

## SBB Research Fund: Research Topics Spring 2020

- 1) **Determining potential business models for the railway, considering new technologies and services.**
  - Perception of the transport systems “rail” and “road” among the general public, expectations for their future development and implications for SBB’s position on the Swiss mobility market.
  - What requirements do customers have both now and in the near and distant future about purchasing tickets (the purchasing process)?
  - Innovative ideas to optimize sales activities in train stations.
  - Self Service Technology and robotics production and operations of processes are assumed to replace at least some of the human work in the future. What possible impacts will that have on future location decisions of companies in relation to the high wage country Switzerland? Which opportunities will this create for Switzerland as a center for industry and railway freight traffic?
- 2) **The opportunities and challenges of new technologies and digitization for public transport and Switzerland.**
  - Hybrid forms of transportation between collective and individual: state of the art and perspectives.
  - Design of a potential Swiss Mobility System 2060 including a mega-jump in capacity on rail and road under the conditions of new transport modes.
  - Interconnection in rail transport across borders: Learnings from other industries.
- 3) **Comparison of the future total system costs of railways with the future costs of other transport services. Identifying opportunities to reduce structural costs, considering the increasing regulatory and spatial planning requirements.**
  - Innovative measures to help improve and balance out utilization of the capacity of transport services and infrastructure (including passenger flows) during peak and off-peak hours.
  - Infrastructure and real estate investments and its impact on/interaction with the local regional economies.
  - Total cost: measures and metrics for long term sustainability.
- 4) **Security and disaster management: How to deal with the vulnerability of the systems due to digitization? Keywords are: High security level computing and data processing centers, cyber security, crisis management, fallback positions.**
  - The protection of customer data is a key concern. Which technical could be used to make it possible for the customer to have complete control over how their data is used and passed on?
  - Traditional cyber security models are based on predetermined rules and can only react to what they know. Do any concepts and products based on adaptive cyber security models exist? What would be possible areas of application and which added value is there from a company’s perspective?

**Remarks: Expressions of interest have to be written in English.**