

# Product Pricing Algorithm

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## Problem Statement

Research and Development wants help to determine new product ideas and pricing using existing product line as a benchmark.

## Solution Summary

We've identified several product gaps in the existing product line includingL

1. Aluminum Over Mountain
2. Aluminum Triathalon

The Data Science Team has developed a pricing model that uses predictive analytics to estimate the price of the new bicycle models based on the existing fleet. This ensures that new models are priced comparatively to other similar bicycles.

New product prediction for 2 new models:

1. Trigger, over Mountain with Aluminum Frame: \$3,258
2. Slice, Triathalon with Aluminum Frame: \$2,662

**Next Steps:** Integrate the model into a proof-of-concept web application that can be deployed to the R&D department.

## Gap Analysis

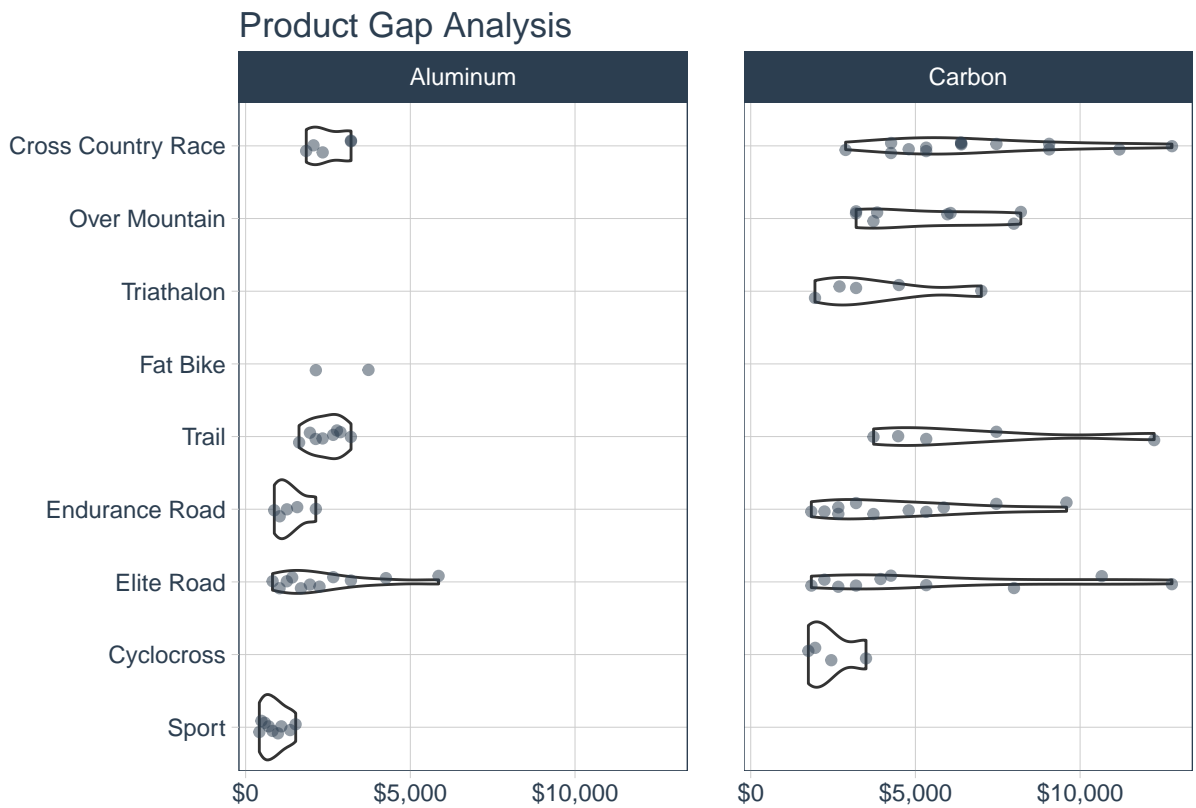
### Bike List

```
## # A tibble: 97 x 15
##       id price model category_1 category_2 frame_material model_base
##   <int> <dbl> <chr> <chr>      <chr>      <chr>      <chr>
## 1     1  6070 Jeky~ Mountain Over Moun~ Carbon      Jekyll
## 2     2  5970 Trig~ Mountain Over Moun~ Carbon      Trigger
## 3     3  2770 Beas~ Mountain Trail      Aluminum    Beast of ~
## 4     4 10660 Supe~ Road      Elite Road Carbon      Supersix ~
## 5     5  3200 Jeky~ Mountain Over Moun~ Carbon      Jekyll
## 6     6 12790 Supe~ Road      Elite Road Carbon      Supersix ~
## 7     7  5330 Supe~ Road      Elite Road Carbon      Supersix ~
## 8     8  1570 Syna~ Road      Endurance~ Aluminum    Synapse
## 9     9  4800 Syna~ Road      Endurance~ Carbon      Synapse
## 10    10   480 Cata~ Mountain Sport      Aluminum    Catalyst
## # ... with 87 more rows, and 8 more variables: model_tier <chr>,
## #   black <dbl>, hi_mod <dbl>, team <dbl>, red <dbl>, ultegra <dbl>,
## #   dura_ace <dbl>, disc <dbl>
```

## Gaps

The visualisation segments the full bicycle product line by category and frame material. This exposes two product gaps:

1. New **Aluminum** line of bikes in the **Over Mountain** category.
2. New **Aluminum** line of bikes in the **Triathlon** category.



## Price Prediction

New Model Attribute	Slice Al 1	Trigger Al 1
.pred	\$2,662	\$3,258
frame_material	Aluminum	Aluminum
category_2	Triathalon	Over Mountain
model_base	Slice	Trigger
model_tier	Ultegra	Aluminum 1
black	0	0
hi_mod	0	0
team	0	0
red	0	0
ultegra	0	0
dura_ace	0	0
disc	0	0