

Digital transformation: Audit of process efficiency in the further development of the MISTRA IT system

Federal Roads Office

Key facts

The Federal Roads Office (FEDRO) manages the Swiss motorway network, which is 2,255km long and has around 450 tunnels and ten times as many bridges. Investment in motorway expansion and maintenance amounted to CHF 1.6 billion in 2021. In the same year, people travelled 27 billion kilometres on Swiss roads. On average, each kilometre of road is used 12 million times a year. The 25,000 hours of traffic jams due to congestion are an impressive illustration of how heavily the infrastructure is used.

It is essential that the maintenance of this infrastructure be managed, given the unchecked growth in the amount of traffic. The MISTRA application landscape that is used for this purpose is showing its age and is being replaced by the new RIMA (Road Infrastructure Management ASTRA) tool. The project was audited by the SFAO for the first time, and assessed from a digital transformation perspective.

RIMA is heading in the right direction. The ideas behind the digital transformation are being integrated into the further development of the MISTRA system landscape. However, for implementation to be successful, the organisational setup needs to be strengthened and accompanying work needs to be driven forward – not least in order to better exploit the potential for efficiency gains.

A geoportal is planned to map the road network and simplify the processing of data

The geoportal is the first RIMA product and is scheduled to be ready in early 2023. It is intended to map the entire road network. RIMA is designed to provide the roughly 5,000 existing MISTRA users with a new tool. The planned repositioning to concentrate on pure road infrastructure management is to be welcomed. The project was launched in 2019 and is in the implementation phase.

The cost of continuing to operate MISTRA is estimated at CHF 60 million for 2021 to 2025. According to this provisional financial plan, a significant reduction in operating costs can only be expected thereafter. The definitive financial framework for the entire changeover from MISTRA to RIMA should be approved by the end of 2022.

The digital transformation is being actively pursued by FEDRO

At the end of 2021, FEDRO set up the Digital Services Division to pursue digitalisation efforts. An example is the establishment of an in-house "BIM laboratory", where a team is looking into the potential of digital building information modelling (BIM). This digital modelling is already used in various projects, such as a 120m-long section of the second Gotthard tunnel bore. This should ensure that maintenance activities are updated on an ongoing basis and the evolution of buildings is recorded across their entire life cycle.

The project governance and the process model should be examined in greater detail

The MISTRA steering board was set up eight years ago to ensure user engagement and is responsible for overseeing the RIMA project. The composition of the board ensures continuity and the retention of knowledge in this transformation project. However, the membership does not contain anyone who could provide a clear counterpoint to this by bringing fresh impetus and new thinking.

The project process was deliberately designed as a mix of agile and conventional elements. The first key milestone in the RIMA project is the provision of the minimal viable product. This fully functional first version of the geoportal is five months behind schedule but should be available after a two-year realisation period. The SFAO noted an increasing tendency for classical project management to win out over agile approaches.

The geoportal has greater potential for efficiency gains than previously described

The geoportal should extract data from thematically different MISTRA applications. This information is linked to buildings and road axes which could be transparently shown on a map of Switzerland. This overall view should provide direct and intuitive access to this data via a graphical user interface. The aim is to make it simpler to draw conclusions on maintenance activities.

Even so, the geoportal has unused optimisation potential. The exchange of information with engineering firms, construction companies and territorial units – which, under cantonal sovereignty, are usually responsible for motorway operations – is not yet sufficiently integrated into the concept. The maintenance management value chain is not considered for the entire process and the framework for geoportal expansion phases has not been drawn up. As a result, the simplification of working processes, which was categorised as urgent in the 2020 staff survey, has not been addressed sufficiently. The SFAO therefore recommends that these matters be set out in a target vision and that the expansion phases for further efficiency gains be specified.

The realisation of the geoportal must be more effectively supported by the Office

The Central Maintenance Planning unit is at the heart of maintenance management. It is the operational hub. However, a large number of vacant positions and an interim management mean that the thematic lead in the RIMA project cannot be guaranteed. Moreover, the geoportal and an agile process have taken FEDRO into uncharted territory. This calls for the Risk and Quality Management unit to become active, not least in order to bring their expertise to bear in the management of the process. As a result of the leadership vacuum in Central Maintenance Planning, the process review of maintenance management was postponed, and there is thus no validated basis for the project.

Overlapping agile and operational roles in the RIMA project are justifiable, but are problematic when combined with the considerable delays in filling vacant positions. This is compounded by an incomplete overview of staff responsibilities and a talent management which is still in its infancy. All in all, the resulting organisational setup does not have enough clout to successfully implement the RIMA project. The SFAO therefore recommends that the Risk and Quality Management unit be more closely involved in the RIMA project.

Original text in German