

Workshop „Procurement design of local public transport services”
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**Organisational models for the
procurement of regional rail passenger services**
Analysis of factors influencing their suitability

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This presentation is based on joint research activities with Prof. Dr. Thorsten Beckers.

Agenda

1 Introduction

2 Procurement methods in public contracting

3 Systematisation and deduction of potential organisational models

4 Factors influencing suitability of organisational models

5 Idealised situations with specific suitability of presented models

6 Conclusion

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- 1 Introduction**
- 2 Procurement methods in public contracting**
- 3 Systematisation and deduction of potential organisational models**
- 4 Factors influencing suitability of organisational models**
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Introduction

Background and motivation

- In recent years new organisational models for the procurement of regional rail passenger services have been developed in Germany, whose innovations essentially deal with the following questions
 - Allocation of responsibilities for the various value-added steps (such as rolling stock, maintenance and operations) to the transport authority itself or to privately organised transport companies
 - (Un-)Bundling of the value-added steps
- Current Examples in Germany
 - Start of operations of the new Rhine-Ruhr-Express (RRX) in western Germany in end of 2018
 - Discussion about the organisational model for the second and third part of the suburban rail services (S-Bahn) network of the German capital Berlin
- Analogies of tendering procedures for regional rail passenger services and infrastructure provision via public-private partnerships (PPP)

Aim of this presentation / paper

- Transfer of relevant research findings on PPP to regional rail passenger services
- Central questions in the analysis
 - Allocation of responsibilities for the procurement at the various value-added steps
 - Bundling / unbundling of the different value-added steps

Methodology

- Qualitative Analysis using mainly New Institutional Economics (NIE)

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Procurement methods in public contracting

Idealised procurement methods in public contracting

- Traditional procurement method
- Public-private partnership (PPP)

Central characteristics of PPP

- *Long-term contract* (generally 20-30 years, sometimes shorter) between public authority as principal and privately organised companies as agents
- *Bundled allocation of value-added steps* ("bundling") to a private contractor, in whose area of responsibility is also the overall management of the value-added steps (i.e. the coordination of the interfaces between them)
- *Transfer of central cost risks* to the private contractor as part of the contractually agreed risk allocation with the aim of establishing incentives for cost reduction and / or quality improvements

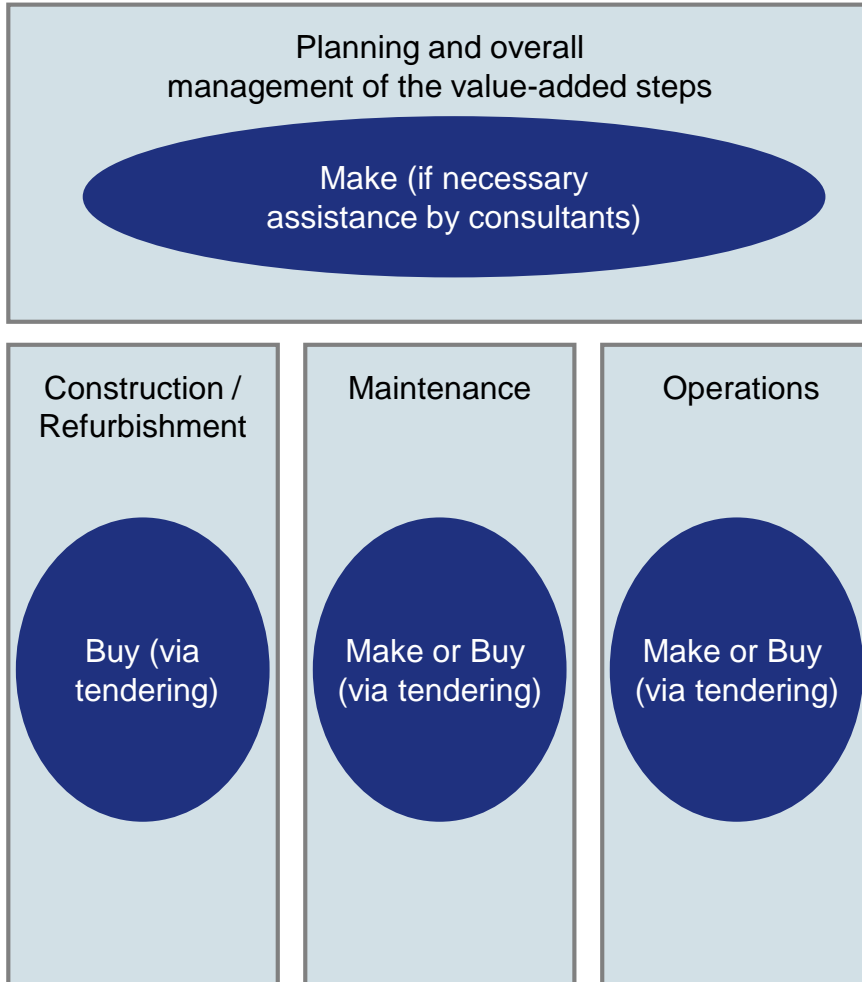
Transfer to regional rail passenger services

- Similar questions in the context of organisational models for regional rail passenger services
- Considered value-added steps: Rolling stock, Maintenance, Operations

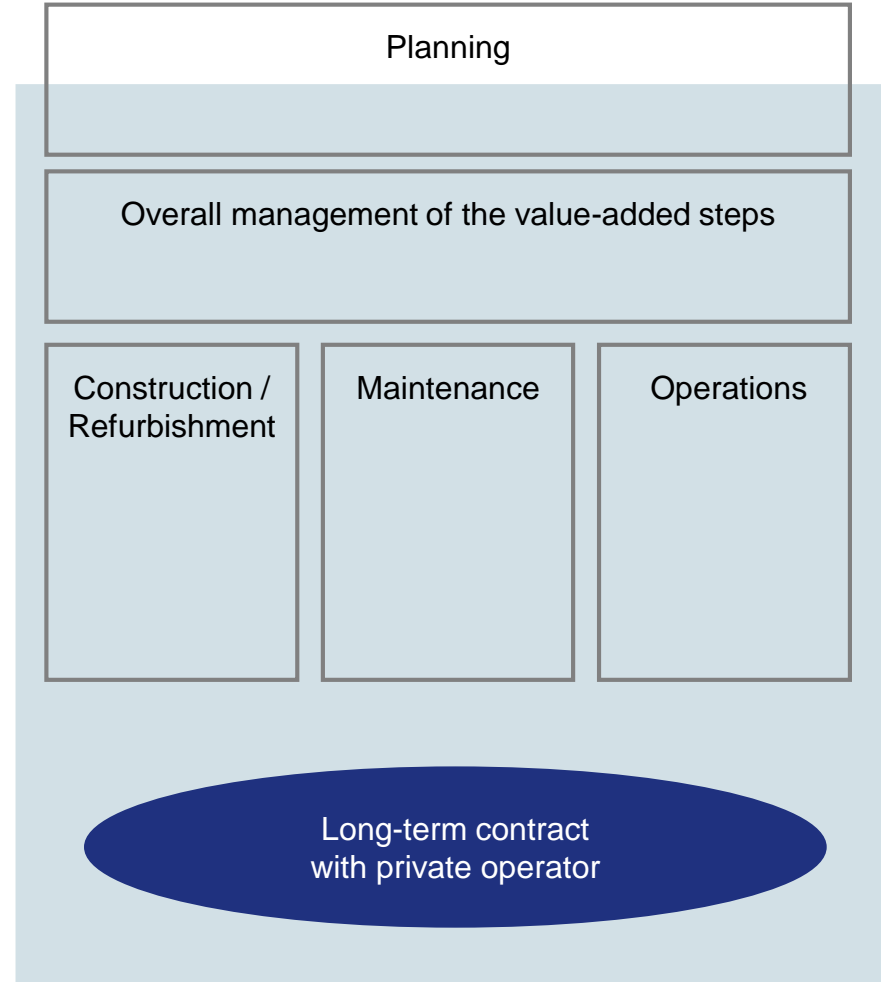


Definition of contractual PPP compared to the traditional procurement method: bundling / unbundling

Traditional procurement method



Public-private partnership



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Systematisation of potential organisational models

Organisational models can be systemised according to two design options

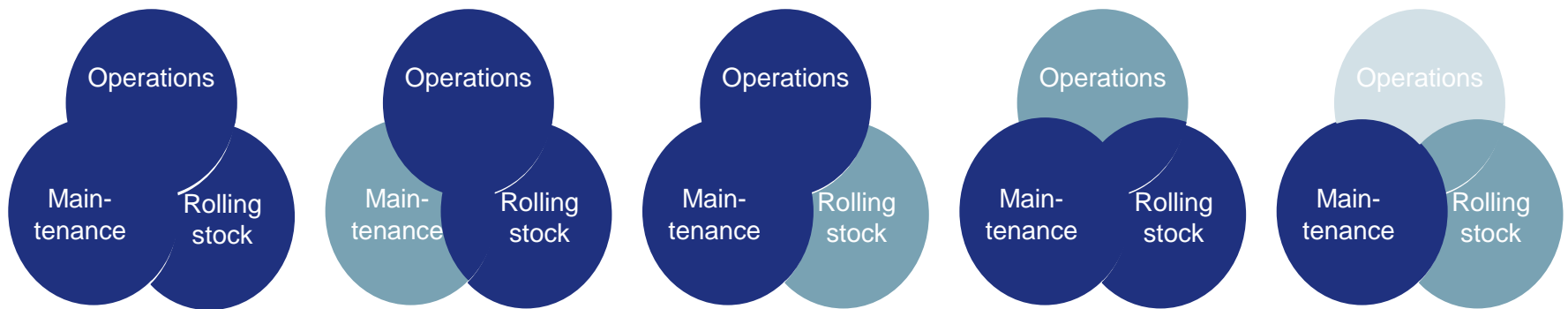
- Allocation of responsibilities for the procurement (make-or-buy question)
- Bundling / unbundling of the different value-added steps

Allocation of responsibilities for the procurement (make-or-buy question)

- In case of "make" the public authority is responsible for providing the services of the respective value-added steps or bundles
- In case of "buy" (in the sense of contracting out) the responsibility of the respective value-added steps is allocated to a private company, so that the private companies are responsible for providing the services of the respective value-added steps

Bundling / unbundling of the different value-added steps

- Overall five possible constellations regarding bundling and unbundling



Organisational models for the procurement of regional rail passenger services (1/2)

Model	Responsibilities according to the legend	
Model 1) <i>Public Railway</i>	Rolling stock + Operations + Maintenance	
Model 2) <i>Private Railway</i>	Rolling stock + Operations + Maintenance	
Model 3) <i>Public rolling stock pool</i>	Rolling stock	Operations + Maintenance
Model 4)	Rolling stock	Operations + Maintenance
Model 5)	Rolling stock	Operations + Maintenance
Model 6)	Rolling stock + Operations	Maintenance
Model 7)	Rolling stock + Operations	Maintenance
Model 8)	Rolling stock + Operations	Maintenance

Public Authority
 Company A
 Company B
 Company C

Organisational models for the procurement of regional rail passenger services (2/2)

Model	Responsibilities according to the legend		
Model 9)	Rolling stock + Maintenance		Operations
Model 10)	Rolling stock + Maintenance		Operations
Model 11) <i>Private rolling stock pool</i>	Rolling stock + Maintenance		Operations
Model 12)	Rolling stock	Operations	Maintenance
Model 13) <i>RRX model</i>	Rolling stock	Operations	Maintenance
Model 14)	Rolling stock	Operations	Maintenance
Model 15)	Rolling stock	Operations	Maintenance

Public Authority
 Company A
 Company B
 Company C

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Factors influencing suitability of organisational models (1/4)

Resources of public authority

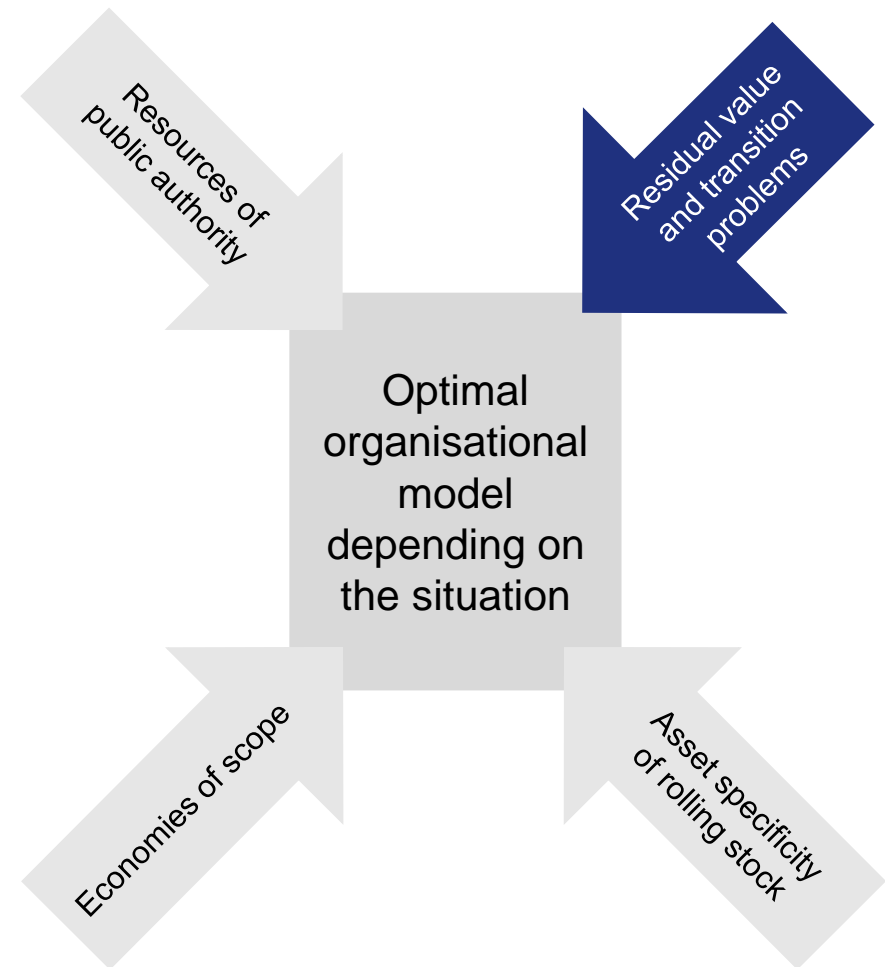
- Availability of input and output knowledge for designing the contract between public authority and private companies as well as the interfaces between the value-added steps
 - Output knowledge = Ability to express the desired output of a good or service (e.g. specific capacity of train services during a certain period)
 - Input knowledge = Ability to describe and understand all tasks, processes and decisions necessary to transform inputs into the desired output (e.g. timetabling, vehicle deployment)
- Availability of time for implementation of an organisational model (e.g. years until services are planned to be in operation)



Factors influencing suitability of organisational models (2/4)

Residual value and transition problems

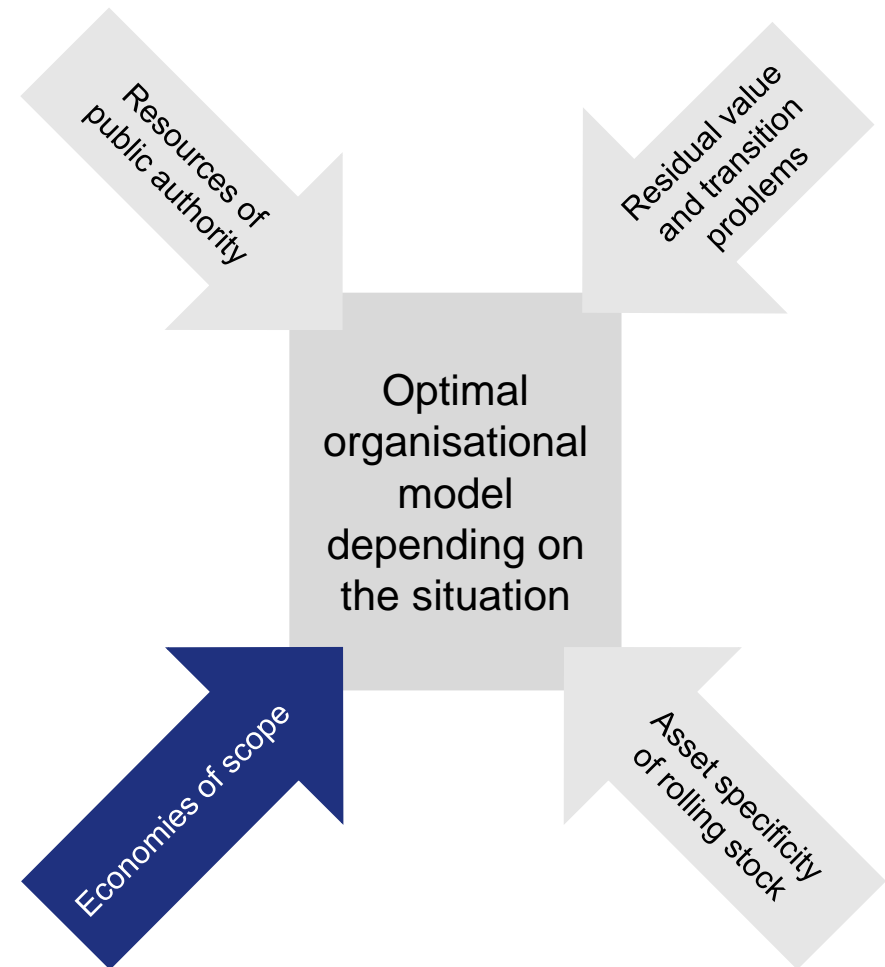
- Problems occur when contract period and technical lifespan of assets (e.g. rolling stock) differ (greatly)
 - Contract period: up to 15 (22,5) years
 - Technical lifespan of rolling stock: up to 30 (or more) years (2x contract period)
- If contractors change between two contract periods, a transition of rolling stock has to be arranged
- Generally pronounced residual value problems if substance quality of rolling stock is difficult to describe, measure and evaluate
- Pronounced residual value problems lead to high transactions costs during the transition of rolling stock



Factors influencing suitability of organisational models (3/4)

Economies of scope

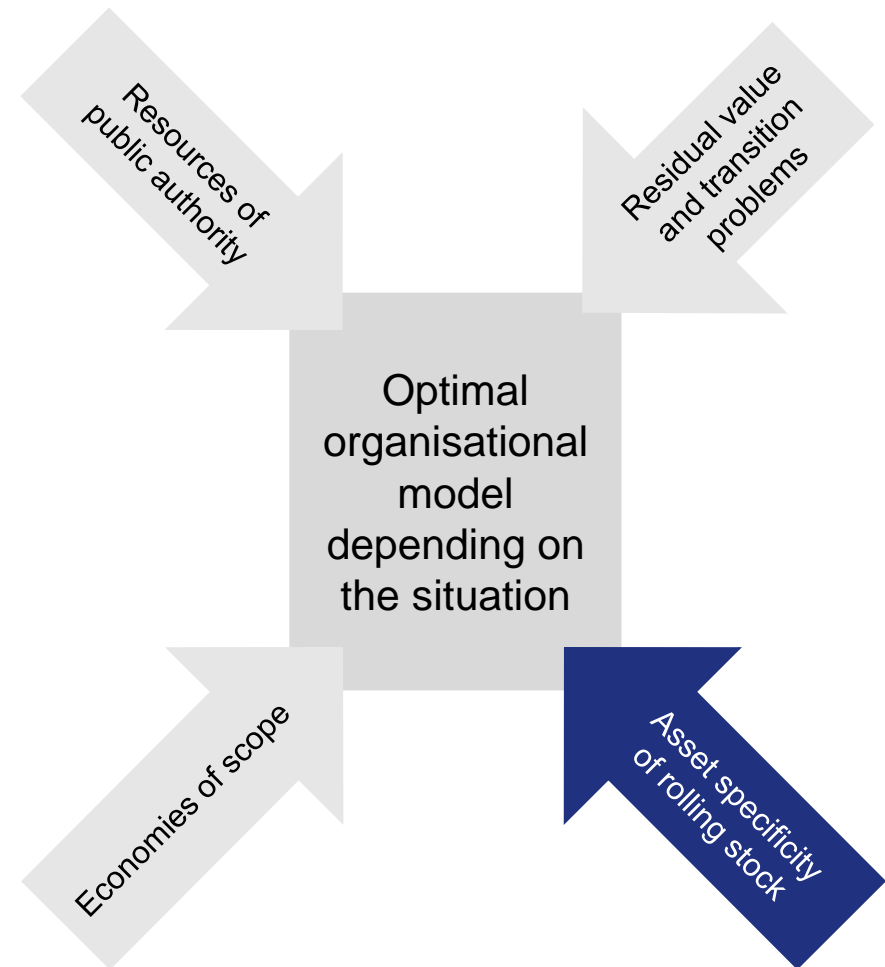
- Great advantages if there is high potential for optimisation measures carried out by only one actor covering several value-added steps
 - Operations and maintenance (low)
 - Operations and rolling stock (medium)
 - Rolling stock and maintenance (high)
 - Operations, maintenance and rolling stock (very high)
- Bundling rolling stock procurement with other value-added steps is probably of great relevance for potential economies of scope
 - Important technical interfaces
 - High investment volumes



Factors influencing suitability of organisational models (4/4)

Asset specificity of rolling stock

- Potential types of rolling stock specificity
 - Physical-asset specificity, e.g. third rail
 - Dedicated assets, e.g. certain amount of train cars for a specific network / line
- Carrying out specific investments in rolling stock by private companies lead to mutual dependencies between them and the public authority
- No dependencies are established when procurement of rolling stock is carried out by the public authority
- Closely linked to residual value and transition problems → missing used vehicle markets because of high asset specificities lead to necessity of transition of rolling stock between two contractors



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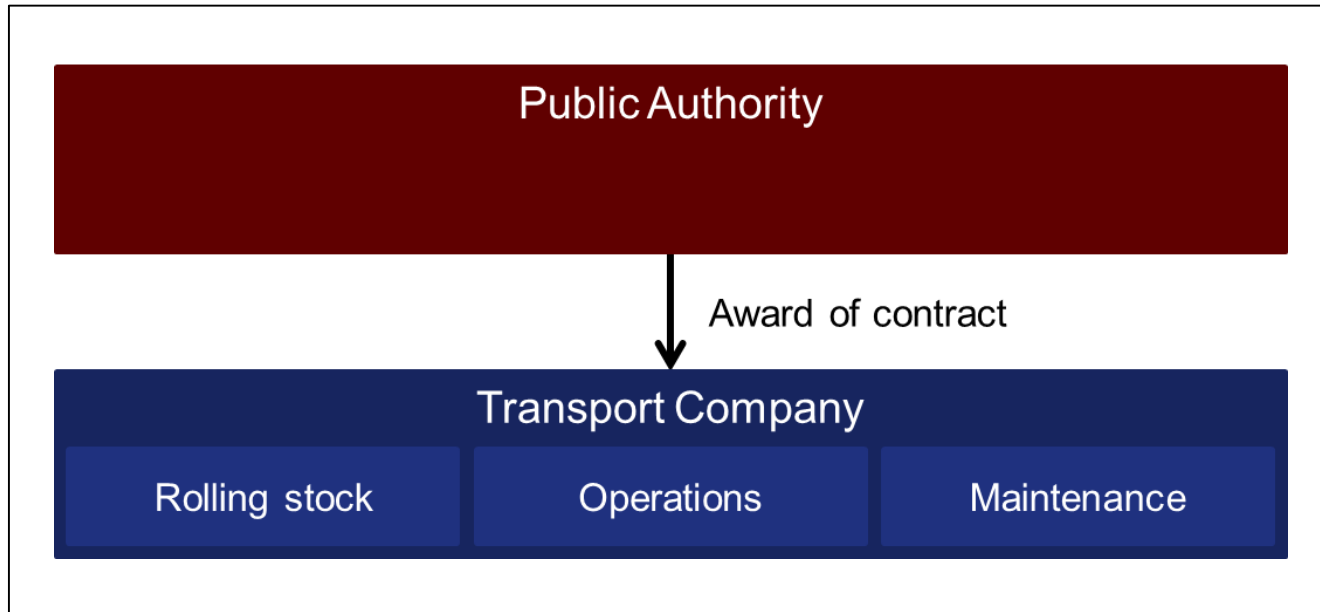
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Private railway



Idealised situation with specific suitability of a private railway

- Public authority does not have any input knowledge, but only output knowledge
- High potential for optimisation measures concerning several value-added steps
- Residual value determination that is good and easy to carry out with
- Investment volumes that do not negatively impact competitive int
- Low (absolute) financing costs
- Public authority is faced with time-critical procurement

Contractual call options can be useful for public authorities to take over responsibility for (some) value-added steps to gain input knowledge

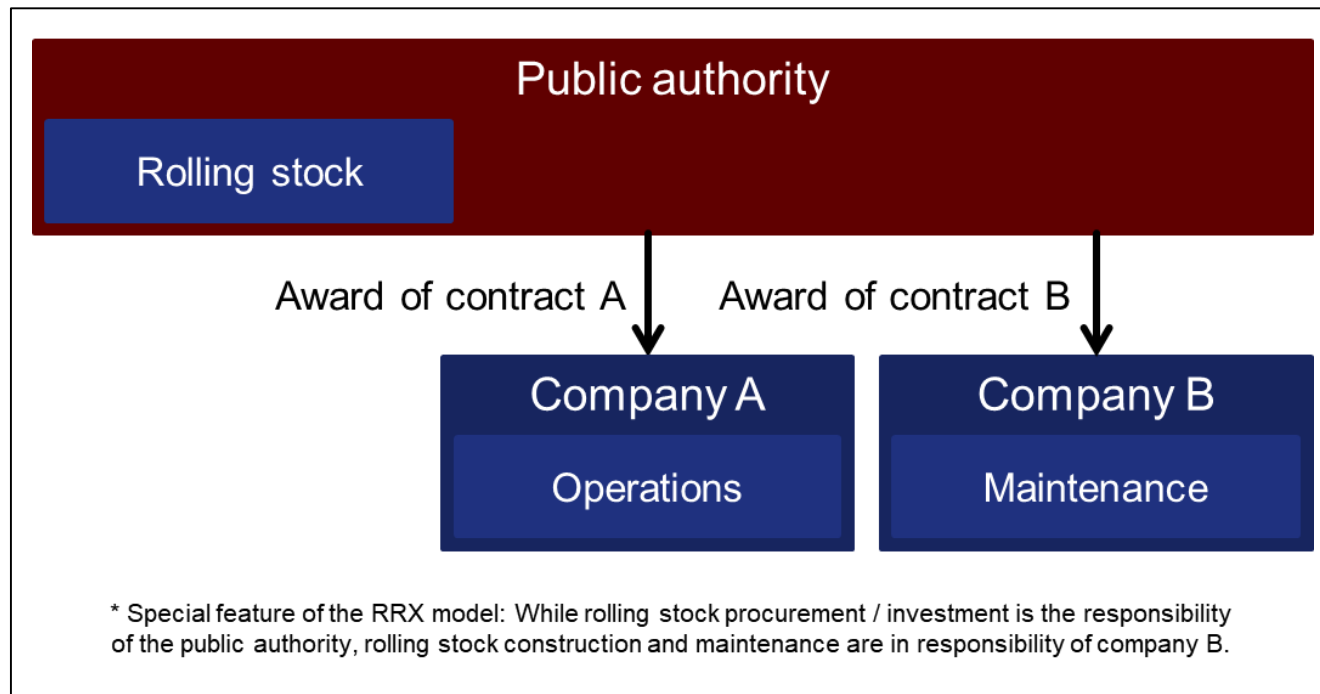
Public railway



Idealised situation with specific suitability of a public railway

- High level of existing input knowledge available to the public authority to manage the value-added steps rolling stock, operations and maintenance as well as the overall management of them
- Critical network size to justify the extensive involvement of the public sector
- Particularly high asset specificity of the rolling stock
- Very strong residual value / transition problems

Rhine-Ruhr-Express (RRX) model



Idealised situation with specific suitability of the RRX model

- Public authority possesses the necessary input knowledge to carry out rolling stock procurement as well as contracting of the resulting interfaces
- Willingness of the public authority to establish long-term commitments
- Problems with competitive intensity as a result of very high rolling stock investments (cost of capital)
- Advantages of economies of scope from bundling of rolling stock construction and maintenance outweigh the advantages of bundling of maintenance and operation
- Very strong residual value / transition problems

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Conclusion

Organisational models for the procurement of regional rail passenger services can be systemised according to two main design options

- Allocation of responsibilities for the procurement (make-or-buy question)
- Bundling / unbundling of the different value-added steps

Central relationship between input and output knowledge available to the public authority and the suitability of the different models

In principle no model that is advantageous in all situations can be identified

Situation-specific weighing of key influencing factors is required

- Availability of input / output knowledge to public authority
- Time resources of public authority
- Extent of residual value / transition problems
- Advantages of economies of scope by bundling different value-added steps
- Degree of rolling stock specificity

Thank you for your attention!

Are there any questions / remarks?

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