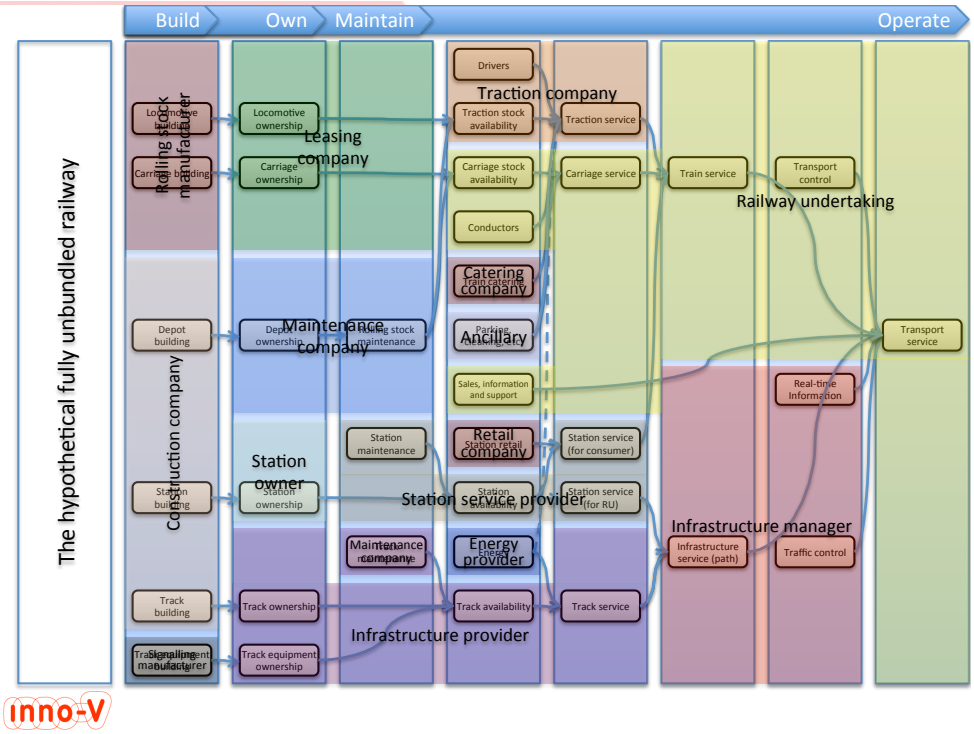
Value chain analysis

- **Great Britain**
  - McNulty (2011)
  - High level of fragmentation is important reason for inefficiencies
  - Recommends closer alignment and partnerships
  - But, deep alliance proves problematic…



Value chain analysis

- **How far can we go?**
- **How far should we go?**



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Incentive misalignment

Concept – actors – economic effects

- **Vertical Separation**
  - Fully separated IM alongside RUs
  - Each subject to set of incentives (market or regulation)
  - Each optimises <u>own</u> economic position
    - Optimality for each actor…
    - *Is not necessarily optimality for the whole rail sector!*
- **Can lead to economic losses**
  - Due to sub-optimal choices compared better aligned (more cooperative) set-up
  - Examples:
    - Additional capacity investment needs
    - Additional operational costs
    - Lost opportunities for revenue-making

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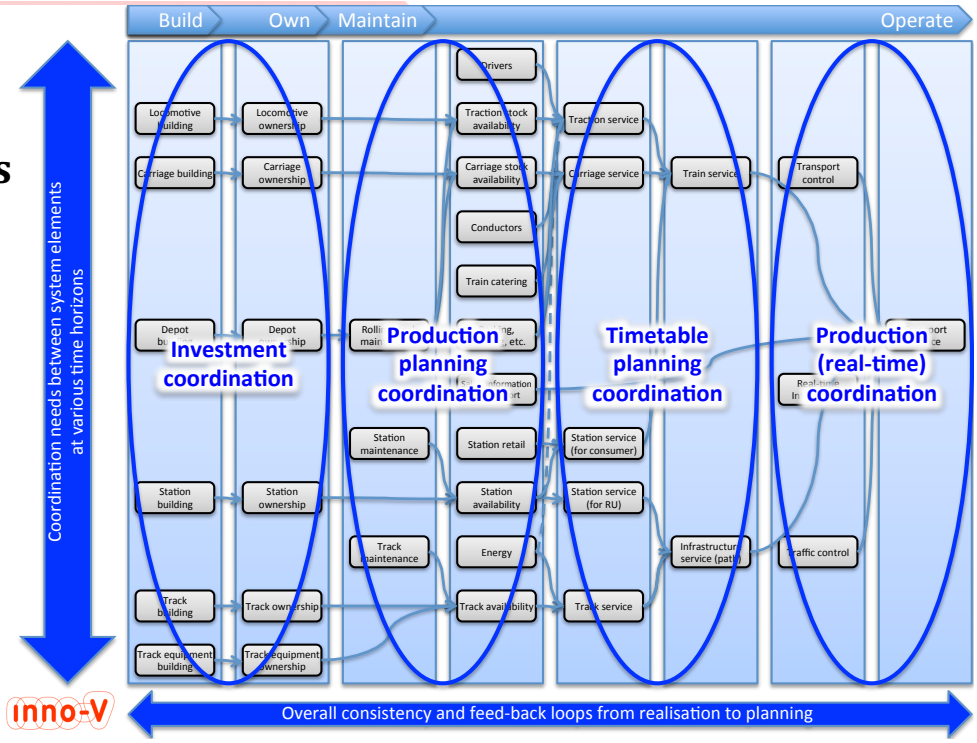
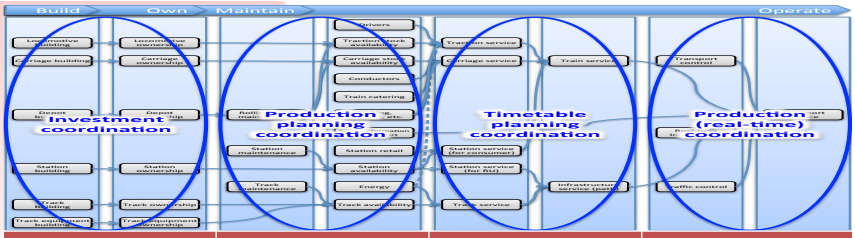
Coordination issues at various levels



Coordination issues at various levels

Examples of coordination issues & realignment



Investment coordination	Production planning coordination	Timetable planning coordination	Production (real-time) coordination
• Extension / decommissioning • Upgrading / downgrading	• Quality of resources and reliability • Small/medium scale investments	• Maintenance/renewal versus operations • Timetable robustness	• Disruption handling • Feed-back loops
• Rail2000 (CH) • High frequency rail (NL) • RUS/IIP (GB) • Prioritisation (FR) • Rolling stock and power supply (GB) • ERTMS/ETCS • Synergy real estate – rail	• Coordination of small scale / high impact investments (JP) • IM/RU cooperation/misalignment (NL, FR, GB) • Trade-offs track maintenance / total system costs	• Timetabling and path allocation (CH, GB, FR, NL) • Track possessions and commercial consequences (FR, PL)	• Traffic control centres colocation (GB, NL, FR) • Passenger information (NL) • Feed-back loops (JP, NL)

Incentive misalignments
Findings

- **Vertical separation can generate substantial incentive misalignments between IM and RUs**
  - Likely to be larger than transaction costs generated by vertical separation
- **Misalignment issues increase in importance…**
  - …When **investments** are required
    - In growing railways (e.g. growing demand)
    - For technical innovation (e.g. ERTMS)
  - …And especially at **higher train densities**
- **Track access charges can solve some issues but not all**
- **Additional hybrid re-alignment arrangements have started to appear but**
  - **Unlikely** that these will **solve all issues** in unbundled railways
  - …**Especially when** this would **involve money transfers** between IM and RUs

→ **Misalignment issues urgently require more attention and analysis in order to make sound choices between structural options**

Food for thought

- Over the longer run, vertical separation might prove to be a costly obstacle to system-wide optimisation and value-chain optimization due to the technical characteristics of the railway sector.
- However, vertical separation may have been the occasion for shake-ups and management reforms leading to performance improvements (including competitive tendering)
- But these could also have been realised under different institutional configurations.

Further background information

Extended research report

- van de Velde, D., C. Nash, A. Smith, F. Mizutani, S. Uranishi, M. Lijesen and F. Zschoche (2012), **"EVES-Rail - Economic effects of Vertical Separation in the railway sector"**, Report for CER - Community of European Railway and Infrastructure Companies, by inno-V (Amsterdam) in cooperation with University of Leeds – ITS, Kobe University, VU Amsterdam University and civity management consultants, Amsterdam/Brussels, 188 pp.

Academic publications

- Nash, C.A., A.S.J. Smith, D. Van de Velde, F. Mizutani and S. Uranishi (2014), **"Structural reforms in the railways: Incentive misalignment and cost implications"**, *Research in Transportation Economics*, 48, 16-23.
- Mizutani, F., A. Smith, C. Nash and S. Uranishi (2015), **"Comparing the Costs of Vertical Separation, Integration, and Intermediate Organisational Structures in European and East Asian Railways"**, *Journal of Transport Economics and Policy (JTEP)*, 49, 496-515.
- van de Velde, D.M. (2015), **"European Railway Reforms: Unbundling and the Need for Coordination"**, In: *Rail economics, policy and regulation in Europe* (Eds.: Finger, M., T. Holvad and P. Messulam), Edward Elgar.