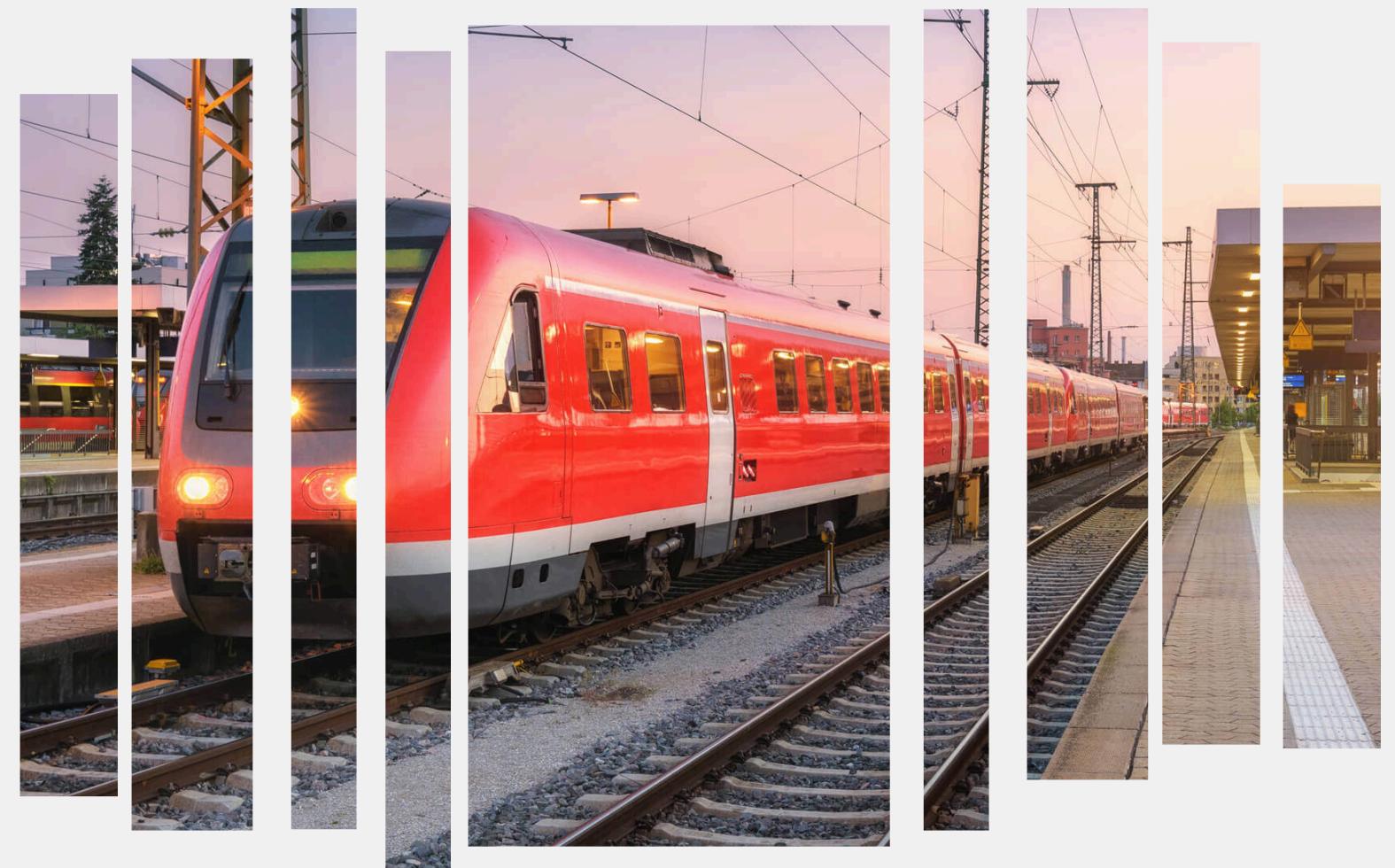




# Why Isn't DB on time?

Analyzing Deutsche Bahn Train Punctuality

Hyoeun Kim



# Project Objectives

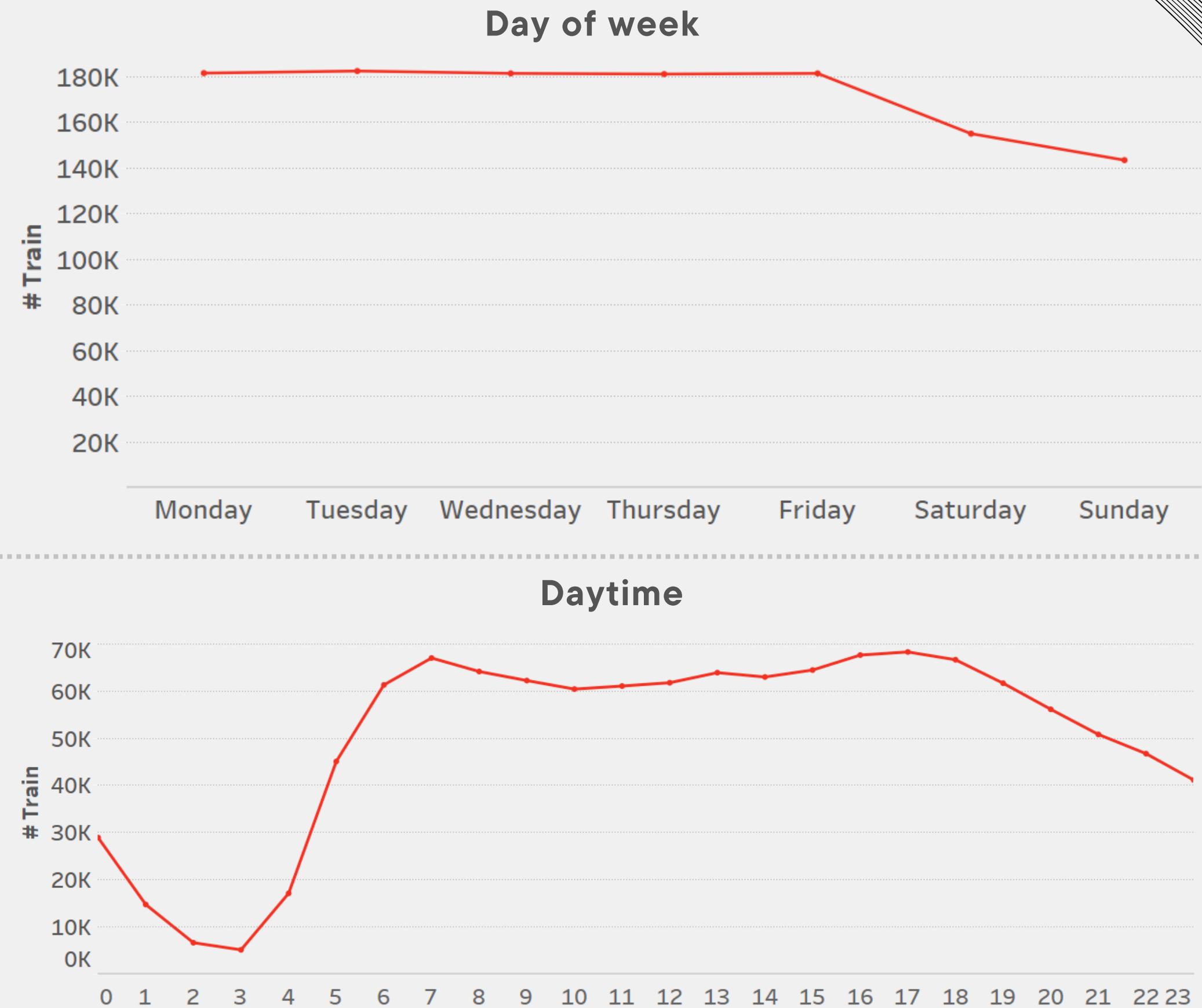
- Analyze DB train (Local & Regional) punctuality
- Understand when and where delays happen
- Provide insights for improving the system

# How many trains were delayed?

- Data Period: 1 week (08. Jul - 14.Jul)
- Total Number of Train: **2 million**
- Delay rate: **7.6 %**
- Average Delay Time: **10 mins**

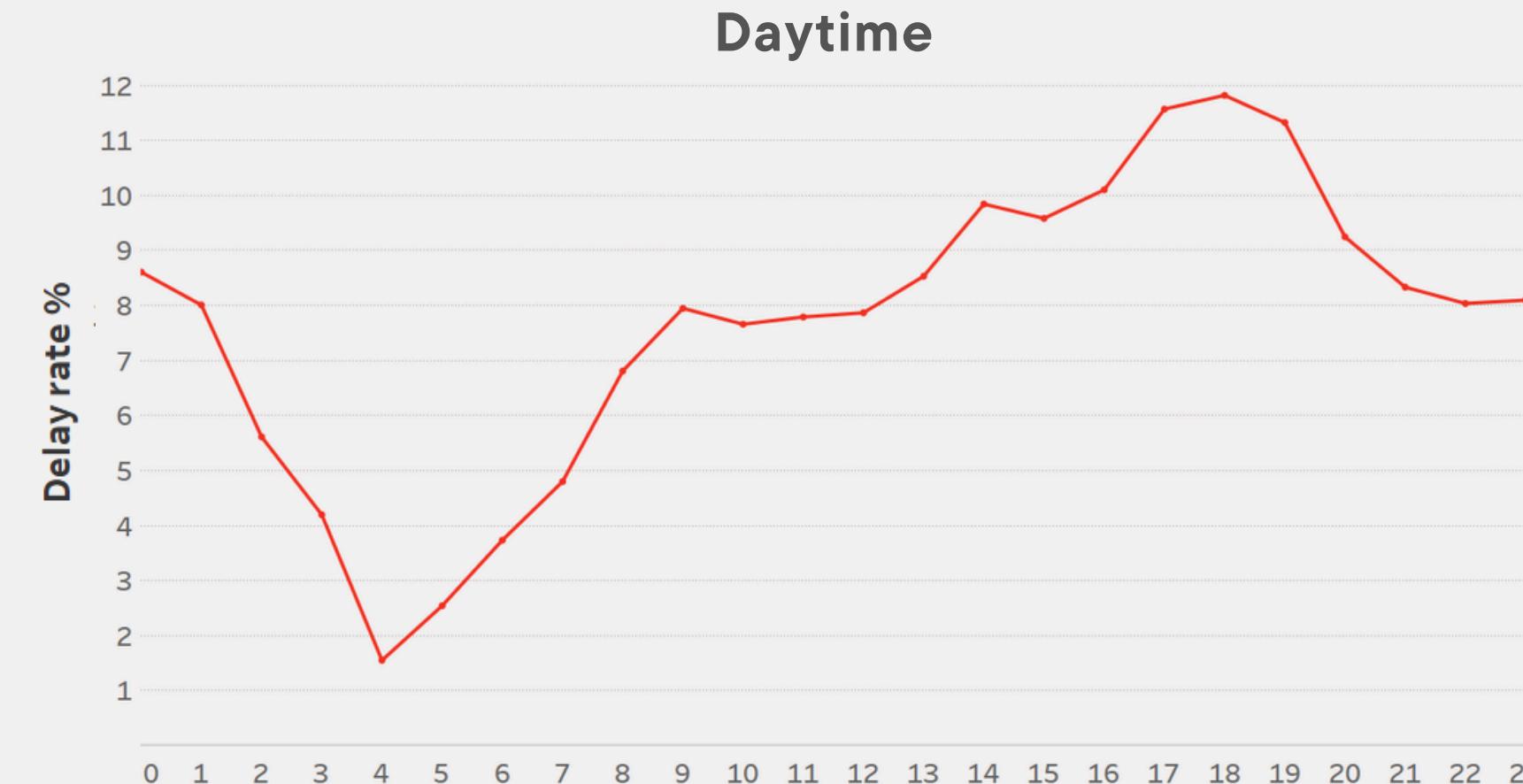
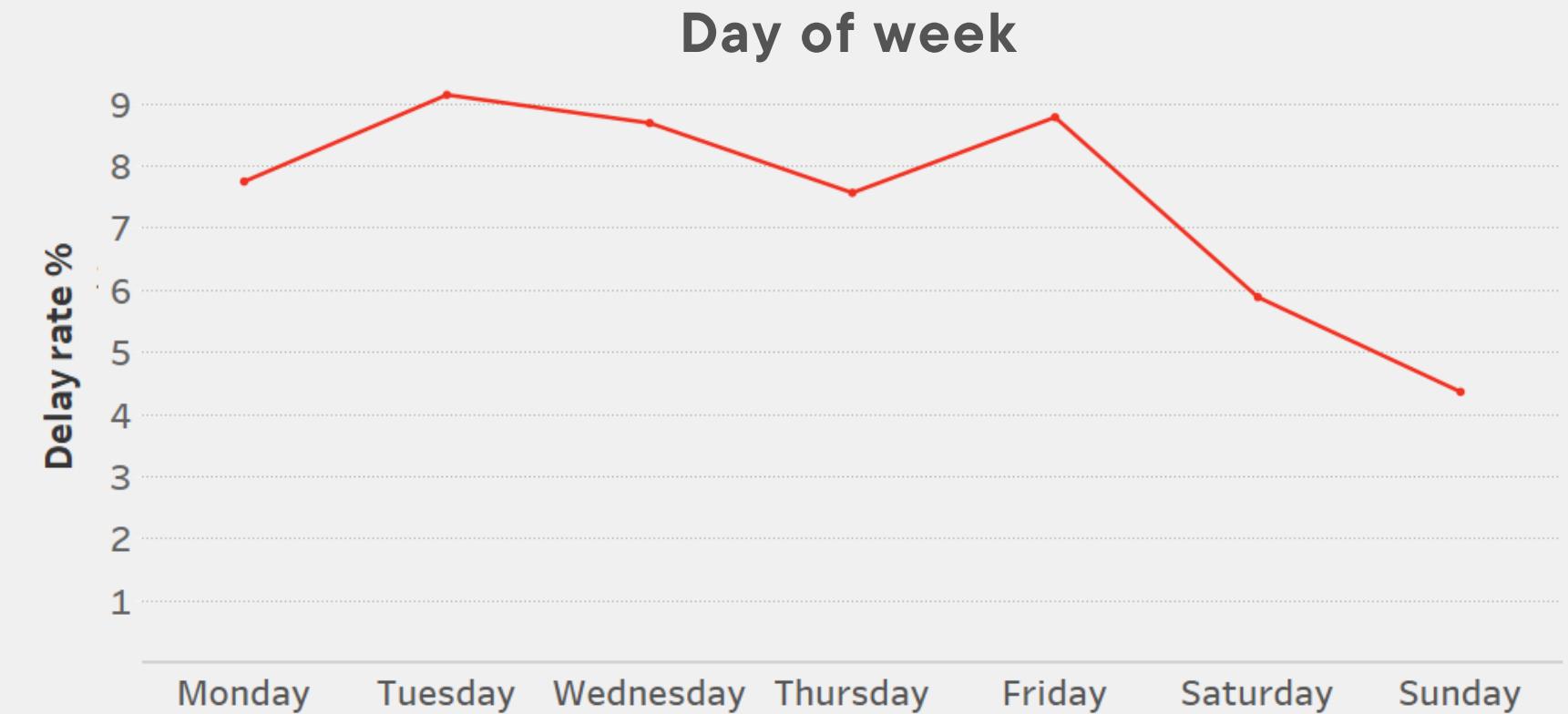
# Train Schedules distribution

- **Increased** train frequency on **weekdays** compared to weekends
- Frequent service during **rush hours**

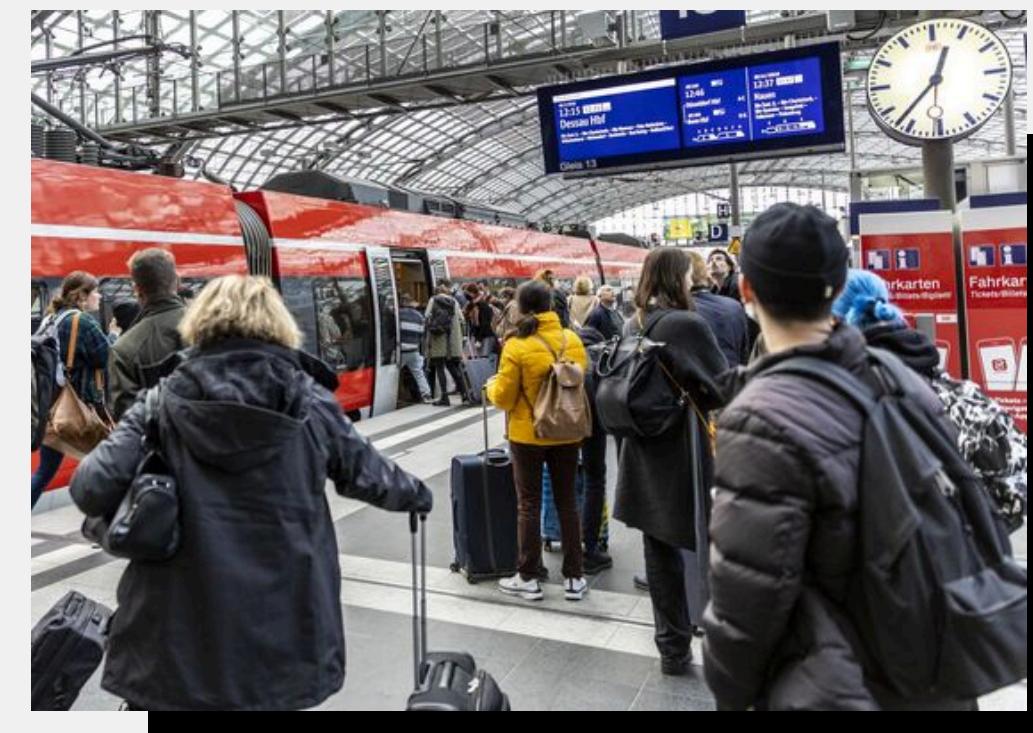
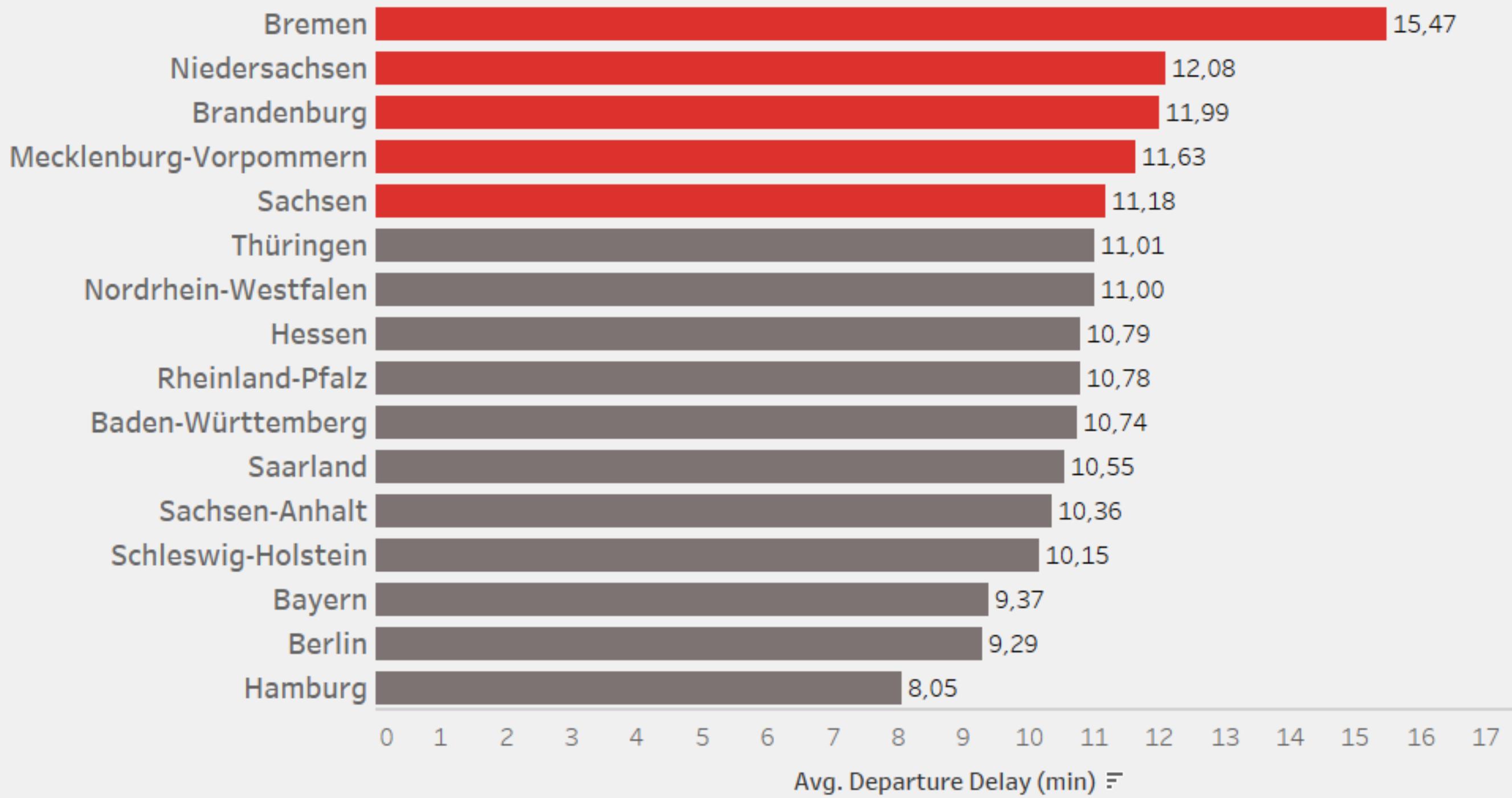


# Delay Rate by Days & Times

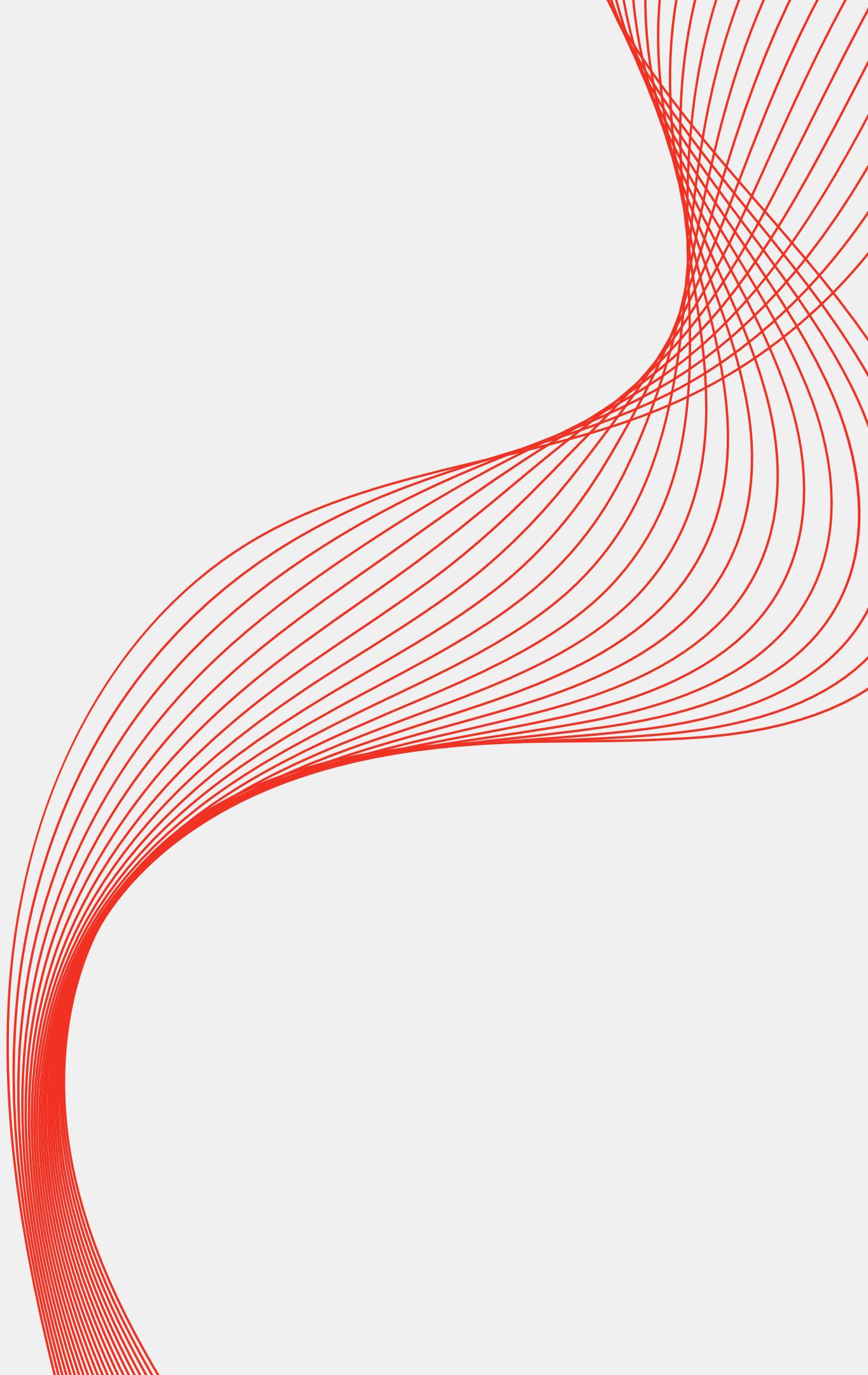
- Delay rates mirror weekly train schedules
- Accumulated delays over the day result in a higher delay rate during **evening rush hour** (5 - 7 PM)



# How Much Longer Waiting for the Delayed Train?



# Which States Win Train Delay Olympics?



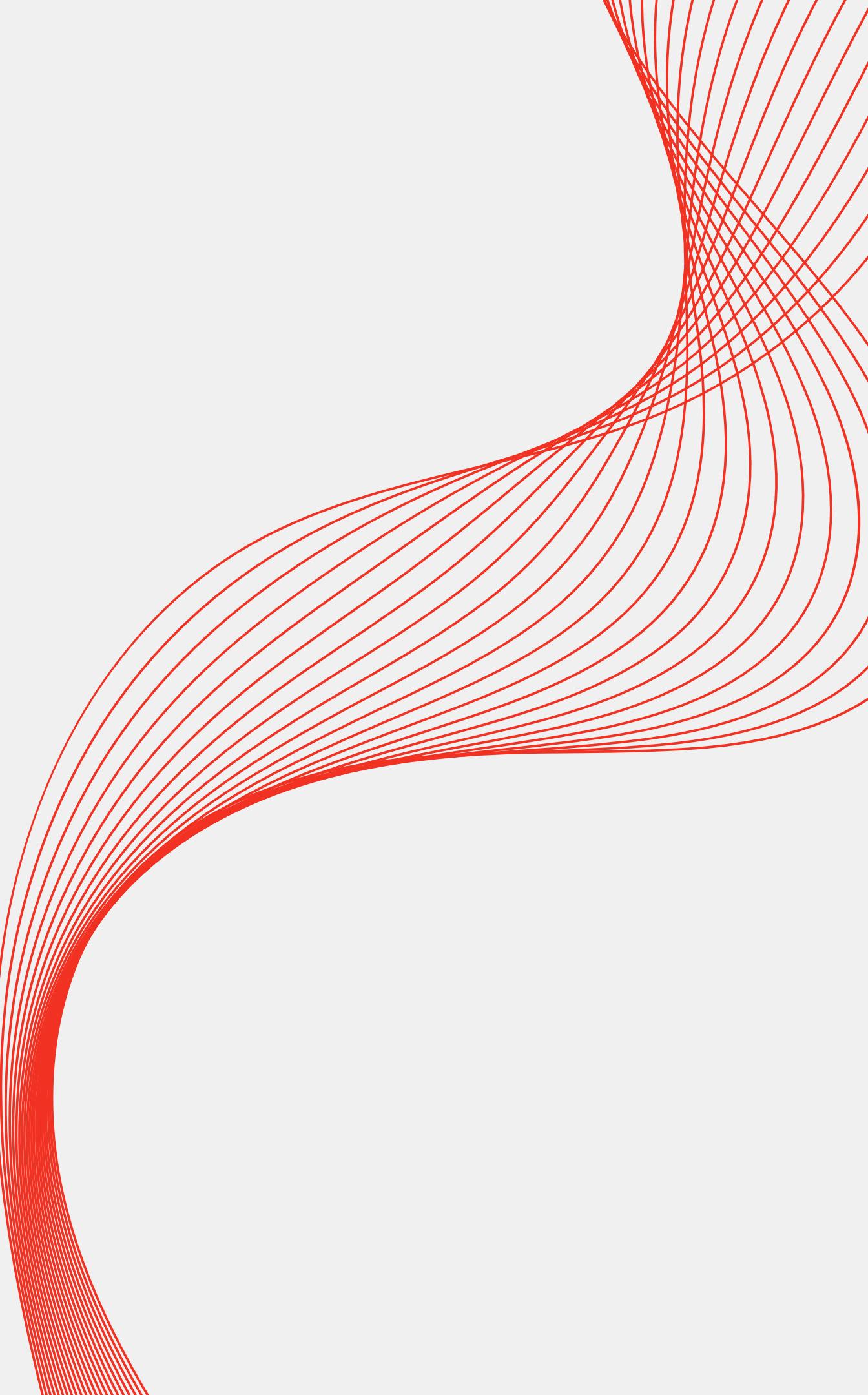
# Which States Win Train Delay Olympics?

1

*Rheinland  
-Pfalz*

Delay rate

**12.8%**



# Which States Win Train Delay Olympics?



*Rheinland-Pfalz*

Delay rate

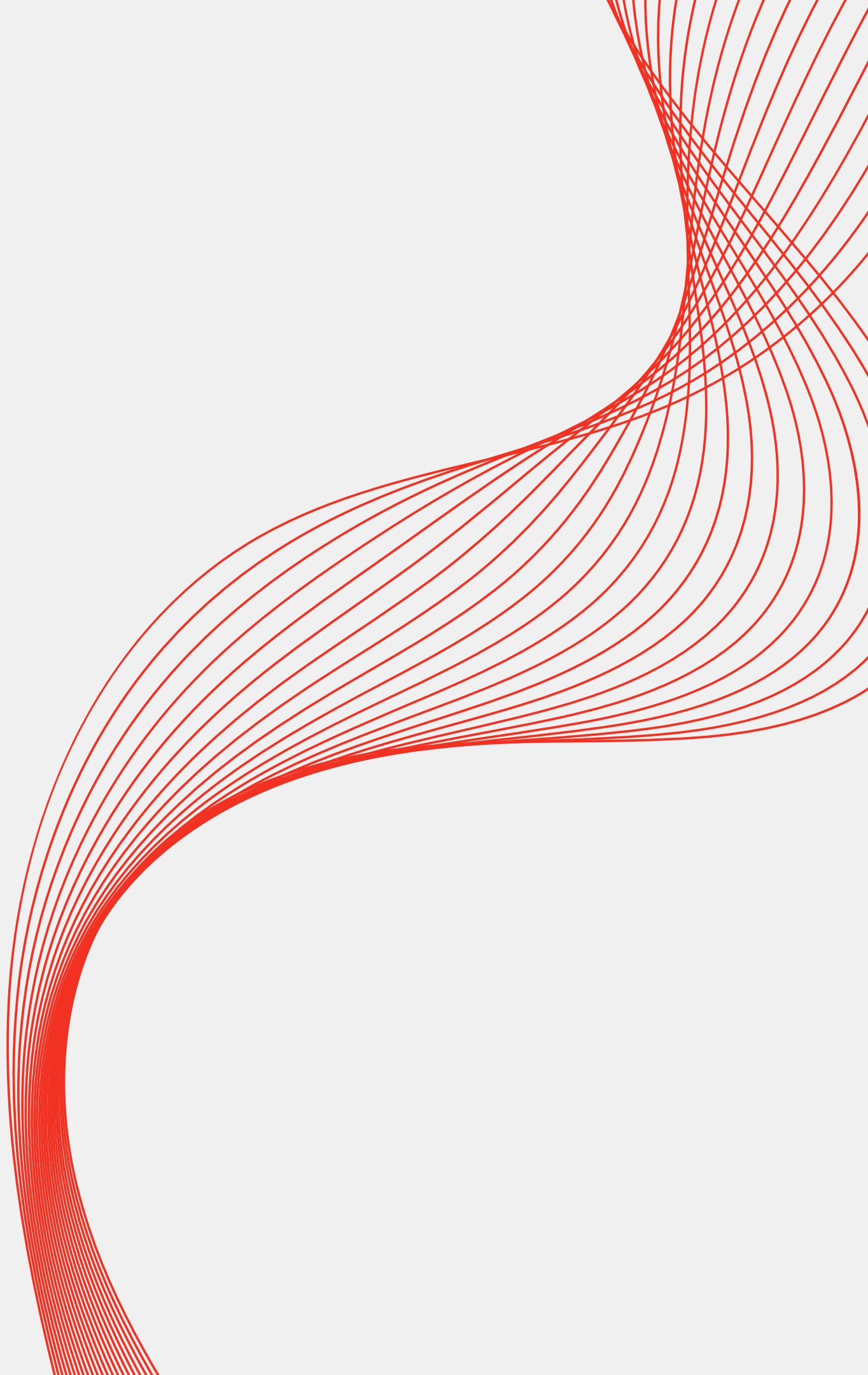
**12.8%**



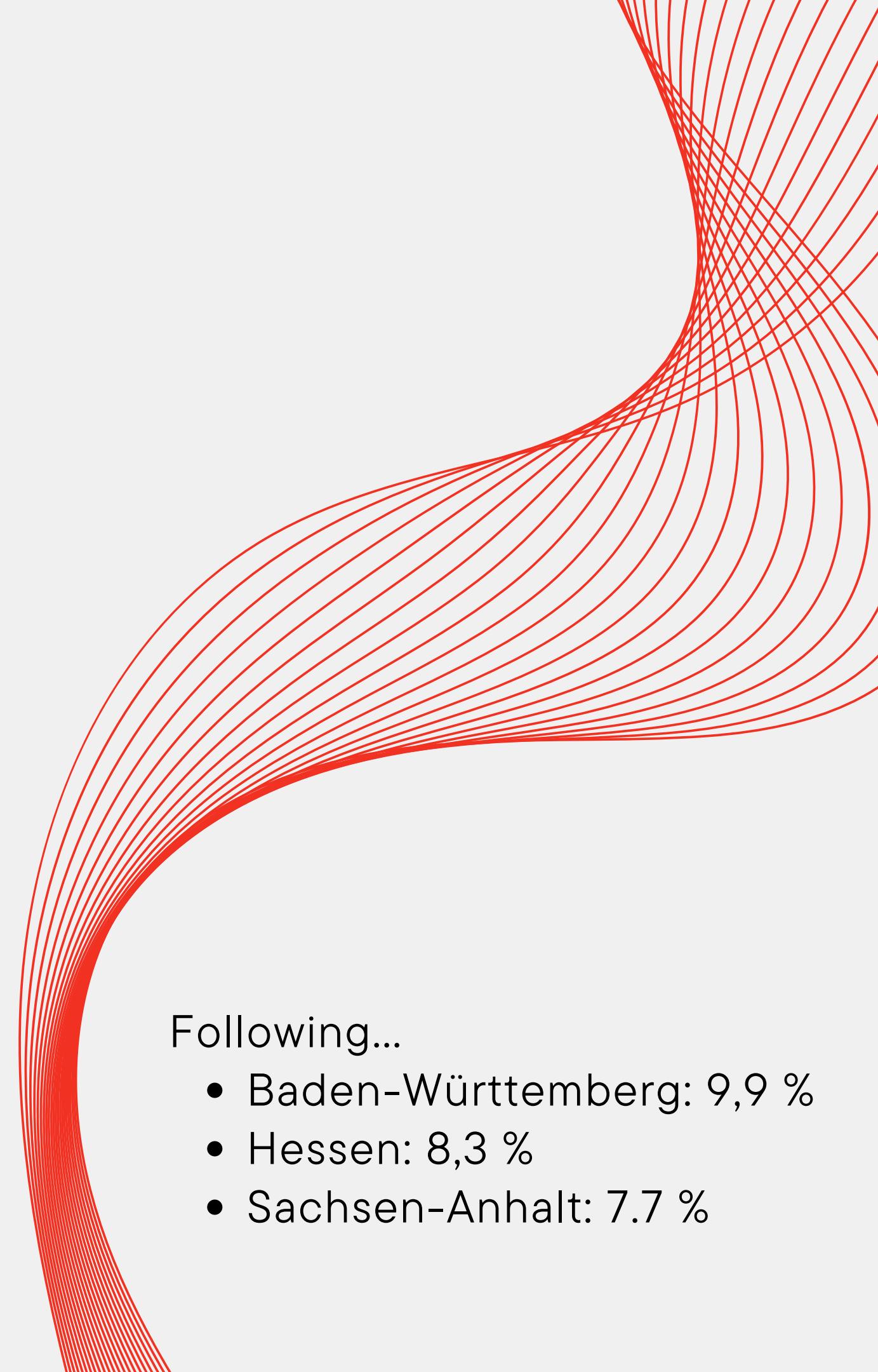
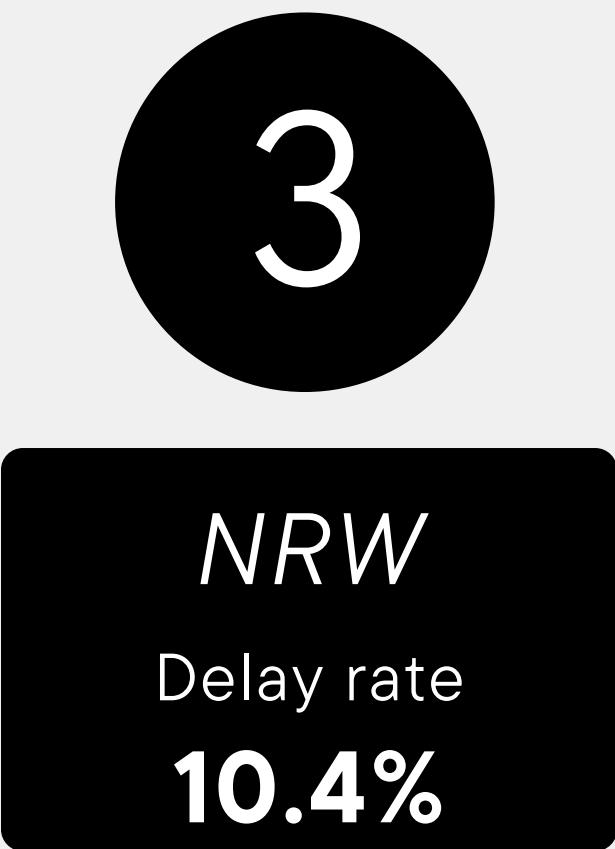
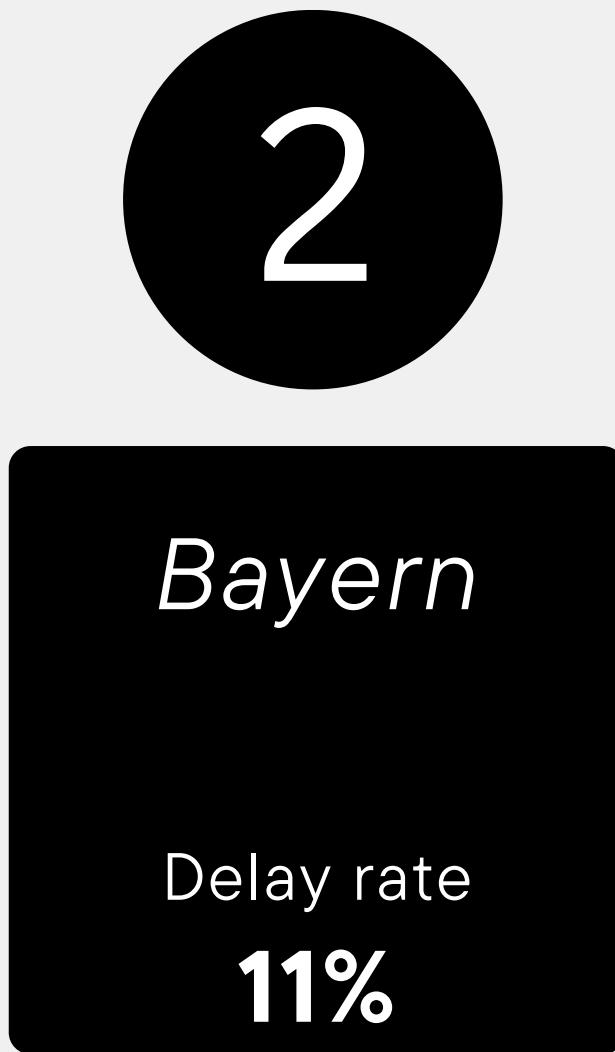
*Bayern*

Delay rate

**11%**



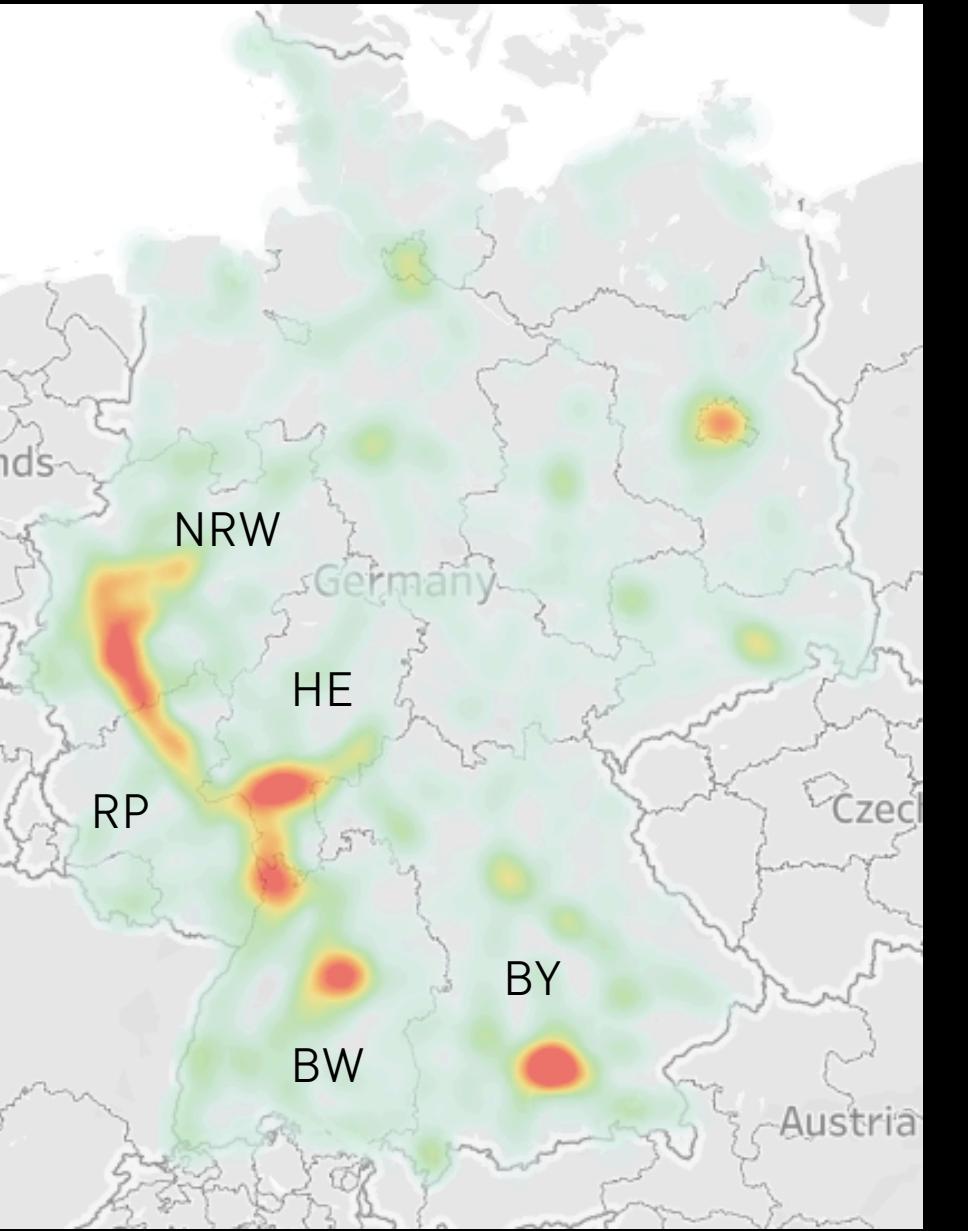
# Which States Win Train Delay Olympics?



Following...

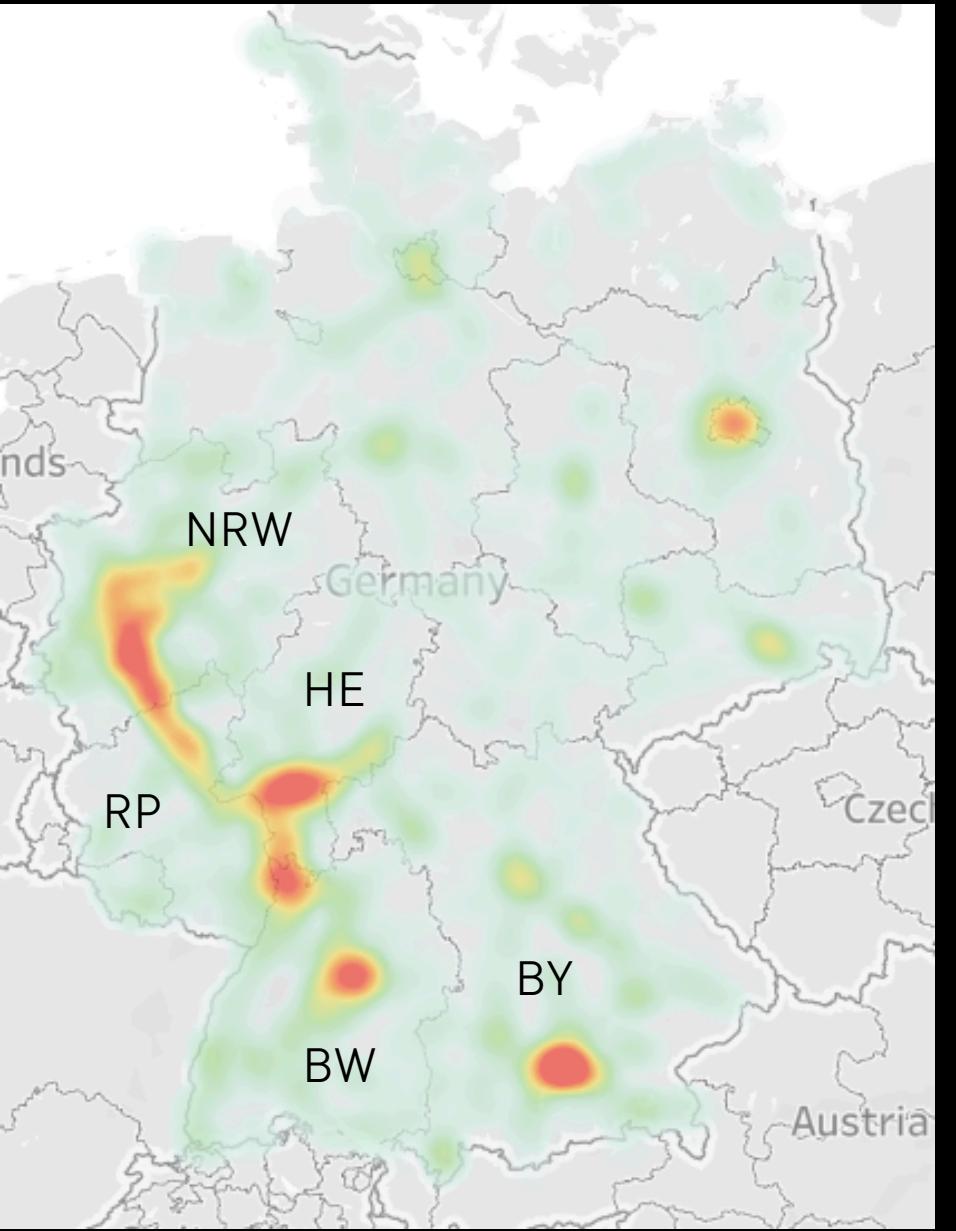
- Baden-Württemberg: 9,9 %
- Hessen: 8,3 %
- Sachsen-Anhalt: 7.7 %

## Total Delay



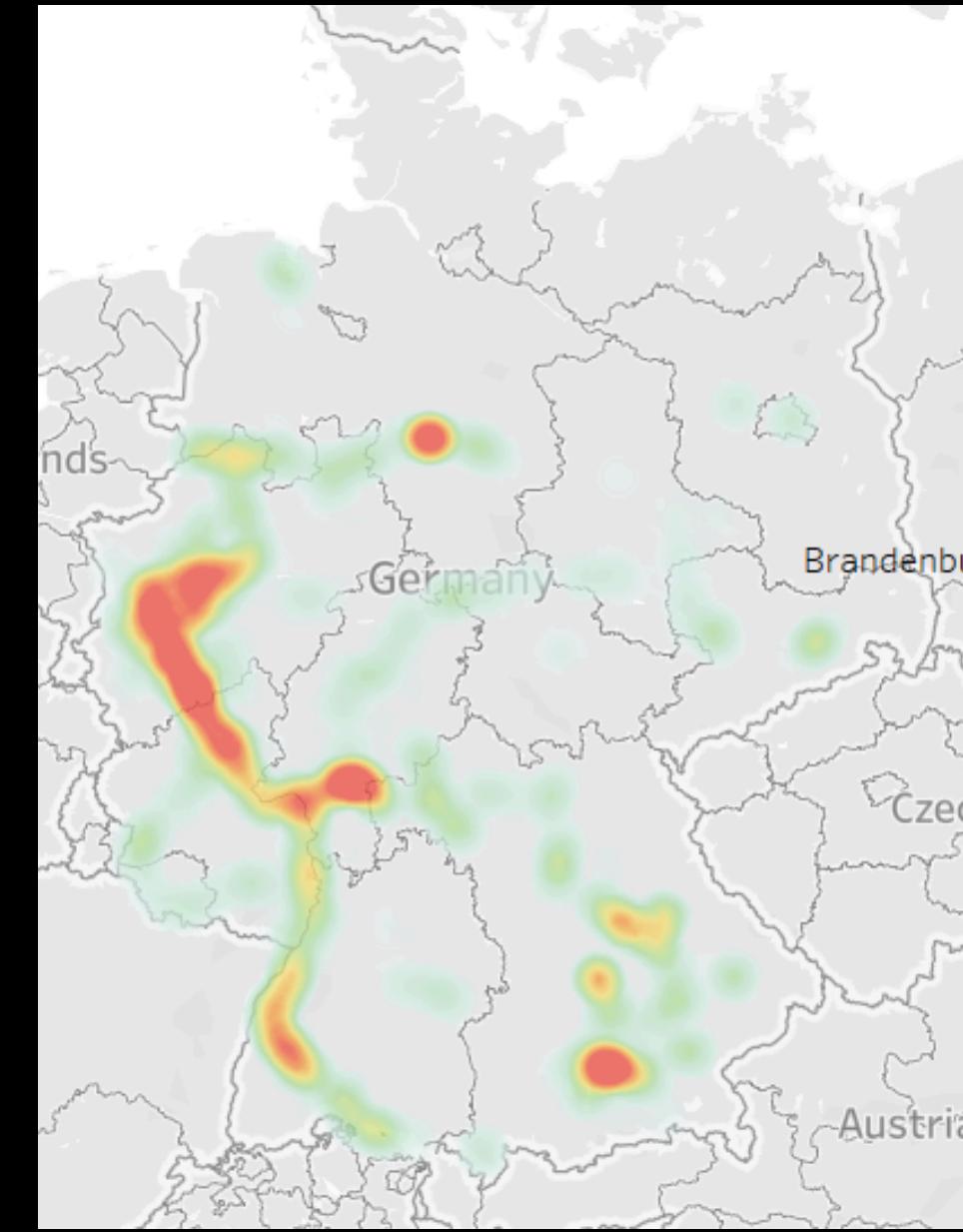
- Highest delay rates in **large urban areas**, particularly in Southwest Germany.

## Total Delay



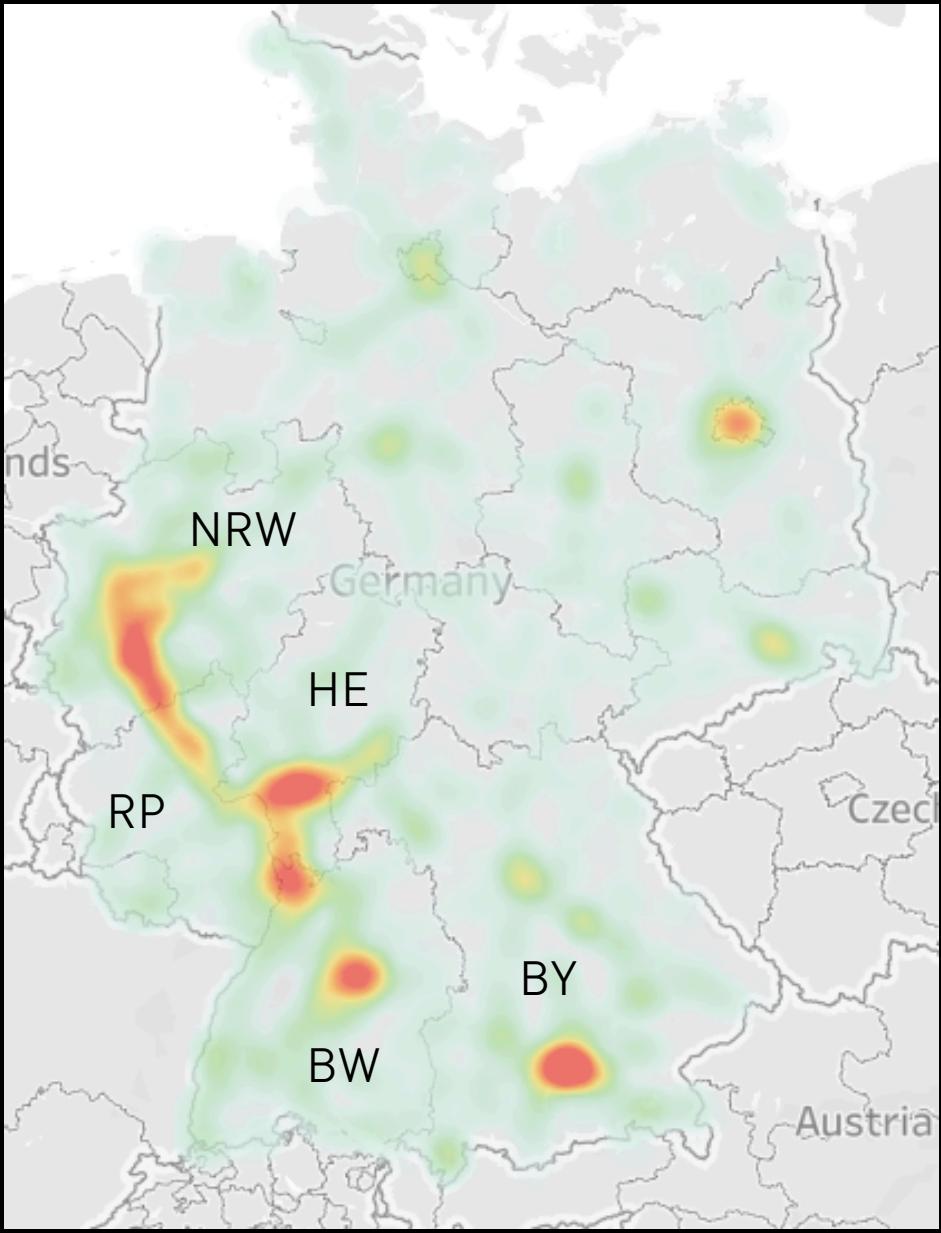
- Highest delay rates in **large urban areas**, particularly in Southwest Germany.

## Delay by construction works



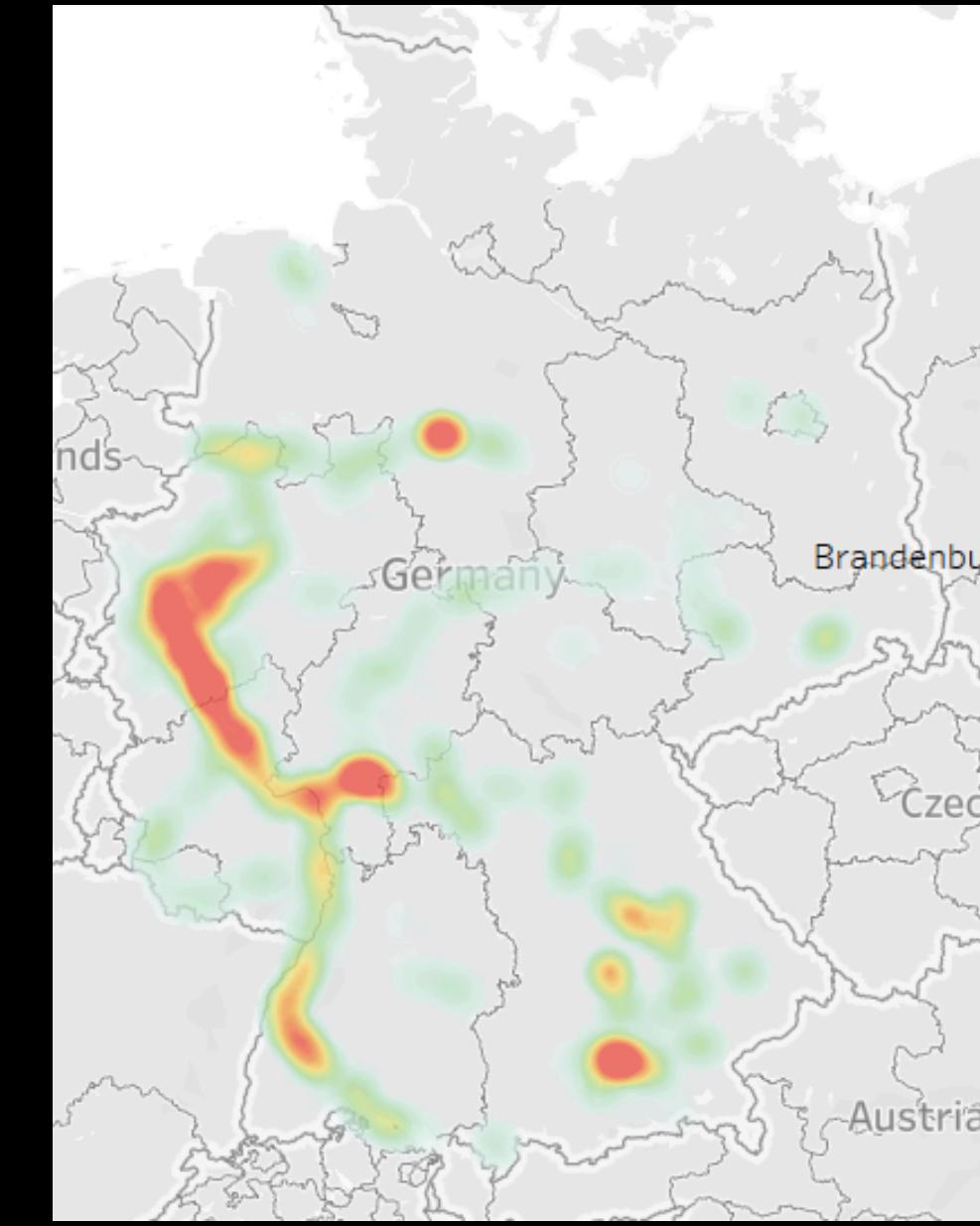
- It **aligns** closely with the total delay map.

## Total Delay



- Highest delay rates in **large urban areas**, particularly in Southwest Germany.

## Delay by construction works



- It **aligns** closely with the total delay map.

**Construction activities** are a **major contributor** in these urban areas



# Key Finding & Recommendation

## **Evening Rush Hour Delays**

- High delay rates during evening rush hours due to accumulated delays
- Optimize train schedules to better align with passenger demand

## **Infrastructure Maintenance**

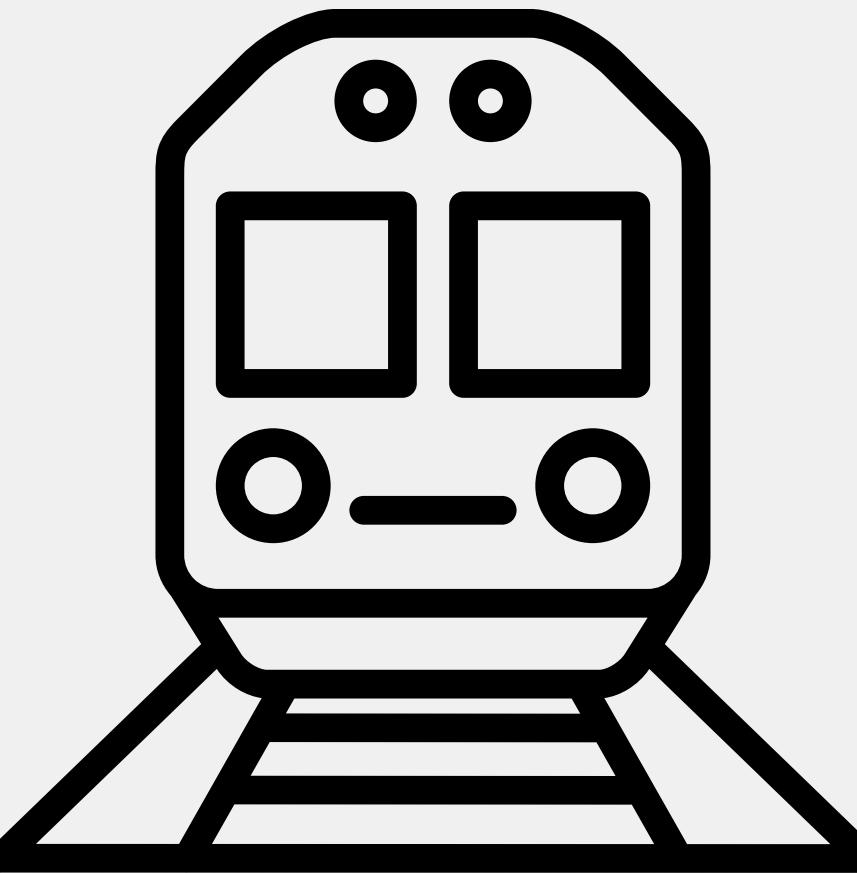
- Significant issues with infrastructure maintenance leading to massive construction works.
- Implement efficient maintenance scheduling and predictive technologies to minimize disruptions.

## **Communication with Customers**

- Difficulty in collecting delay reasons due to vague announcements.
- Improve transparency by clearly explaining delay reasons to reduce customer dissatisfaction.



# Thank You !



contact |

[Linkedin.com/in/hyoni-kim/](https://www.linkedin.com/in/hyoni-kim/)



hyoni328@gmail.com

