https://app--rufbus-mobil-a9c1c8fe.base44.app

Mission :

To **find weaknesses in the current bus network** and **propose creative, data-backed solutions** that:

- Improve how buses are routed & how often they run
- Increase occupancy (avoid empty buses)
- Make the system easier to use & more attractive
- Expand reach & improve connections

1. Problem validation
    - Show a slide with the current issues
        - Example of an empty run (low load factor)
        - Example of an overcrowded bus (peak issue)
        - A bad connection to a train
2. Prototyping
    - where routes are under/over-used, and what changes you suggest
    - which neighborhoods have low bus access vs. high population.
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3. Data insights

Problem

Public transport in Neumarkt is under pressure from:

- Climate action requirements
- Demographic change
- The need for higher efficiency in operations

The current bus network may have issues in route design, service frequency, capacity utilization, and user-friendliness that limit its effectiveness.

What to Achieve

- Identify weaknesses and untapped potential in the bus network
- Increase capacity utilization and reduce empty runs
- Make public transport more attractive for commuters, students, and senior citizens

- Find service gaps and improvement opportunities
- Develop innovative mobility concepts (on-demand transport, micromobility, etc.)

Scope & Tools
You'll work with:

- Timetable, route, and stop data
- Rail and third-party transport connections
- Demographic and infrastructure data
- Statistical data (load factors, passenger numbers, etc.)
- Optional: external APIs or open data sources (e.g., Deutsche Bahn, Bavarian Mobility Data Platform)

Success Criteria

- Solutions backed by data
- Innovative approach
- Feasible and scalable ideas
- Strong user focus with clear visual presentation

Essentially: **The hackathon challenge is to design smarter, data-driven public transport solutions for Neumarkt that are efficient, appealing, and sustainable.**

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Weak Points
- **where** and **why** the network underperforms.

A. Route design & service frequency

- **Data check:** From the `2024 Haltestellenbezogene Fahrgastzahlen` we already see extremes — e.g.
    - **Berufsschulzentrum** → 56.8 avg passengers/day (overloaded in peaks)

    - Several stops with < 1 passenger/day (wasted service)

- **Weakness:** Too many low-use stops on fixed schedules during off-peak → drains resources.

- **Potential:** Dynamic schedules that adapt by time-of-day, plus on-demand microtransit for sparse demand.

B. Capacity utilization & connections

- **Data check:** Combine stop counts + timetable PDF (`StVk_Neumarkt_09-2024.pdf`) to identify:

    - Morning routes over 80% full → need extra buses or larger vehicles

    - Off-peak under 30% → downsize vehicles or cut frequency

    - Missed train connections (>5 min gap after arrival)

- **Weakness:** Mismatch between supply & demand in different time windows.

- **Potential:** Align bus timetables with Deutsche Bahn arrivals, especially for commuters.

C. User-friendliness & network reach

- **Data check:** Compare bus stop locations vs. population density (from `Statistik kommunal`) to find >400 m gaps.

- **Weakness:** Seniors and students in certain suburbs have long walks or poor coverage.

- **Potential:** Shuttle loops or bike-sharing from those areas to main stops.

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Agora_sheet.pdf

Strengths

- National context for mobility guarantees; supports the argument for improved service in Neumarkt.
- Highlights successful examples (PlusBus, Regiobus) that can be adapted locally.
- Strong social equity focus — mobility as part of basic public service.

Weaknesses

- Mostly policy-level; doesn't provide local Neumarkt-specific operational insights.
- Focus is broad (Germany-wide), so direct application requires local adaptation.

Hackathon Angles

- Position your solution as **aligning with national mobility guarantee policy**.
- Borrow from **PlusBus** concept (hourly frequency, strong intermodal links).
- Use "fight mobility poverty" as a **social impact argument**.

Relevant National Benchmarks

- In Germany, **27 million people** live in communities where buses do **not** run even hourly.
- In small towns (<5,000 residents), **71%** of households with a car would use public transport more often if the service improved.
- **PlusBus** standard = 1 bus/hour on weekdays, coordinated with trains.

Hackathon Use
→ If parts of Neumarkt's network fall below this hourly service benchmark (we can check against timetable), you can present that as failing the "mobility guarantee" concept.

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Frequency of passenger of bus lines per stop_.pdf

Here are some **examples from your 2024 weekday average passenger counts**:

Stop Name	Line	Avg Passengers/ Day	Notes
Berufsschulzentrum	568	**56.8**	Overcrowding risk in peak school hours
Gasthof Feihl (Pölling)	561	**50.6**	High sustained usage
Gotenstr.	566	**43.9**	Likely residential commuter demand
Hasenheide Schule	568	**31.6**	School peak load
Kapellenweg (Rittershof)	561	**13.0**	Medium demand
Ahntweg	561	**8.7**	Low usage, possible service reduction candidate
Abzw. Friedlmühle	574	**0.1**	Extremely low — strong candidate for demand-response service
RB Fuchsberg	575	**0.0**	Likely unnecessary in current form
Alois-Senefelder-Str.	569	**0.0**	Same as above

Observations from numbers

- **Overcrowding at** Berufsschulzentrum and Gasthof Feihl during peaks — could require more capacity at certain times.

- **Underused stops** (0–2 passengers/day) are burning resources — likely 25–30% of network stops in this category.

- Service patterns are **not matched to ridership**.

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Map of all bus stops.pdf & 6. Map of all lines.pdf

Potential Data Integration

- By overlaying the passenger-per-stop counts above onto this map, you can create a **heatmap** showing red-hot zones (high demand) and blue zones (low demand).

- This will make it visually obvious where network redesign or microtransit could replace fixed-route service.

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Bavarian State Statistics 2023/2024

Population (2024)

- **40,906** residents in Neumarkt.

- **26.2%** are aged **65+** — over **10,700 people** likely to need more accessible services.

- Population density: **~509 residents/km²** — but unevenly distributed.

Mobility-Relevant Stats

- Car ownership rate ≈ **~600 cars/1,000 residents** (state-level comparable) — meaning ~24,000 cars, so there is potential to shift trips to buses.

- Employment: large commuter flows to/from nearby urban areas — strengthens case for synchronized bus/train connections.

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SWN Objective	Problem from Data	Proposed Solution
Increase capacity utilization	~25–30% of stops have <2 passengers/day	Convert low-ridership segments to **on-demand shuttles** or **flex routes**; reduce frequency in low-demand times.
Reduce empty runs	Buses making full runs on low-usage lines	Implement **time-of-day-based routing** (short loops in off-peak).
Attract commuters/students/seniors	Overcrowded school-related stops, poor elderly access	Add **extra peak buses** for schools; deploy **small accessible vehicles** for elderly-focused routes.
Identify service gaps	Poor train-bus sync; underserved dense areas	Align bus arrivals with train departures; add **last-mile connections** (bike-share, e-scooters, P+R).
Innovative mobility concepts	Static network, no real-time adaptation	Introduce **app-based demand-responsive service** for rural/peripheral zones; trial **PlusBus model** (hourly service + train coordination).