Program audit of Datacom-NG
Swiss Federal Railways

Key facts

The Swiss Federal Railways (SBB) AG use the national data network to connect all systems for railway operations and communications, as well as the employee workplace systems. The network, which has been in operation since 2005, is now being replaced as part of the Datacom-NG program. Components and technologies are due to be replaced by a more powerful generation. Program completion is scheduled for 2022 at the latest, with the dismantling of the obsolete infrastructure.

The Swiss Federal Audit Office (SFAO) has audited the Datacom-NG program. The results show that implementation is on track in terms of both timetable and content. Around 80% of the planned lines have been completed and are in operation. Migrating the services to the new network is a complex undertaking. SBB AG is meeting the challenge with ongoing process optimisation and a high degree of automation. The Federal Office of Transport (FOT) is also facing a challenge, in the form of the optimisation of approval procedures.

Scope and costs were grossly underestimated

The program was approved by SBB AG's board of directors in 2014 and a planned framework credit of CHF 155 million was authorised. The board commissioned the SBB's Infrastructure division to implement the program for the telecoms area. In 2018, the cost ceiling was raised to CHF 185 million. At the time of the audit, costs amounted to around CHF 160 million. In order to cover the remaining costs that will accrue by the end of the project, the budget should be increased to CHF 275 million.

The reasons for this huge increase in costs are twofold: First, the scope of the requirements and services was expanded in light of rapidly advancing digitalisation; second, automation tools had to be upgraded to deal with the significant growth in volume. Some of the related expenditure was erroneously allocated to the program. In 2018, following a change of program leader, the financial situation was reviewed. In order to remedy the weaknesses in controlling, the new program leader introduced more effective controlling and reporting tools.

The SFAO recommends that SBB AG should implement stringent controlling for the relevant cost drivers in the Infrastructure division's future ICT projects. An independent audit has been commissioned by the Head of Infrastructure to clarify the program's finances and organisation.

Lack of consistency in project and risk management methods

Since the change of program head, a number of measures and tools have been implemented to improve program management. In the SFAO's view, program management and organisation are now appropriately structured.

For managing most of its projects, the Infrastructure division uses the standards of the Swiss Society of Engineers and Architects. Owing to their rapidly changing nature and requirements, ICT projects cannot be managed with these methods. There are no consistent regulations on SBB Telecom project management. These are indispensable for efficient management and appropriate controlling. The SFAO has made a recommendation in this regard.

The risk management process is an integral part of the program. The company-wide tool for capturing risk is unsuitable for this kind of project and is thus not used for Datacom-NG. Other risk management rules or tools are not available. As a result, risks are captured using a variety of tools and are regularly reported up the line in consolidated form. This makes it much more difficult to aggregate and consolidate risks, to identify their origin and to understand their significance for the group as a whole. The SFAO recommends that SBB AG should draw up a consistent methodology.

Security in subnetworks and operations should be improved

The group-wide rules on IT security are generally of high quality. Their implementation in projects is reviewed by an independent body before the start of operations. For longer projects, however, no regular checks during the life of the project are planned, even in the case of deviations from the approved strategies.

The network architecture is aimed at providing high availability. Common network security mechanisms and tools are widely used. At the time of the audit, important security precautions in subnetworks were either not being implemented as per the specifications or were not active.

The operation is highly organised, with regular data backups of management systems. Yet recovery tests were only performed at the start of operations and are not repeated on a regular basis. Only regular testing of data recovery will ensure access to functioning processes in the event of an incident.

SBB AG has an appropriate process for managing security incidents. They are recorded, processed and escalated as necessary, using various tools. As regards vulnerabilities in the infrastructure, SBB AG still relies on its suppliers. Currently, there are only rudimentary processes and tools for actively detecting security incidents and vulnerabilities.

Non-specific IT security rules

As the supervisory authority, the FOT ensures a high level of security in rail transportation. It is the approval authority for new railway infrastructure and for alterations. Since 2010, the FOT has stipulated that each approval procedure must feature a security management system which describes the IT security, but has not set detailed requirements. According to the FOT, this stipulation is to be more clearly defined and anchored in the revised implementing provisions to the Railways Ordinance at the end of 2020.

The dynamic environment for rail operators means that the system landscape changes regularly. Each adjustment requires new and timely approval by the FOT. With the current approval procedure, there is a relatively long lag before measures can be implemented. The SFAO recommends that the FOT review its procedures with a view to optimising turnaround times.

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