

R&D Funding  
Enabling Sciences



Success story

## Intelligent freight management



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,  
Education and Research EAER  
Commission for Technology and Innovation CTI  
Innovation Promotion Agency

**Up until now routeRANK was in the business of finding the best travel solutions for people. Now the young company from Lausanne also automates the optimisation of freight shipments. The EPF Lausanne contributed the IT know-how.**

Whether you want to get from A to B at the lowest possible cost, as quickly as possible or in the most environmentally friendly way, the routeRANK software can tell you how. It not only compares car journeys, train journeys and air travel, but can take into account a combination of different means of transport.

routeRANK's software has won coveted awards and attracted major partners. For example, BCD Travel, a global market leader in business travel management, uses the Swiss technology.

However, routeRANK has not only attracted interest in the travel industry. "We were regularly approached by logistics companies who wanted to know if our software could also optimise freight transport journeys," explains routeRANK CEO, Jochen Munding.

### Time-consuming planning of transport routes

Today, experts use their experience to plan goods transport. Although software to help them exists, it is awkward and only covers individual routes or means of transport. It takes a logistics company at least two hours to determine a transport route and provide the client with information about the duration and cost.

The problem could not be solved by simply copying the routeRANK software designed for passenger transport:



Logistics made easy: The route planner by routeRANK calculates the costs, schedules and environmental impact of freight transport journeys.

the conditions differ too widely. "Travel time for container vessels can vary by several days," says Munding, to provide an example.

This is why it had to be redeveloped from scratch. "As a young SME, we couldn't have completed this project without the support of the CTI," says the company's founder. routeRANK got to work with two specialists from the EPFL in mid-2012.

The problem to be solved was one of variance, as is the case when drawing up shift schedules or developing synchronised timetables. In routeRANK's case, however, the optimum solution does not need to be calculated once a week or once a year, but is different for each journey. What is required is combinatorics, a discipline which involves making optimum choices from a large set of possible alternatives.

"There is no general solution for these problems, and even with ever more powerful computers, we cannot simply process all the options one after another," explains Jean-Yves Le Boudec, who heads the "Laboratory for Communications and Applications 2" at the EPFL. Two of his colleagues were involved in the project. They were able to draw on a wealth of experience. "We have been



Getting there with combinatorics. Jean-Yves Le Boudec, Head of the Laboratory for Communications and Applications 2 at the EPFL (left), and Jochen Munding, CEO of RouteRANK

dealing with algorithms for networked systems since as far back as 1994," says Le Boudec.

#### **Optimising time, cost and environmental impact**

In November 2013, routeRANK and the EPFL team were able to produce a working version of the product. It provides real-time information about the best transport route. The software optimises the journey time, costs, environmental impact and the probability of delay.

#### **Contacts**

##### **routeRANK Ltd.**

Dr Jochen Munding  
Innovation Park EPFL  
Building C

+41 (0)21 693 12 58  
info@routerank.com  
www.routerank.com

##### **EPFL IC ISC LCA2**

Prof. Jean-Yves Le Boudec  
BC 205 (Bâtiment BC)  
Station 14  
CH-1015 Lausanne

+41 (0)21 693 66 31  
jean-yves.leboudec@epfl.ch  
http://lca.epfl.ch

##### **Commission for Technology and Innovation CTI Innovation Promotion Agency**

Alain Tanner

+41 (0)58 462 86 51  
enabling.sciences@kti.admin.ch  
www.kti.admin.ch

 **CTI – Start-up and Entrepreneurship,  
R&D Funding, KTT Support**

The CTI is the Confederation's innovation promotion agency. It provides consultancy and networking services and financial resources to help turn scientific research into economic results. Making the Swiss economy strong.

Commission for Technology and Innovation CTI  
Innovation Promotion Agency

www.kti.admin.ch