



Version dated 12.11.2020

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# Innovation in regional passenger transport

## Funding programme 2021-2024

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File reference: BAV-021.11-11/7

### Change history

Date	Description, approval, notes
18.08.2020	Version 0.1 / Document created
03.09.2020	Version 0.2 / Priority areas added
07.09.2020	Version 0.3 / Additions
08.09.2020	Version 0.4 / Version for consultation with FIA and GS DETEC
25.09.2020	Version 0.5 / Modifications for external consultation after review by FIA and GS DETEC
30.10.2020	Version 0.6 / Modifications for FIA decision following internal and external consultation
12.11.2020	Version 1.0 for DS / DC decision



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## **Summary**

### **Background**

Transport companies are required to constantly adapt to new technological and social trends in personal mobility. However, they often do not have the financial resources needed to develop new solutions and carry out tests. Indeed, transport companies generally operate under resource and cost pressure on a daily basis. This state of affairs leaves little scope for innovative projects, even though various strategies or schemes published by the Confederation in the recent past highlight the need for new solutions.

### **Aim of the research programme**

In accordance with Art. 31 para. 2 of the Passenger Transport Act (PTA), the “innovation in regional passenger transport funding” programme is intended to give transport companies greater scope for innovation by providing specific, non-repayable funding for pilot projects. These projects should help consolidate the long-term role of regional passenger transport within Switzerland’s public transport network by increasing both its appeal and cost efficiency. The solutions that are tested should potentially provide tangible added value for users of regional passenger transport and/or contribute to increased use of regional passenger transport and/or improve cost coverage in regional passenger transport by reducing costs or increasing income.

### **Delimitation from other funding**

There are other legal instruments for project funding in addition to the PTA, specifically: research into rail infrastructure (via the Railway Infrastructure Fund Act (RIFA)) and energy efficiency (ESöV 2050, the Energy Strategy for Public Transport programme). The Goods Carriage Act (GCarA) provides for the funding of rail freight innovations, while the Federal Act on Railway Noise Abatement Measures (RNAA) permits financial support for research and innovation that reduces noise emissions from railways. Furthermore, there are other federal organisations that provide research and innovation subsidies, notably the Coordination Office for Sustainable Mobility (COMO) and the Swiss Innovation Agency Innosuisse.

### **Research programme consultation**

The drafting process must take on board industry requirements and know-how. Universities, universities of applied science, trade associations, infrastructure managers, and other federal offices are therefore being consulted.

### **Criteria and conditions**

Under current legal provisions, the programme can only award grants to companies which operate regional passenger transport services and for projects that primarily benefit regional passenger transport. To ensure this is the case, four suitability criteria – all of which projects must fulfil – have been defined for the funding programme: innovation, applicability in regional passenger transport, public interest and risk management. To ensure compliance with the principle of subsidiarity and to leverage other possible sources of funding, the Confederation generally only finances part of total project costs.

### **Priorities of the research programme**

The research programme prioritises vehicle engineering, production and maintenance, service structuring, ticketing and customer experience. Since these areas are key to operating regional passenger transport services, it is expected that innovations will have a particularly broad impact.

## 1 Introduction

The necessity of constantly adapting public transport in general and regional passenger transport in particular to new circumstances and conspicuous technological and sociological trends in personal mobility is universally acknowledged. However, transport companies often do not have the financial resources needed to develop new solutions and carry out tests. The funding programme for innovation in regional passenger transport, now being carried out for the first time, is intended to unlock new options in this area.

### 1.1 Background

Innovation in the regional passenger transport sector is currently funded tacitly via the ordering process and the subsidies paid to transport companies. However, cost pressure and the difficulty of financing growing needs frequently force transport companies to focus more closely on operating activities. This situation leaves little room for innovative projects to emerge.

However, various recently published documents point out the need for new solutions and alignment with changing framework conditions.

The Federal Council's legislative planning goals for 2019–2023 state that Switzerland is to retain its leadership in education, research and innovation and exploit the opportunities presented by digitalisation<sup>1</sup>.

The FOT's 2019 strategy specifies these goals as applied to public transport. It will prioritise the outcomes of technological development, the prospects for multi-modal mobility and transverse electronic processes on the basis of the observation that customers nowadays expect mobility solutions to extend beyond public transport. Integrated mobility solutions will be provided by opening up closed systems and creating new structures.

This is why the strategic focal point is “new mobility/logistics concepts”.

Innovation is also a pervasive element of DETEC's Sustainable transport research strategy 2017–2020, for example in the goal of “supporting the development of ICT<sup>2</sup> solutions in public and multi-modal transport”.

The explanatory report on regional passenger transport reform announces the creation of new innovation funding options not least because representatives of the sector have expressed concern that it is becoming increasingly difficult to finance innovation.

The explanatory report on the guarantee credit for regional passenger transport 2022–2025 states that the FOT will provide 5 million Swiss francs annually from 2020 onwards for innovations intended to improve the efficiency and quality of passenger transport. DETEC would like to make this annual budget (equivalent to approximately 0.5% of the regional passenger transport budget) sustainable.

These are the goals and key parameters of this funding programme for innovation in regional passenger transport.

### 1.2 Funding area and delimitation

The funding programme for innovation in regional passenger transport aims to support the implementation of research-based new solutions, not the actual research itself.

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<sup>1</sup> Federal Council's legislative planning goals 2019-2023, directive 1, goal 5

<sup>2</sup> information and communication technology

With this in mind, the programme sets out to fund trials, experiments, tests or pilot projects for innovative solutions derived from research results.

Under current legal provisions, the programme can only award grants to companies which operate regional passenger transport services and for projects that primarily benefit regional passenger transport.

### **1.3 Legal basis**

#### **Subsidies Act (SubA) Art. 6 let. a**

Provisions on financial assistance can be issued if:

- a. performance of a particular task is in the Confederation's interest

(...)

#### **SubA Art. 7 let. b**

Provisions on financial assistance must comply with the following principles:

<sup>b</sup> the level of financial assistance is determined by the extent to which performance of the task is in the interest of the Confederation and the recipients;

<sup>c</sup> recipients will provide a contribution of their own that is commensurate with their economic capacity;

<sup>d</sup> recipients will take reasonable independent action to exploit remaining financing options.

#### **SubA Art. 16 paras 1 and 2**

<sup>1</sup> Financial assistance and grants are generally awarded by official decision.

<sup>2</sup> A public contract may be concluded in particular if:

- a. the relevant authority has substantial discretionary authority; or

- b. the likelihood of the recipient of financial assistance unilaterally choosing not to perform the task can be excluded.

#### **PTA Art. 28, para. 2 (RS 745.1)**

<sup>2</sup> Local services and services that do not serve the general public are not eligible for federal government grants.

#### **PTA Art. 31 para. 2**

<sup>2</sup> In special cases, and particularly to promote novel solutions, the Confederation may contribute to the procurement of vehicles and the production of facilities and installations, and provide interest-free loans.

#### **RPTSO Art. 2 para. 1 and 2 (RS 745.16)**

<sup>1</sup> Subsidies and financial assistance under Articles 28–31c PTA are available to transport companies that carry passengers on scheduled services, on-demand services or services similar to scheduled services under a licence granted under Article 6 PTA, a permit granted under Article 8 PTA or an international agreement.

<sup>2</sup> Financial assistance under Article 31 PTA may also be provided to companies contracted to perform tasks that are essential for the activities under paragraph 1.

#### **RPTSO Art. 41**

To fund novel solutions and in other special cases, the Confederation may make contributions and interest-free loans in connection with awards that it has approved to the extent that the depreciation funds are not sufficient for financing.

### **RPTSO Art. 43 al. 1**

<sup>1</sup> Investment contributions are only granted for investments connected with services eligible for public subsidies and the subsequent costs of which can be included in standard bid costings under Article 19 paragraph 1. Decisions on exceptions rest with the FOT.

### **RIPA Art. 2 let. b**

In this Act, *scientific innovation (innovation) shall mean*: the development of new products, procedures, processes and services for the business sector and society by means of research (predominantly applied research) and the application of the results of that research.

The legal framework provides the foundation for financing innovations. The FOT can structure such financing flexibly and give it the form it deems most appropriate.

## **2 Aims of the “Innovation in regional passenger transport” funding programme**

The purpose of the funding programme is to provide coordinated, target-driven support for the implementation of innovative solutions in regional passenger transport.

The aim of the programme is to encourage regional passenger transport companies to anticipate how the transport sector will evolve, then make appropriate preparations for and adapt to such evolution.

The programme lays down the criteria and the conditions for awarding grants. Priority content areas will be defined for the 2021–2024 period. These are intended to illustrate the areas that projects should cover to be eligible for funding. It also defines the order of priorities.

### **2.1 Strategic objectives**

Regional passenger transport plays a key role in the Swiss public transport system, frequently linking rural districts with conurbations and providing the regions with access to long-distance services. As such it is a key factor in national cohesion. It also has to compete with private motorised transport to a greater extent than local or long-distance services, especially as private vehicles become more environmentally compatible and challenge regional passenger transport on this front too.

The innovation projects supported by the programme should help consolidate the long-term role of regional passenger transport within Switzerland’s public transport network by increasing both its appeal and its cost efficiency.

### **2.2 Outcome goals**

By implementing innovative solutions, the programme should help improve the efficiency and appeal of regional passenger transport. The results of the innovation projects should provide tangible added value for users of regional passenger transport and/or contribute to increased use of regional passenger transport and/or improve cost coverage in regional passenger transport by reducing costs or increasing income.

Findings from the projects supported by the programme will feed into new regulations or requirements or into the amendment of existing provisions. Thus the programme will also help improve the efficiency of the FOT’s oversight and supervisory activities.

### **3 Priority funding areas 2021–2024**

The priority funding areas for innovation projects are (not listed in order of priority):

#### **3.1 Vehicle engineering and related systems**

Examples of topics covered by this area include: digitalisation, automation of processes and information flows, driver assistance, lightweight construction, etc.

#### **3.2 Production and maintenance**

Examples of topics covered by this area include: capacity optimisation, train crews, cleaning/hygiene, automatic operation, vehicle maintenance, etc.

#### **3.3 Service design**

Examples of topics covered by this area include: timetable structuring, rolling stock, multi-modal mobility, mobility as a service, etc.

#### **3.4 Ticketing**

Examples of topics covered by this area include: ticketing, sales, fares, integrated fare networks, etc.

#### **3.5 Customer experience**

Examples of topics covered by this area include: passenger information before/after travelling, on-board information and services, comfort, use of journey time, etc.

### **4 Coordination**

The “innovation in regional passenger transport funding” programme involves collaboration with transport companies and potentially with partners such as universities, universities of applied science, institutes, other federal agencies and centres of excellence. Workshops on specific issues can be organised if needed. Inclusion of and collaboration with other FOT research programmes and with cantonal authorities (which are involved in ordering regional passenger transport services) and stakeholder industry associations are also very important.

Projects funded by the programme are supervised by specialist groups which are deployed on a case-by-case basis. The groups are assembled according to each situation and the focus of the individual projects, so that the expertise present from the scientific, business and policy fields can be represented as effectively as possible and the research results can be implemented more easily. The research results benefit various associations and organisations in addition to the Federal Administration. The results are primarily communicated by publishing the final reports on the Confederation's ARAMIS website and the FOT website. They may also be distributed to interested parties, presented at symposia and academic conferences, and published in specialist journals. Ongoing stakeholder dialogue is actively pursued, though not in the form of an institutionalised dialogue involving additional bodies but one that is properly adapted to the needs of the stakeholders in question.

## 5 Defining the direction of the programme

Under Article 16 para. 5 RIPA, the Department is responsible for federal policy research in its area of responsibility. The direction of the programme is thus determined when the Department approves research and innovation programmes. The priority areas are generally redefined every four years. The FOT has compiled this funding programme on behalf of DETEC, taking account of the “Sustainable transport research strategy 2021–2024” (in German) and in coordination with the research programme of the Energy Strategy for Public Transport 2050 (in German) and railway infrastructure research. The priority areas are based on the need for action identified within the Department, which is agreed during a consultation process.

## 6 Organisation

### 6.1 Description of the available mechanisms

The content of innovation projects must reflect the principles and priority areas of innovation, as set out above. The results of projects funded by the Federal Office of Transport are made public.

Under this funding programme, grant applications may be submitted for research projects. The FOT may support these projects by means of a grant, using money from the guarantee credit for subsidising regional passenger transport services, provided the conditions for doing so have been fulfilled. It is important to note, however, that there is no entitlement to funding. The FOT reserves the right to reject applications.

The projects supported by the programme must aim to benefit regional passenger transport. The programme will only fund projects that address the roll-out of new products, procedures, processes and services in regional passenger transport. It should be remembered that Switzerland is traditionally stronger in incremental innovation than in disruptive innovation.

For this reason, the projects eligible for support should technically fall into the following main categories:

- **Piloting and demonstration:** Projects at the crossover point between laboratories and the marketplace. Specifically involves testing and evaluating new solutions (technical installations, prototypes) and approaches (including socio-economic factors and business models) in the real-world environment (laboratory or field trials and analyses).
- **Field trials and analyses:** For testing and evaluating technologies, evaluating energy-policy measures or collecting the data required for these activities.

In certain cases, **experimental development** projects may also be funded, for example systematic approaches that use knowledge obtained by research and practical experience to roll out new products or procedures.

Basic or applied research projects cannot generally be funded.

### 6.2 Official bodies and their roles

The following organisational structures within the FOT ensure that innovation funding in regional passenger transport is handled and coordinated efficiently:

- **The research and innovation committee (FIA)** is responsible for deciding whether to fund applications and how much funding to allocate. It ensures that applications are coordinated with the research activities being undertaken under the Energy Strategy for Public Transport 2050 research programme and the funding programme for innovation in regional passenger transport. The research committee can make circular resolutions and generally meets four times a year. It consists of members of the FOT Directorate.



- An FOT expert group, which can be augmented by specialists from other federal offices, universities, transport companies or private-sector firms, is responsible for assessing the technical merits of applications.
- **The Market Access Section** is responsible for managing the programme. It is responsible for determining needs and thus also for compiling the research programme.
- **The external staff office** provides administrative and specialist support for the Market Access Section.

### 6.3 Award process

Grant applications for research projects are treated within the meaning of subsidies, and the award processes comply with SubA.

### 6.4 Process for evaluating applications and awarding grants

Four suitability criteria – all of which projects must fulfil – have been defined for the funding programme: innovation, applicability in regional passenger transport, public interest and risk management.

#### Innovation

- Is the proposed solution a genuine innovation?

#### Applicability in regional passenger transport

- Has the application been submitted by a regional passenger transport provider and will the proposed solution be applied to regional passenger transport at least to a considerable extent?

#### Public interest

- Is the proposed solution genuinely in the interest of authorities, transport companies and/or customers in that it creates substantial added value without impacting the cost-benefit ratio?

#### Risk management

- Are the risks associated with the project under control and are the chances of success high enough to achieve the project goals within the specified timeframe?

The expert group assesses applications primarily on the basis of these criteria, then issues a recommendation to the FIA. Based on the expert assessment and following consultation with the specialist sections, the FIA decides whether or not to fund the project and, if so, how much funding to allocate to it.

Innovation projects supported by the funding programme must not last longer than three years. At the end of the project, the results will be compared against the original goals. If the project is successful and the results are of considerable public interest, the innovative solution can be implemented at other regional passenger transport companies and financed through the ordering process.

Documents and instructions for submitting projects (application form and explanations of the process) can be found on the FOT website page dealing with innovation promotion in regional passenger transport.

### 6.5 Target audience of the funding programme

The funding programme is aimed at transport companies operating regional passenger transport services. This means that applications must come from transport companies licensed to operate regional

passenger transport services. However, transport companies are permitted to submit applications in partnership with universities and private-sector firms.

Since funding takes the form of grants for innovation projects, the Subsidies Act applies, as described in section 1.3. Under Article 7 letters c and d of the Subsidies Act, grant recipients must make such contributions of their own as are commensurate with their economic capacity and take reasonable independent action to exhaust the remaining funding options. Against this background, the competent authority is obliged to examine submissions to establish whether they concern projects of a commercial nature (i.e. if the research is likely to result in profit-generating products). The competent authority must also verify whether the tasks covered by the grant have been fulfilled in accordance with Art. 25 para. 1 SubA.

Should the federal authorities need to recall the grant, the grant recipient will have to settle the project and its conditions with the federal authorities on a case-by-case basis under the terms of the service agreement/contract/official decision in question.

## **6.6 Monitoring, quality control and reporting**

Quality control is carried out by the FOT's supervising experts at project level. The Market Access Section carries out monitoring at research programme level. This involves evaluating whether and how positive project results are spreading through the sector and resulting in measures that improve the efficiency and appeal of regional passenger transport.

An annual report on research activities connected with innovation in regional passenger transport is submitted to the FOT Directorate and DETEC General Secretariat. The results of individual research projects are published on the FOT website.

## **7 Financial resources**

### **7.1 Funds**

With an annual budget of CHF 5 million, the funding programme is the main mechanism for financing innovation projects in regional passenger transport. Innovation projects funded by the programme should preferably receive non-repayable funding.

The funds will be sourced from the guarantee credit for subsidising regional passenger transport services. Planning for the 2021–2024 period is as follows:

- 2021: CHF 5 million
- 2022: CHF 5 million
- 2023: CHF 5 million
- 2024: CHF 5 million

### **7.2 Subsidiarity / co-financing**

Under SubA (Art. 7 c and d), grant recipients must make such contributions of their own as are commensurate with their economic capacity and take reasonable independent action to exhaust the remaining funding options. Since companies operating regional passenger transport services are not permitted to make a profit, it can be assumed that they will not always be able to invest their own resources (low economic capacity). This must be borne in mind when determining the maximum level of financing.

To ensure compliance with the principle of subsidiarity and to make maximum use of other possible sources of funding, the Confederation generally only finances part of total project costs.

In exceptional cases, and in particular when other sources are unable or only partly able to fund the remaining costs of the project, and the project is of major significance to regional passenger transport, the funding programme can cover up to 100 % of costs.

Anyone applying for grants for the same project but under different regulations is obliged to inform the authorities. Failure to do so may result in financial assistance or payments that have been obtained under false premises having to be repaid.

### **7.3 Prioritisation**

If the total payments applied for exceed the available financial resources, the projects with the best evaluation score will be prioritised:

## **8 References**

Federal Council, Federal Council's legislative planning goals 2019-2023, Bern, 2019

[Link to document](#) (in German; consulted on 3.9.2020)

Federal Office of Transport, FOT strategy for 2019, Bern, 2019

[Link to document](#) (in French; consulted on 3.9.2020)

Federal Roads Office and Federal Office of Transport, Sustainable transport research strategy 2017–2020, Bern, 2016

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Federal Office of Transport, Explanatory report on regional passenger transport reform, 2910

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