

16TH INTERNATIONAL CONFERENCE

UNDERGROUND CONSTRUCTION PRAGUE 2026

MAY 25–27, 2026 | CLARION CONGRESS HOTEL PRAGUE

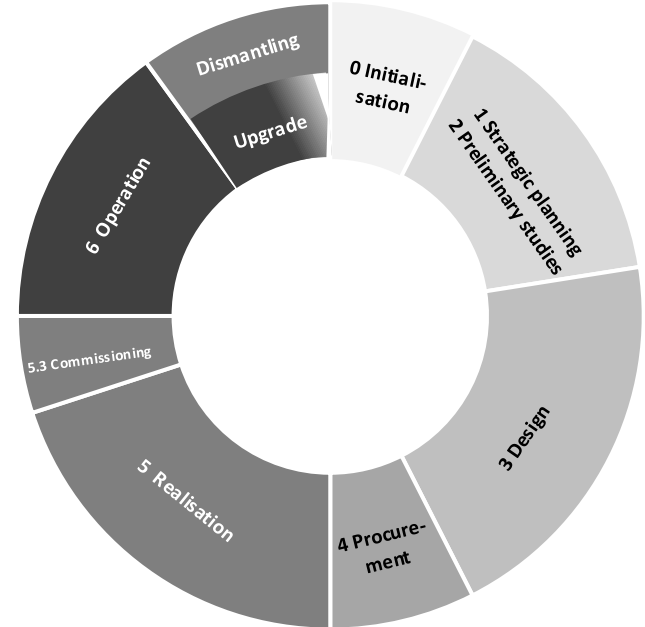


Selection of the most suitable organisational model for Long Tunnels

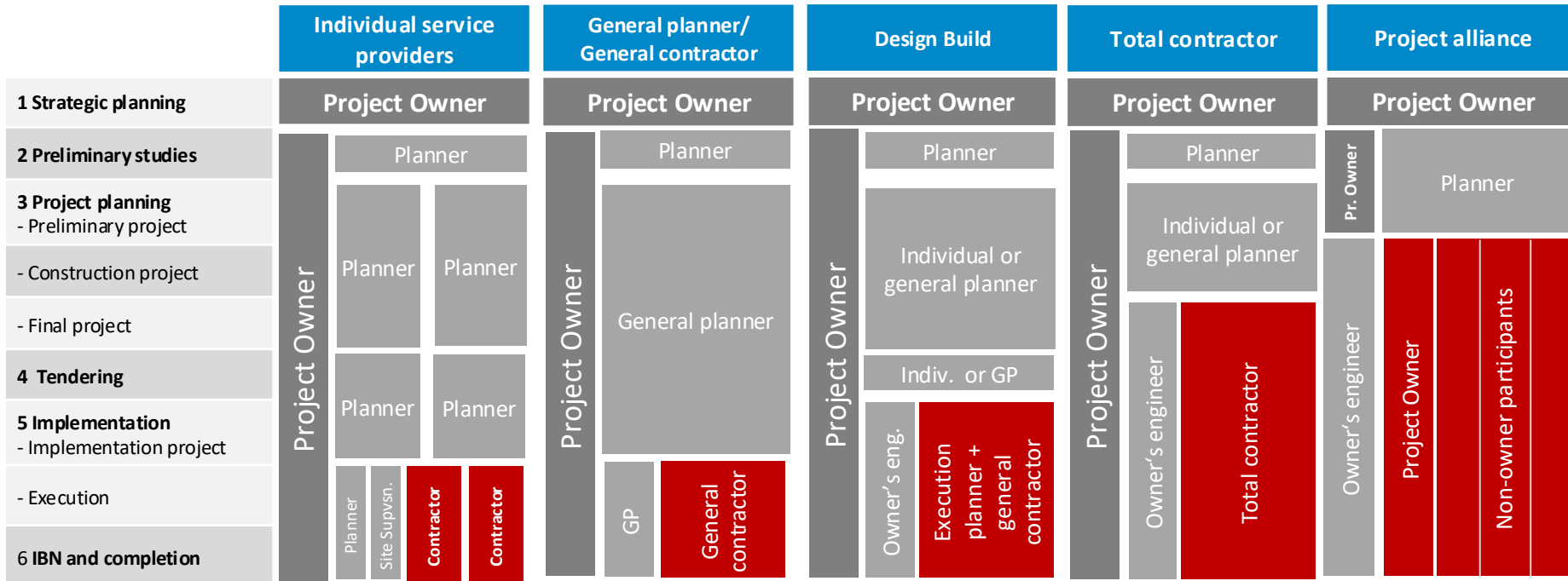
Heinz Ehrbar

Heinz Ehrbar Partners llc

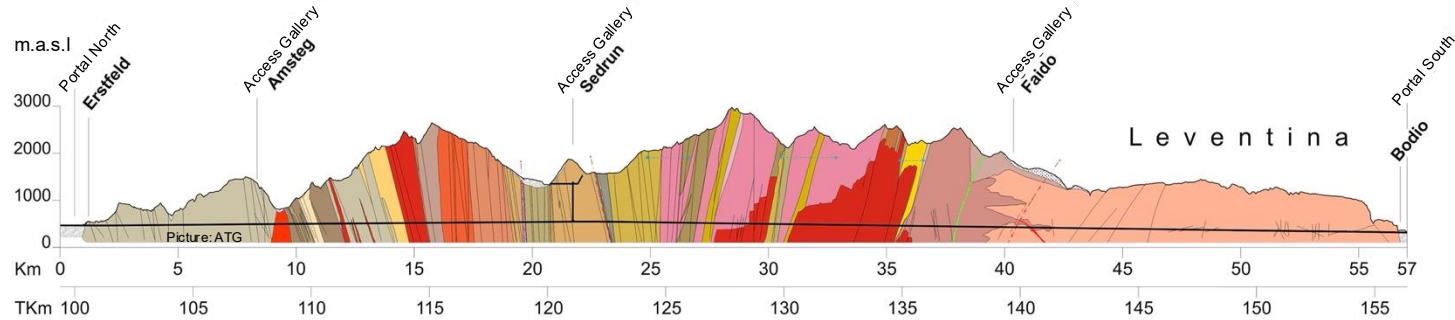
Project lifecycle



Typical organisational models

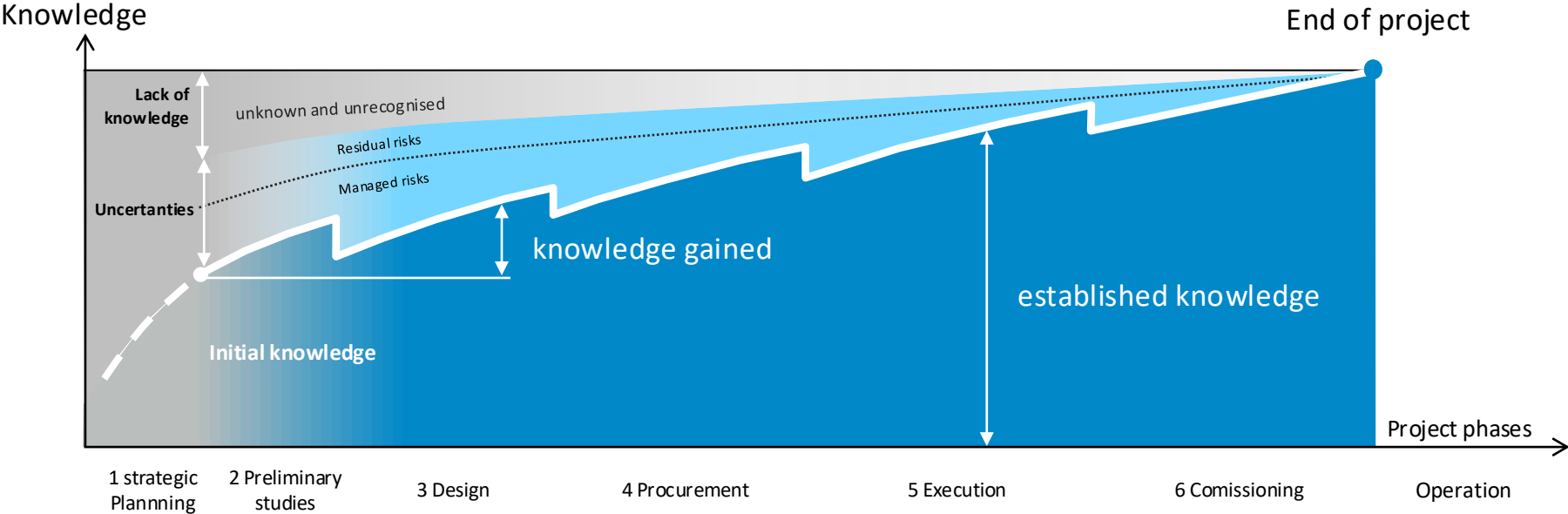


Hybrid reality - Gotthard Base Tunnel



Design and site supervision	Preliminary studies and design	General designer			
	Infrastructure and outdoor facilities	Various c.	Various contracts	Various contracts	Various contracts
	Design and Site supervision civil work	General designer North		General designer South	
	Requirements railway technique	Various engineering contracts			
	Technical equipment	General designer			
Execution	Infrastructure and outdoor facilities	Various contracts	Various contracts	Various contracts	Various contracts
	Main construction lots tunnelling	Lot Erstfeld	Lot Amsteg	Lot Sedrun	Lot Combination Faido / Bodio
	Railway technique	Total contractor			
	Technical equipment	General contractor			

Knowledge and uncertainty



Options for managing risks

Traditional approaches



One-sided (unfair)

No alignment of interests

Consequences in traditional models



- **absence of a comprehensive technical assessment** of the project and its structures,
- **insufficiently developed risk analyses,**
- **inadequate communication between project partners,**
- **missed opportunities to exploit synergies and optimisation potential,**
- **disputes and mutual accusations** when problems arise instead of a constructive search for solutions.

Mitigation measures

- **Clearer specifications**
- **Defined decision-making processes**
- **structured change management**
- **Fair risk allocation and joint risk management**
- **Use of digitalisation**
- **Dispute resolution mechanisms**

Many projects have been successfully completed using traditional contracts.



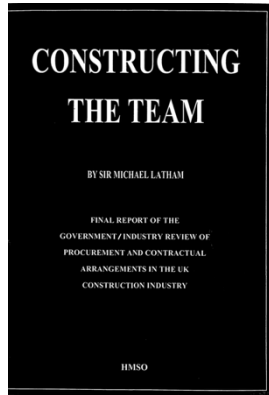
Partnership models



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- **Outcome-oriented partnership with shared risks**
(from the start of the contract until the defect has been rectified)
- Commitment to the **jointly defined scope of services**
(through dialogue), including agreement on target outturn costs
- **Joint management of the project**
according to the "best for project" principle
- **Incentive-based remuneration based on project success** ("win-win" or "lose-lose")
- > **As a result: Abolition of the blame culture**
(no blame culture, agreement on a code of values)

From theory to decision



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The "ring up an architect/engineer syndrome"

- 3.7 Once a client is satisfied about real need and feasibility within overall budgetary constraints, **the instinctive reaction is to retain a consultant to design the project – the "ring up an architect/engineer" syndrome.** That takes a crucial step too quickly and closes off potential procurement options. **The next step should be the use of internal risk assessment to devise a contract strategy.** The client should decide how much risk to accept. No construction project is risk free. Risk can be managed, minimised, shared, transferred, or accepted. It cannot be ignored. The client who wishes to accept little or no risk should take different routes for procuring advice from the client who places importance on detailed, hands-on control.
- 3.8 The basic decision on the procurement route should precede the preparation of the outline (project) brief, since it necessarily affects who shall assist with the design brief as well. **That choice of route must be determined by the nature of the project and the clients' wishes regarding acceptance of risk.** Such decisions are difficult. Inexperienced clients need advice. There are a number of publications which can assist."

Sir Michael Latham, "Constructing the Team" - Final Report, HMSO London, July 1994

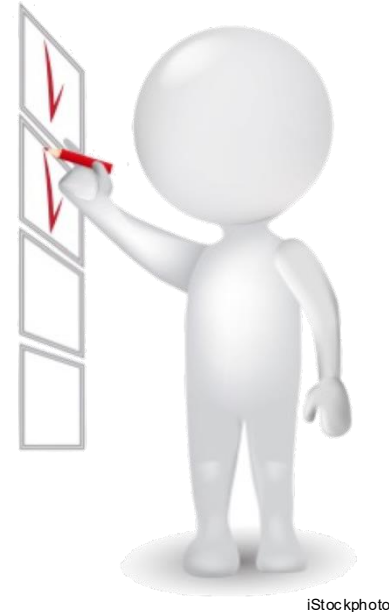
Qualification criteria

Essential key criteria:

1. Legal feasibility
2. Market conditions
3. Strategic objectives of the project owner
4. Organisational capability

Partnership models, in particular, require:

- commitment,
- willingness to collaborate
- strong resources.



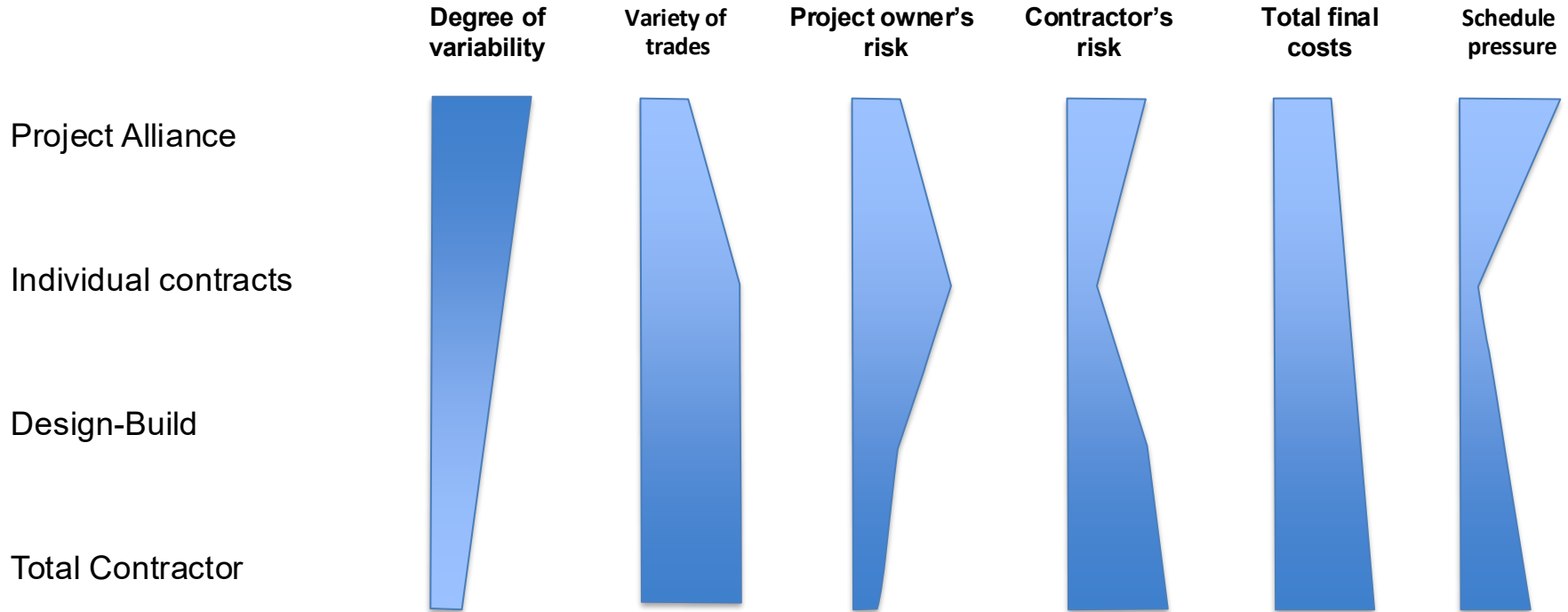
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Project-specific decision criteria

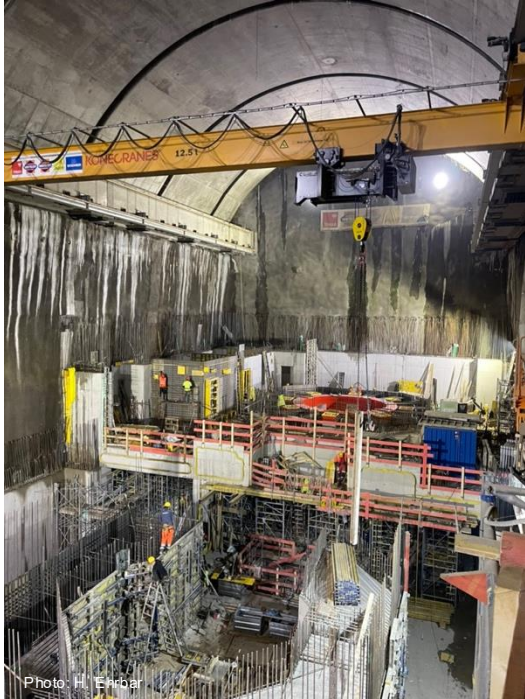
- Project complexity
- Level of detail in tendering phase
- Scope & structure of risk portfolio
- Utilisation of innovation potential
- Division of service packages
- Intensity of competition
-



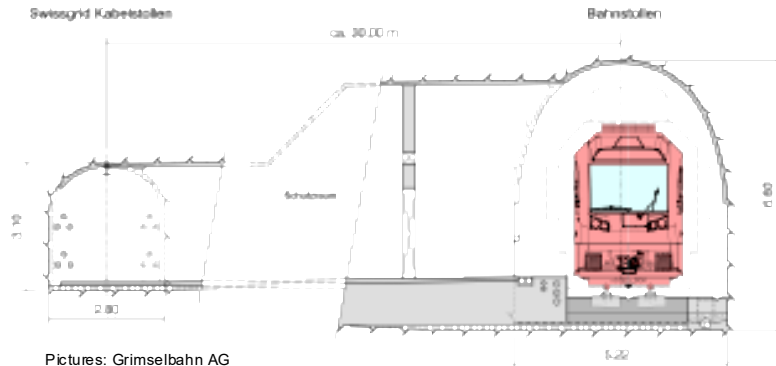
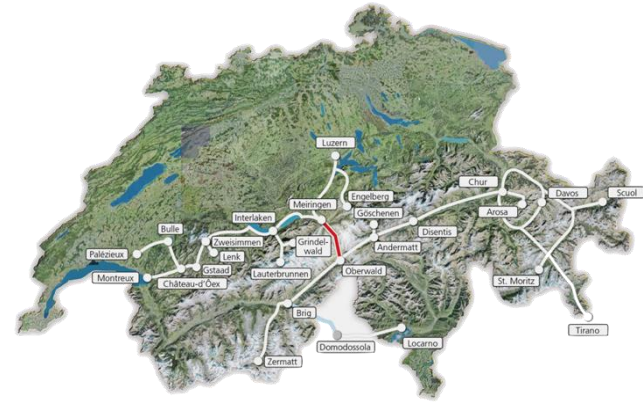
Project-specific decision criteria



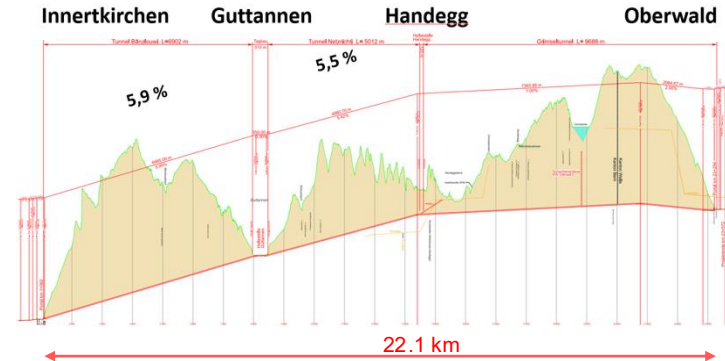
Alliance contract: Hydropower Plant Kühtai, Austria (2020 – 2026)



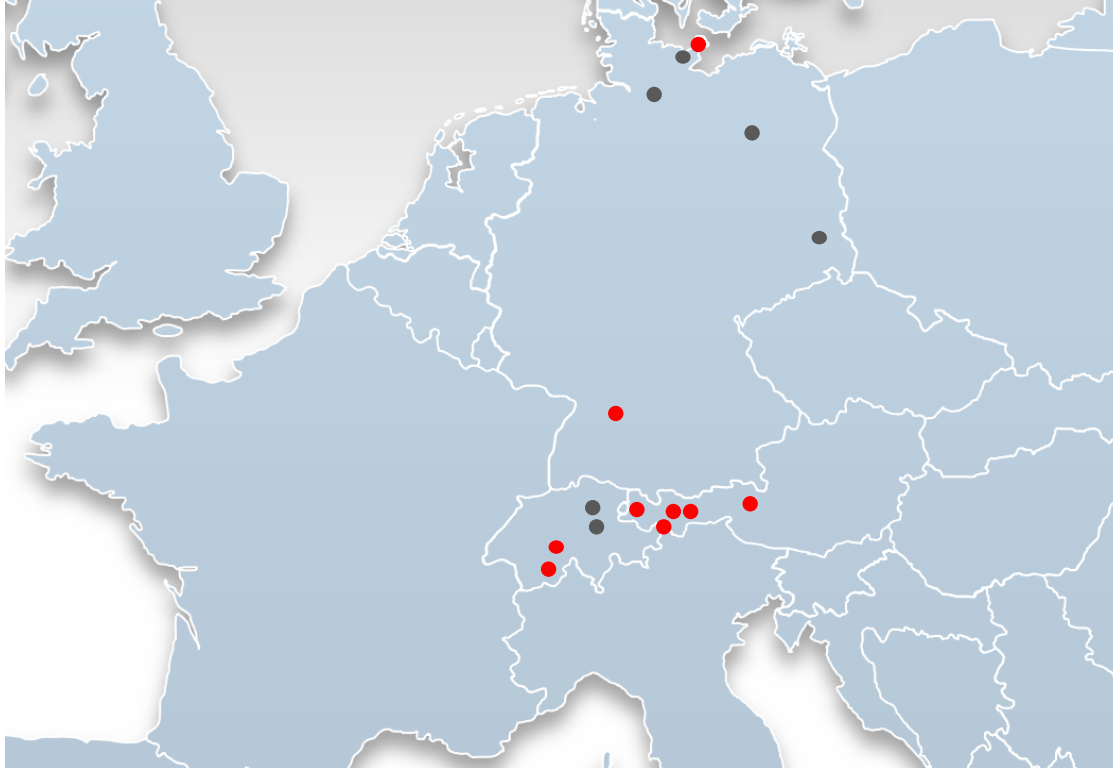
Alliance contract: Tunnel Grimsel, length 22 km, Switzerland



Pictures: Grimselbahn AG



Further Examples of alliance organisations – a selection



Germany

- ICE plant in Cottbus
- Pfaffensteig Tunnel Stuttgart
- Fehmarn Belt Tunnel Link
- Fehmarn Sund Tunnel
- Kattwyk Bridge, Hamburg
- Siemens Railway Berlin

Austria

- Inn joint power plant
- SKW Kühtai
- Angath tunnel (civil works)
- Imst Haiming Power Plant
- Feldkirch City Tunnel

Switzerland

- Upgrade of SOB Schindellegi Samstagern
- Upgrade of SBB Fehraltorf Wetzikon
- Grimsel Tunnel
- Riedberg drainage tunnel

Thank you



Photo: virturail

26 May 2026

UC Prague 2026 | H. Ehrbar

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