

# Why Two Fact Tables Are Necessary in This Star Schema

In dimensional modeling, a single fact table is ideal for one business process. However, in this case, two distinct fact tables are justified and necessary.

## 1. Distinct Business Processes:

- FactTrip: captures bike usage events (e.g., ride duration, stations, times).
- FactPayment: captures financial transactions (e.g., amount spent, payment date).

These are fundamentally different activities and should be tracked separately.

## 2. Different Granularities:

- FactTrip has one row per trip.
- FactPayment has one row per payment.

Combining them would lead to data duplication or many NULLs.

## 3. Different Metrics and Analysis Needs:

- FactTrip is used for usage analysis: how long, when, where, and who rides.
- FactPayment supports financial analysis: revenue over time, spending per user.

Each supports different queries and metrics.

## 4. Shared Dimensions:

- Both fact tables use dimensions like DimDate, DimRider, and DimAccount.
- This enables joint analysis like cost per ride or revenue per minute.

## Conclusion:

Maintaining two fact tables allows clean, performant, and logical data modeling. It's a best practice when handling multiple business processes with different grains.