

Audit of the DTI key project RZPlus – fail-safe computing power

Federal Office of Meteorology and Climatology (MeteoSwiss)

Key facts

MeteoSwiss is a critical infrastructure and provides essential services for Switzerland, such as severe weather warnings, analyses of the spread of pollutants and so on. If these services fail or are only provided to a limited extent, human lives can be put at risk and major economic damage may result. With the RZPlus programme, MeteoSwiss is increasing the reliability of its services. To this end, it is reorganising the business-critical specialist applications and the ICT resources required for them in a geo-redundant manner¹ and adapting the ICT operating processes. Based on public cloud services and suitable architectures, the specialist applications will be decoupled from each other wherever possible, thereby further increasing fail-safe performance. RZPlus started in 2022 and will run until 2028, costing around CHF 39 million. The Swiss Federal Audit Office (SFAO) audited the programme for the first time and focused on programme and risk management.

The audit showed that the programme is being implemented in a targeted manner by a motivated and professional team. It is progressing well despite considerable external delays. MeteoSwiss's use of the cloud is an appropriate approach to achieving the programme's objectives. One problem is that the systematic and complete development of risk-mitigating measures and the acceptance of residual risks are still pending.

RZPlus: a central project to prevent serious interruptions to operations at MeteoSwiss

Until now, MeteoSwiss IT has been housed centrally in a data centre at Zurich Airport. RZPlus reduces the risk of significant technical service interruptions at MeteoSwiss and implements a recommendation made by the SFAO in 2014.² The choice of a public cloud to improve reliability and scalability is based on the 2022 MeteoSwiss digital strategy. Data communication will continue to be operated by the Federal Office of Information Technology, Systems and Telecommunication, but will now be geo-redundant in two federal data centres.

The Swiss National Supercomputing Centre (CSCS) is operated by the Swiss Federal Institute of Technology (ETH) and is not part of RZPlus as an institution, whereas the critical applications (weather models) installed on it are. Fortunately, ETH decided in summer 2023 to set up and operate the CSCS high-performance computer with geo-redundancy.

Overall cloud risks must be swiftly defined and formally accepted

MeteoSwiss is entering uncharted territory with the first call-off of services from the Digital Transformation and ICT Steering (DTI) Sector's WTO public cloud procurement.³ The challenge is that RZPlus requires highly specialist knowledge in order to securely set up a cloud

¹ Geo-redundancy refers to the use of two data centres at sufficiently distant locations that have the same data status and can assume the other's role at any time.

² "MeteoSwiss, Audit of IT governance" of 1 December 2014 (audit mandate 14419).

³ See also the Digital Transformation and ICT Steering (DTI) website on "Public Clouds Bund".

platform. The fact that the Federal Administration has little experience with this and that tools, information and guidelines are still being developed does not help. MeteoSwiss must fill the relevant gaps and recruit employees with specialist knowledge.

MeteoSwiss already identified risks that are inextricably linked to the use of cloud services during the preparatory work for RZPlus and the programme launch: influence from third countries, digital sovereignty, availability, subcontractor management, etc. However, a comprehensive definition of risk-mitigating measures and acceptance of the remaining residual risks by the Management Board are still lacking. These are urgently needed in order to confirm the chosen architectural approach and subsequently operate specialist applications in a productive setting in the cloud. MeteoSwiss should also clarify whether it should migrate to the public cloud as a civilian critical infrastructure.

Internal challenges are hampering the programme

Determining the information security requirements for the business-critical specialist applications is more complex and time-consuming than expected. Most of the information and specifications required by RZPlus for migration to the cloud are missing. The programme cannot bridge this gap itself. To do this, the client, service or product managers and the business continuity and IT service management managers must develop a common understanding of how to identify the requirements for the specialist applications and ICT resources. The necessary process must be managed centrally at MeteoSwiss, at top management level.

RZPlus changes the organisation, division of tasks and processes, and even creates new job profiles. This is not just limited to IT, but affects the entire federal office. A centrally managed cultural change is therefore crucial in order for the programme to succeed.

Programme objectives not yet at risk despite external delays

The projects "Construction & commissioning of the CAMPUS data centre and cloud" and "IT governance & migration of specialist applications" have been delayed by twelve months or more compared to the project schedule for 2021. The reasons for this were beyond the control of RZPlus and MeteoSwiss. The programme was able to compensate for the delays by rescheduling and deploying more resources. Nevertheless, the ever-shorter time for the same number of complex tasks means an increased overall risk. Due to the delays, there may not be enough time and capacity for all business-critical specialist applications to be converted and migrated to the cloud. As a precaution, RZPlus has therefore developed a "plan B". The current cost estimates for migrating the business-critical specialist applications are higher than assumed in the guarantee credit. The RZPlus programme has therefore established a survey and verification process that has not yet been completed. If necessary, MeteoSwiss can draw on financial reserves for RZPlus. No reliable conclusions can yet be made regarding the cloud operating costs.

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