Breakdowns and Bounce-Backs: What Drives Theme Park Ride Downtime?



STA 199

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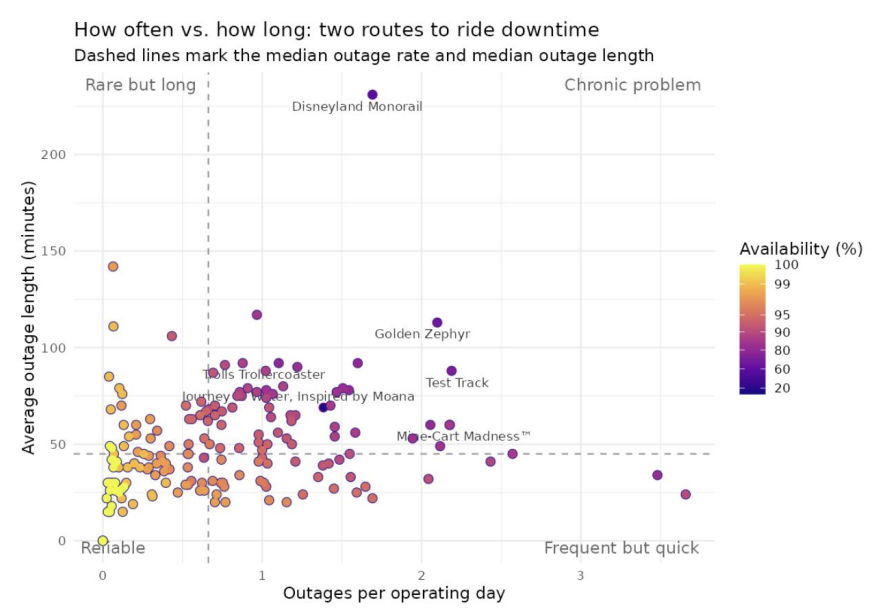
Topic & Motivation

- Ride breakdowns cost guests time and cost parks money.
- Downtime can come from frequent short outages or rare long ones.
- Question: Is low availability driven more by how often rides break down or how long outages last, and does this differ across parks?

Introduction of our data

- Rope Drop News, rolling 90-day window, 182 rides across 6 Disney and 3 Universal parks
- Key variables: outages, average outage length, operating days, availability
- Created: outages per day and downtime per day; removed 7 rides with under 30 operating days

Both Outage Frequency and Duration Matter



- Most rides experience relatively few and short outages.
- Frequent breakdowns do not necessarily mean low availability if repairs are quick.
- Rides experiencing both frequent and lengthy outages tend to have lower availability.

Which Parks Lose the Most Time?

- Median downtime per ride: Islands of Adventure 72 min/day, Epic Universe 65 min/day, all other parks ≤ 37 min/day
- Not a Disney vs. Universal split: Universal Studios Florida is 13 min/day, near the best
- Disney parks have low medians but long tails from single rides (Monorail 391 min/day)
- Islands of Adventure: 59% of rides “Frequently down,” 0 “Rock solid”

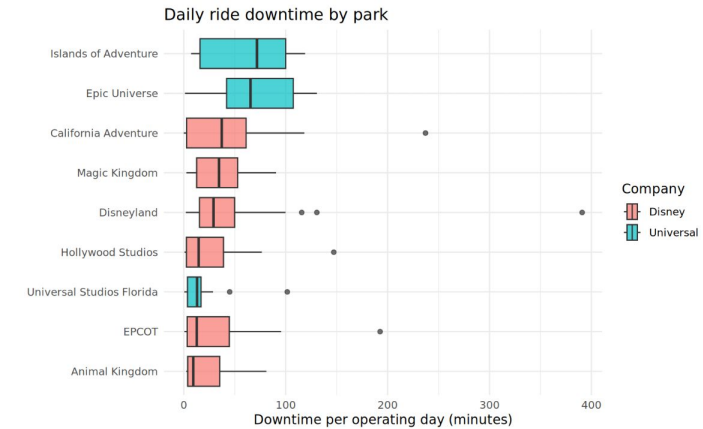


Figure 2: Daily downtime per ride, by park. Parks are ordered by median downtime.

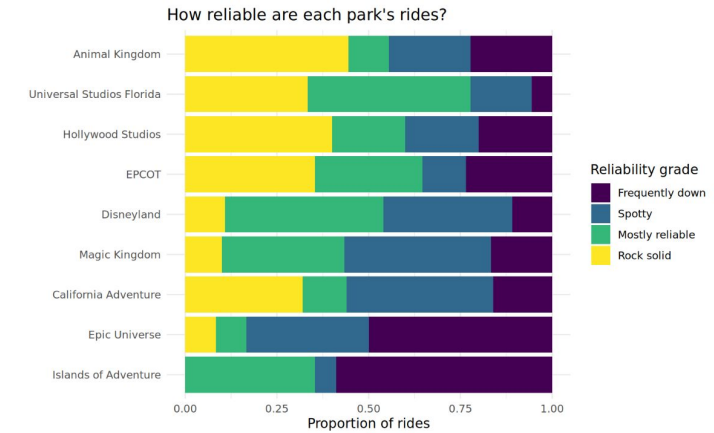
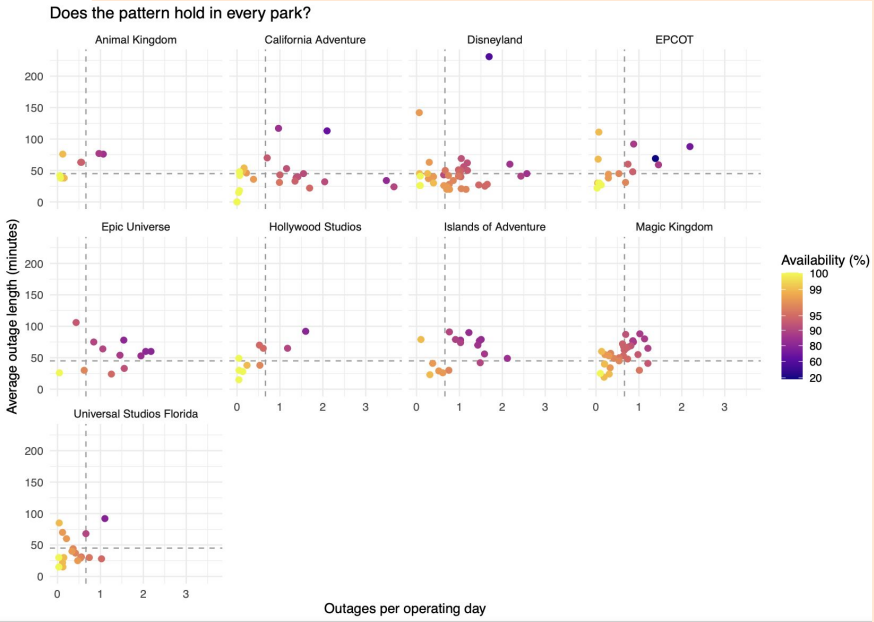


Figure 3: Share of each park’s rides in each reliability grade.

Not every park breaks down the same way

Outage rate vs. outage length, park by park



- Dashed lines are the overall medians, splitting rides into four groups
- Islands of Adventure: 10 out of 17 rides (59%) chronic
- Epic Universe: 7 of 12 (58%) chronic
- Universal Studios Florida is the mirror: 11 of 18 (61%) reliable, 1 chronic
- Magic Kingdom & Disneyland: most chronic rides (11, 10), spread across 30 and 37

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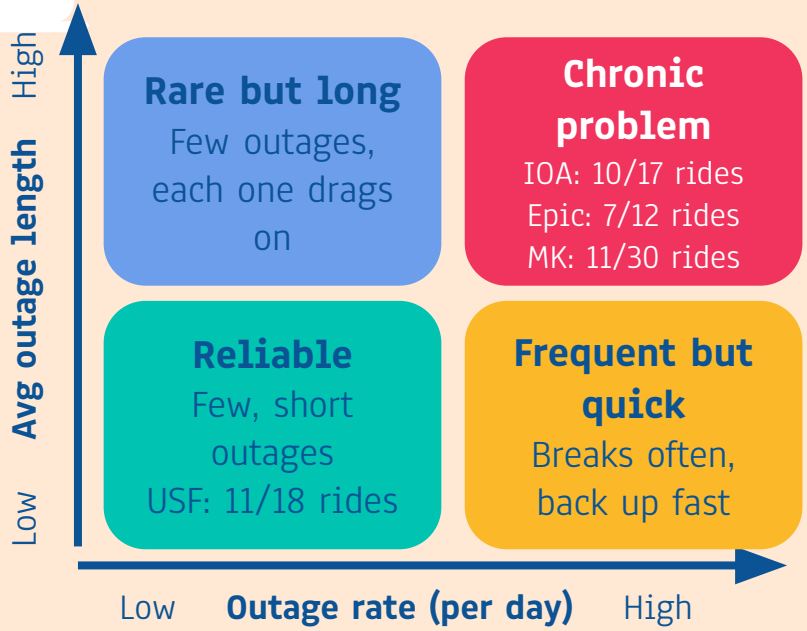
A 2x2 typology of ride reliability



- Quadrants split at median outage rate and length
- Islands of Adventure (10 of 17) and Epic Universe (7 of 12) most chronic
- Universal Studios Florida is the mirror: 11 of 18, 1 chronic
- Magic Kingdom (11) and Disneyland (10) have the most chronic rides, in much bigger parks

Conclusion

MAIN FINDING

Ride level: frequency and duration both matter. Park level: frequency separates parks.

! Caveat

1. Journey of Water (EPCOT): 15% availability, lowest in data
2. Yet only ~95 min/day of recorded downtime
3. Suggests closures the data doesn't capture

? Limitations

1. Crowd-sourced: popular rides over-reported
2. Few rides per park
3. Only a 90-day snapshot

+ Future work

1. Longer time window
2. Account for operating hours
3. Add ride type and age

Thanks!



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