

Innovation @ VBZ

The pace of technological development is constantly accelerating, giving rise to new products and business models. Even well-established public transportation operators, such as Verkehrsbetriebe Zürich (VBZ), must adapt to this changing landscape.

Institutions like VBZ know that they can not exclusively rely on their traditional business models → they also need to explore new services, products and solutions in order to meet the expectations and needs of their customers.

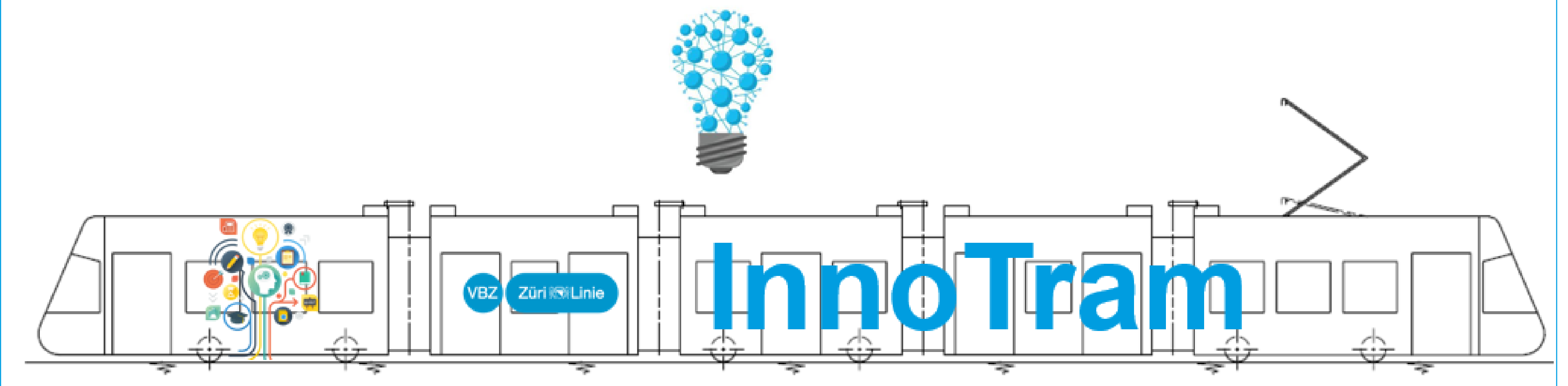
About 10 years ago, VBZ launched an "Innovation Management" program to professionally develop internal ideas and improvements. Additionally, the program aims to establish knowledge-sharing among other transport providers, suppliers and research institutions.

InnoTram – A Vehicle for Collaboration

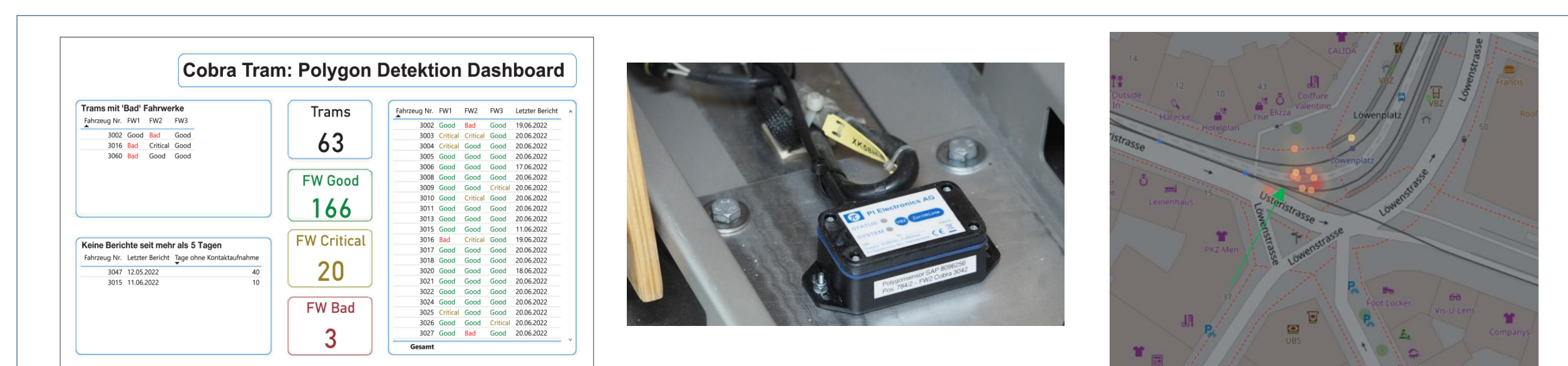
VBZ has allocated one tram specifically for research and the testing of new technologies... the **InnoTram**.

This consolidation simplifies operations for drivers and maintenance staff, while also facilitating easier publicity and sharing of innovation projects within VBZ and to the general public.

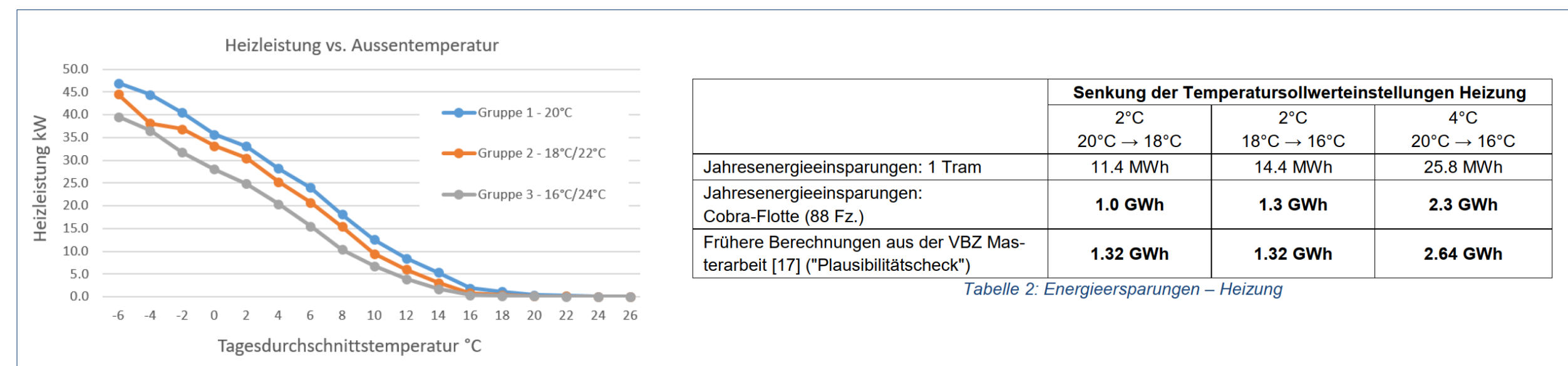
The InnoTram also serves as a collaboration platform for research institutions and suppliers.



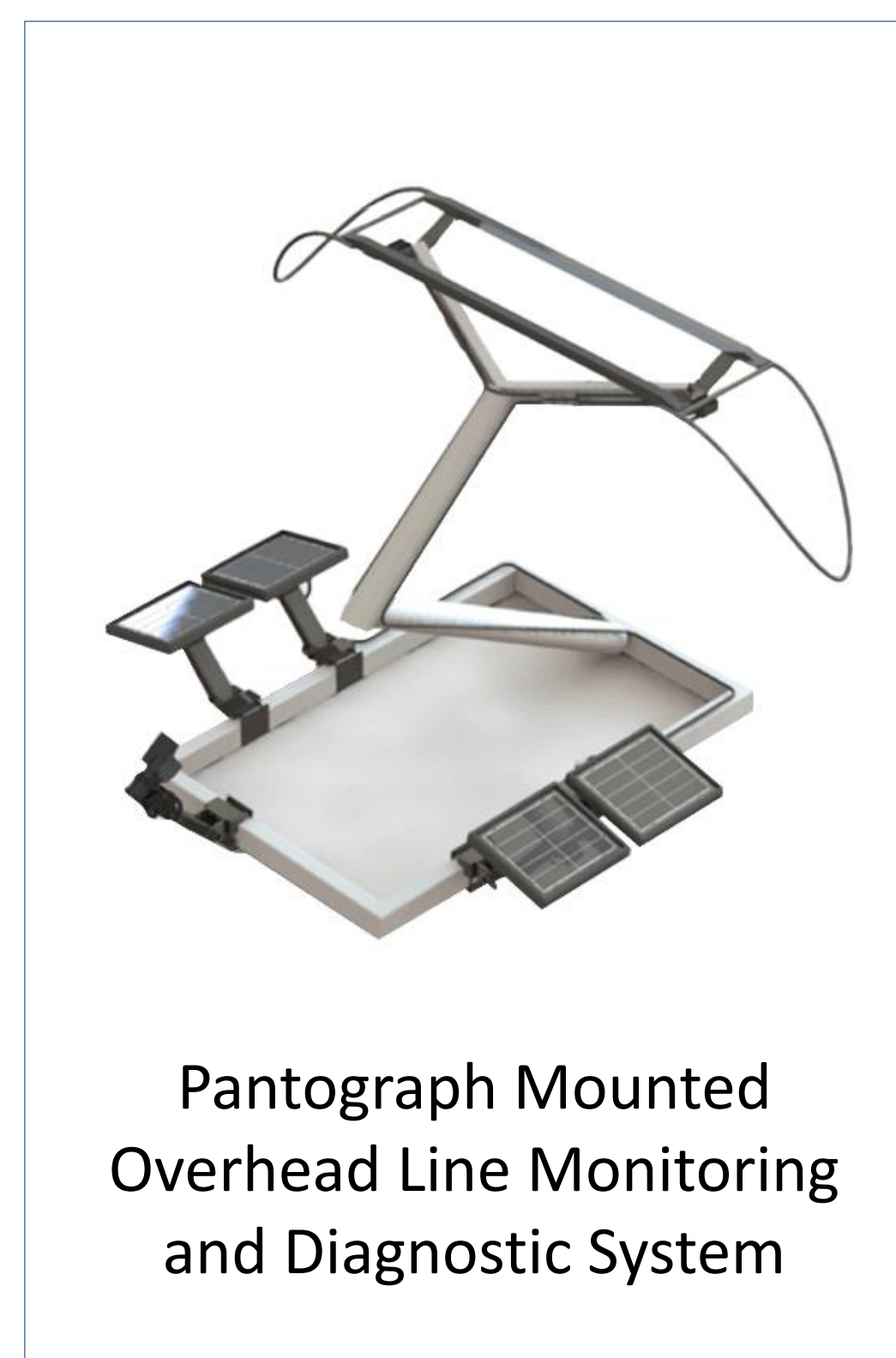
Existing Projects



Wheelset and Infrastructure Monitoring with Accelerometers.¹



Quantification of Energy Savings in Tram Operation Achieved Through Passenger Compartment Temperature Reductions.²



Additional ongoing and planned projects include:

- Measuring the impact of the Corona 'All Doors Open' Policy on Vehicle Air Quality.
- Cloud Based 'Driver Advisory System' for Trams
- Evaluation of LED Interior Lighting
- Technology upgrades including driver microphone, vehicle grounding, precise vehicle locating (Depot Management System), and air treatment technology.
- Optimization of heating and air conditioning systems on eBuses.
- Implementation of vehicle ID Beacon senders for app-based services.



Collaboration

VBZ is actively seeking collaboration projects and welcomes project proposals for evaluation and discussion. Given the city of Zürich's open data policy, there are numerous areas for potential project work (examples currently being studied are energy consumption data as well as cabin-temperature). Further areas for project work could be:

- Evaluation and **study of the new battery bus fleet**. The battery buses generate a lot of data for various systems, presenting an opportunity for analysis and research.
- Assessing energy savings (and energy savings potential) through **further optimization of heating and A/C**.
- Conducting **studies on vehicle interior design** to enhance passenger comfort and experience.
- **Optimization of tram and bus stops** to improve efficiency, accessibility and user experience.
- Exploring **methods to reduce traction energy consumption** for trams and/or buses operated in the VBZ city periphery and suburban lines
- ... what else would you like to work on?

Contact

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References

1. Klein G., Roth D., Menzi P., Strimer S. (2012, October). Zustandsorientierte Wartung: Polygonfrüherkennung beim Cobra-Tram, Schweizer Eisenbahn Review 524-526.
2. Klein G., Inderbitzin F., Gödicke M. (2023, January) 239 Energieeinsparung im Trambetrieb bei verschiedenen Innenraum Temperatursollwertstellungen – Quantifizierung und Flottenerfahrungen, Bundesamt für Verkehr BAV Programm Umsetzung der Energiestrategie 2050 im öffentlichen Verkehr (ES6V 2050)