How to monitor over time Driver's engagement?

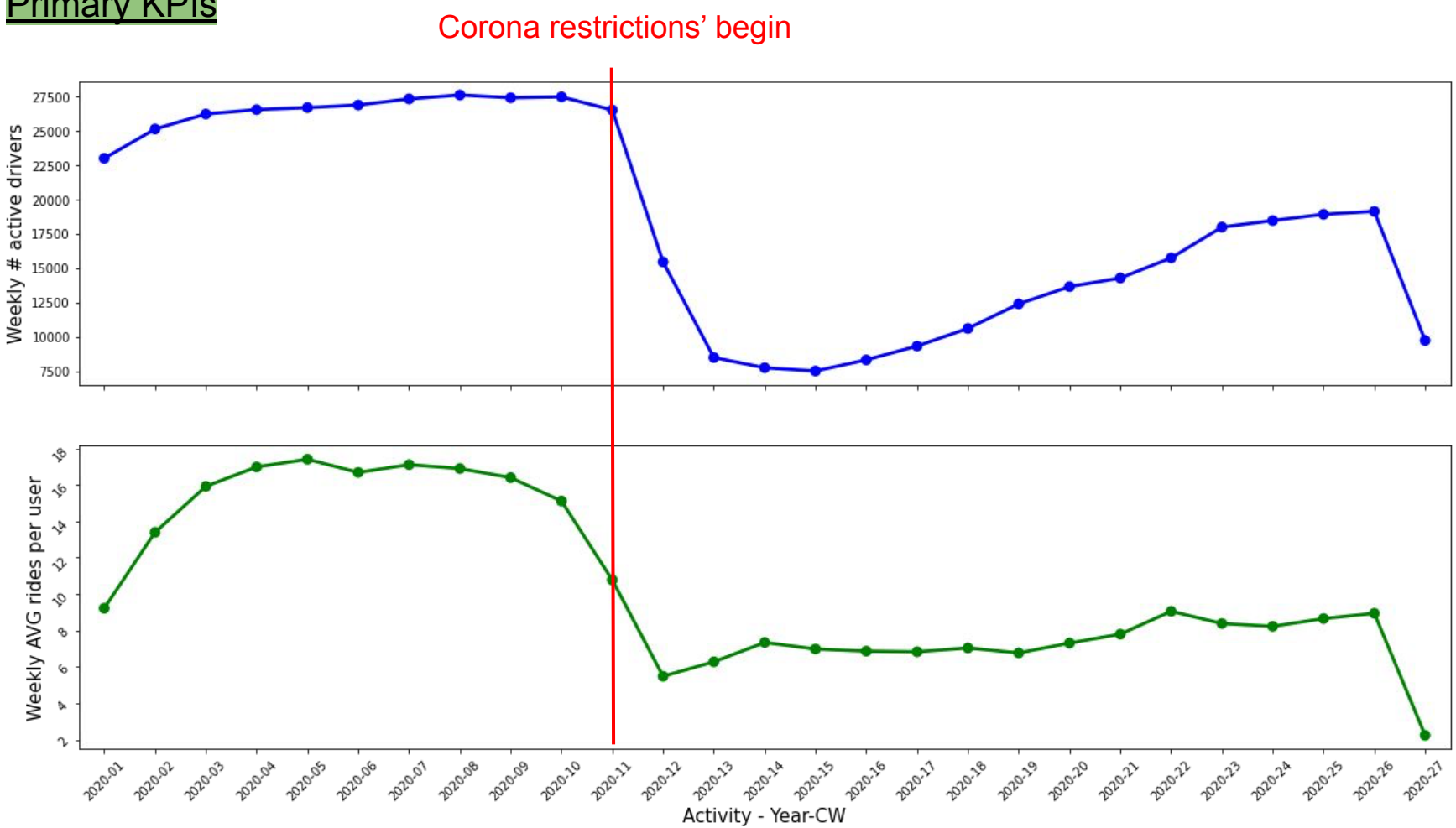
- Primary KPI- Weekly number of active users: count of unique drivers for each calendar week
- Primary KPI- Weekly AVG rides:
  1. **Level-1 metric:** AVG completed rides for each driver and calendar week
  2. **Level-2 metric:** AVG **Level-1 metric** for each calendar week
- Secondary KPI- Weekly AVG percentage of cancelled bookings to bookings:
  1. **Level-1 metric:** AVG percentage of cancelled booking divided by total number of bookings for each driver and calendar week
  2. **Level-2 metric:** AVG **Level-1 metric** for each calendar week
- Gold level count (?) : amount of times the driver reached gold status (600 points or 60 jobs) in a specific week*

* From the provided dataframe this KPI is linked solely to the id driver but not to the specific week, therefore its development can't be monitored for each calendar week. Furthermore no specification is given about the calendar week to which the gold level count is linked.

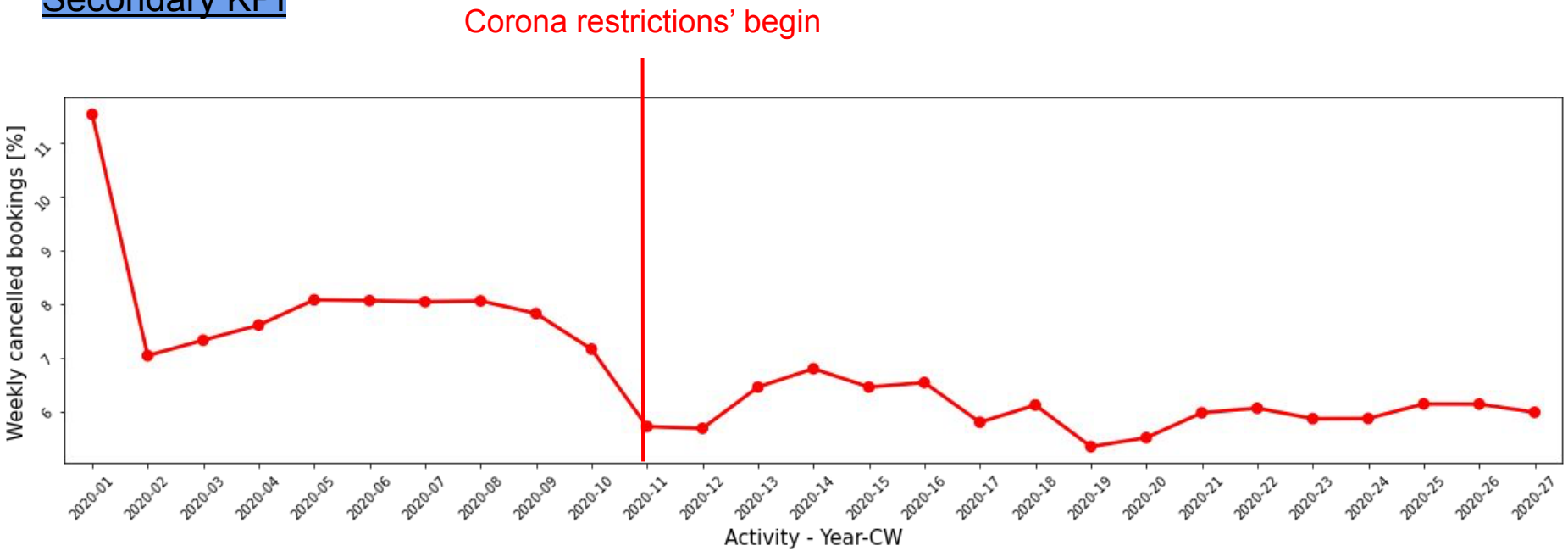
Why?

- Primary KPI- Weekly number of active users: high driver engagement is associated with a higher number of active drivers
- Primary KPI- Weekly AVG rides: high driver engagement is associated with the high number of completed rides by the driver
- Secondary KPI- Weekly AVG percentage of cancelled bookings/bookings: higher driver engagement would be also associated to lower percentage of cancelled booking from the driver after booking it. An engaged driver would try to be flexible with additional possible customer's change (e.g. transport of pets/tools, change of pickup point, etc.) after booking in order to prevent any negative experience for the customer with that driver
- Gold level count (?) : higher driver engagement would be associated with a higher gold level count for a specific week.

Primary KPIs



Secondary KPI



Segments associated with driver's engagement?

country_code	service_type	perc_canc_driver	cnt_drivers	rides
DE	PHV	7.380	5651	249.420
DE	TAXI	6.456	20151	122.922
ES	TAXI	8.575	11170	185.197

If we consider service type and country, we noticed that:

1. In Germany, PHV reports a double number of completed rides to TAXI opposed to a lower number of total active drivers. **A business recommendation** would be to increase the PHV vehicles' availability as well as drivers' awareness about PHV opportunities, since it seems PHV a successful segment for driver engagement in Germany.

2. It is noticeable that the total number of active drivers in Spain results to be lower than in Germany. Furthermore PHV vehicles are not available. Based on the Germany data, **a product improvement** would be to introduce the PHV vehicles in Spain and see the effect on driver's engagement.
   Furthermore, **as a business action**, it would be beneficial to increase awareness about FREE NOW service (e.g. through marketing campaigns) in Spain in order to increase the total number of active drivers within that market.

A/B test on email campaign to incentivise driver activity

- 50-50 sample size allocation between control and treatment group
- A : number of rides within the next week from driver control group
- B : number of rides within the next week from driver treatment group

Hypothesis testing

- **H0:** B mean <= A mean
- **H1:** B mean > A mean

Which test?

- Normal distribution of rides in following week for both control and treatment group : **parametric** test
- Comparison of driver activity means between control and treatment groups: parametric **T-test**
- Between groups A/B test: parametric **independent** T-test
- Checking the effect effect in one direction (treatment group will result in a higher driver activity than control group): **one-tailed** parametric independent T-test ($p_{value}/2 < alpha$ to reject H0, with alpha=0.05)

Results:

- **Rejection of H0 and acceptance of H1:** the treatment group mean is significantly higher than the control group mean

Conclusions:

- The driver activity results significantly increased after the email campaign