Gornergrat Railway & Matterhorn Gotthard Railway

The Gornergrat Railway (GGB) and the Matterhorn Gotthard Railway (MGB) are part of the BVZ Group, which includes 10 subsidiaries, including the Glacier Express. The BVZ Group provides public transport and tourism services in the cantons of Valais, Uri and Grisons.

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Gornergrat Railway

General Information

- On August 20, 1898, the Gornergrat Railway (GGB) was opened as Switzerland's first electric cogwheel railway, reaching the Gornergrat at an altitude of 3,089 metres. It is the second highest mountain railway in Europe.

- The Gornergrat is a popular excursion and winter sports destination that offers panoramic views of Monte Rosa and the Matterhorn.

- The Gornergrat Railway offers a journey that begins in Zermatt at an altitude of 1,604 metres. Passengers can enjoy the picturesque Swiss stone pine forests of the Riffelalp, Alpine meadows at the Riffelberg with Blacknose sheep and, finally, a world of glaciers and peaks at the Gornergrat.

- In the jubilee year 2023, the GGB achieved the best result in its history, with a revenue increase of 34.4% to CHF 44.9 million. The number of passengers from Zermatt increased by 26.6% to 841,400. This was mainly due to the catch-up effects among international guests and a consistently high domestic demand.

Technology and customer needs

- The Gornergrat offers visitors the chance to explore an unspoiled environment and observe rare flora and fauna. Recognizing the significance of preserving these natural habitats and actively participating in climate protection, the GGB prioritizes sustainability in its operations and aims to reduce energy consumption and lower CO_2 emissions.

- The company is focused on reducing operational interruptions. Due to the alpine location of the route, the railway is exposed to heavy snowfall and other weather extremes. Therefore, it is essential that the railway always operates safely and reliably. To achieve this, it has introduced intelligent point heating systems that only activate heating when necessary based on the current weather conditions. Consequently, the company implemented initiatives such as material reuse and the utilization of natural resources, such as mountain heat, in order to conserve energy and protect the environment.

Siemens Technology

- The GGB has adopted the first cloud-based operational model, facilitated by Siemens Mobility, which ensures seamless and reliable operation. This innovative approach eliminates the need for on-site server infrastructure and allows for the remote management of critical systems.

- The integrated control and information system, known as "Iltis", enhances operational efficiency and safety. This system enables the remote control of signalling, monitoring of operations and management of passenger information systems.

- Through the virtual solution and the cloud-based "Iltis as a Service", the GGB gains access to all functions of its railway control system via the cloud. This provides numerous benefits for railway operations. With this setup, the need for on-site servers is eliminated, as Siemens Mobility takes over hardware operation and management. In addition, Siemens Mobility ensures that the control technology remains continuously updated.

- Siemens Mobility has established server and computer facilities at the Siemens Mobility headquarters in Wallisellen, Switzerland, rather than installing the entire computer infrastructure on site. This setup enables real-time data exchange between the Gornergrat Railway's operational centre in Zermatt and the Siemens Mobility data centre thereby ensuring secure and efficient data processing.

- Siemens Mobility has integrated advanced security measures into the system, such as cryptographic protocols and data encryption, in order to safeguard against cyber threats and ensure data integrity. These measures comply with the international IT security standards.

- Siemens Mobility technology underwent testing and certification processes to meet the safety and regulatory standards set by authorities such as the Federal Office of Transport (BAV). This ensures that the implemented solutions are reliable, secure and compliant with the industry regulations.

Matterhorn Gotthard Railway

General Information

- The Matterhorn Gotthard Railway (MGBahn), founded in 2003, was established in 1891 as the BVZ Zermatt Railway and expanded in 1914 with the opening of the Furka Oberalp Railway.

- The company is located in the heart of the Alps. It runs from Zermatt to Disentis and from Andermatt to Göschenen. The network spans 144 kilometres in length, covering a total elevation gain of 3,300 metres, passing through 33 tunnels and galleries and traversing over 126 bridges. The lowest point on the journey is Visp, at 625 metres above sea level (m a.s.l.), while the highest point is the Oberalp Pass at 2,033 metres above sea level (m a.s.l.).

- The MGBahn recorded strong growth in the 2023 fiscal year. Revenue from regional passenger transport increased by 19.3% to CHF 66.46 million - a record figure. The Brig-Zermatt line made the biggest contribution to revenue growth with an increase of 34.7% to CHF 37.93 million.

Technology and customer needs

- The MGBahn regularly implements projects to make railway operations more resource efficient. In the case of construction projects, sustainability in terms of energy efficiency is taken into account at the planning stage.

- The MGBahn aims to optimize rail operations and improve the customer experience using cutting-edge technology.

- The MGBahn required its Glisergrund depot to be upgraded for efficient and modern operations, reflecting its commitment to improving service quality and operational efficiency.

- Ensuring punctual and secure train connections is paramount for the MGBahn to meet passenger expectations and maintain a high level of safety across its network.

- The MGBahn aimed to streamline depot operations, reduce the workload on the operations control centre and enable the local management of marshalling operations to improve overall efficiency.

Siemens Technology

- Controlguide® TrackOps Depot was introduced as an innovative depot control solution, enabling the local management of shunting activities and streamlining depot operations.

- Utilizing cloud-based technologies, Siemens Mobility provided flexible and scalable depot control solutions to ensure the efficient management of railway operations.

- Tablet-based control interfaces were introduced for depot operations, enabling the simplified and efficient management of shunting activities directly from the field.

- Controlguide® TrackOps Depot was seamlessly integrated with the existing Iltis control system, ensuring compatibility and interoperability between different control systems.

- Continuous development and refinement of Controlguide® TrackOps Depot is ongoing, with Siemens Mobility conducting system tests for ensuring smooth operation and meeting the evolving needs of the Matterhorn Gotthard Bahn.

- The existing Domino 55 interlocking system was replaced with Trackguard® Simis IS to improve the safety and reliability of railway operations.

- Siemens Mobility ensured compliance with the regulatory requirements, including obtaining approval from the Swiss Federal Office of Transport (BAV) to implement new technologies and solutions in accordance with the industry standards.

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