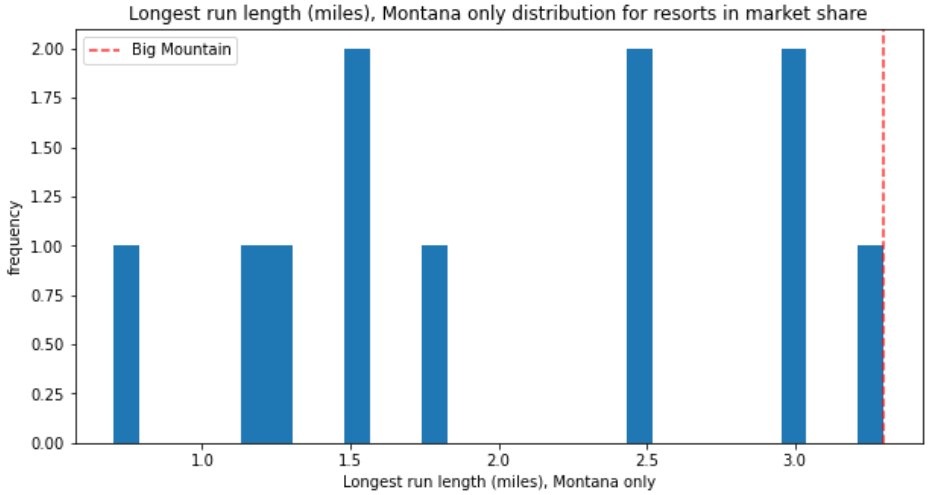
Slope of the Curve and the Curve of our Slopes:

A Data-Driven Look at Big Mountain Resort Revenue

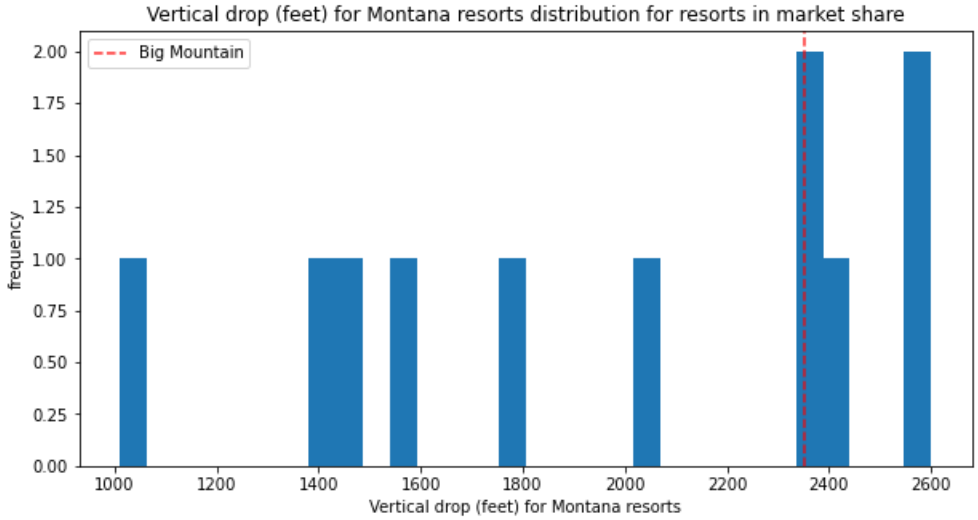
Where are you as you sit down to read this report? The chances are good that you are positioned to look out onto the white channels of our 105 trails. Maybe your gaze is drawn upward to the breathtaking peaks of Glacier National Park and Flathead National Forest that surround us.

Or are you outside, where you can hear the thrilled calls of some of the 350,000 people that come here every year to ski, or snowboard, or just relax into the coils of cold mountain air that carry their worries to somewhere beyond these mountains?

Can you see Hellfire with its 3.3 miles of snowy bliss? Did you know that it's the longest run in all of Montana?



If you measure thrills by feet dropped instead of feet skied, then we still have you covered:



The Summit View of Big Mountain Resort

We are fortunate, for sure, to be able to share the beauty and joy of this place with our guests. But none of this comes for free, of course. We all do our part to keep our working home as beautiful and ready to entertain as possible.

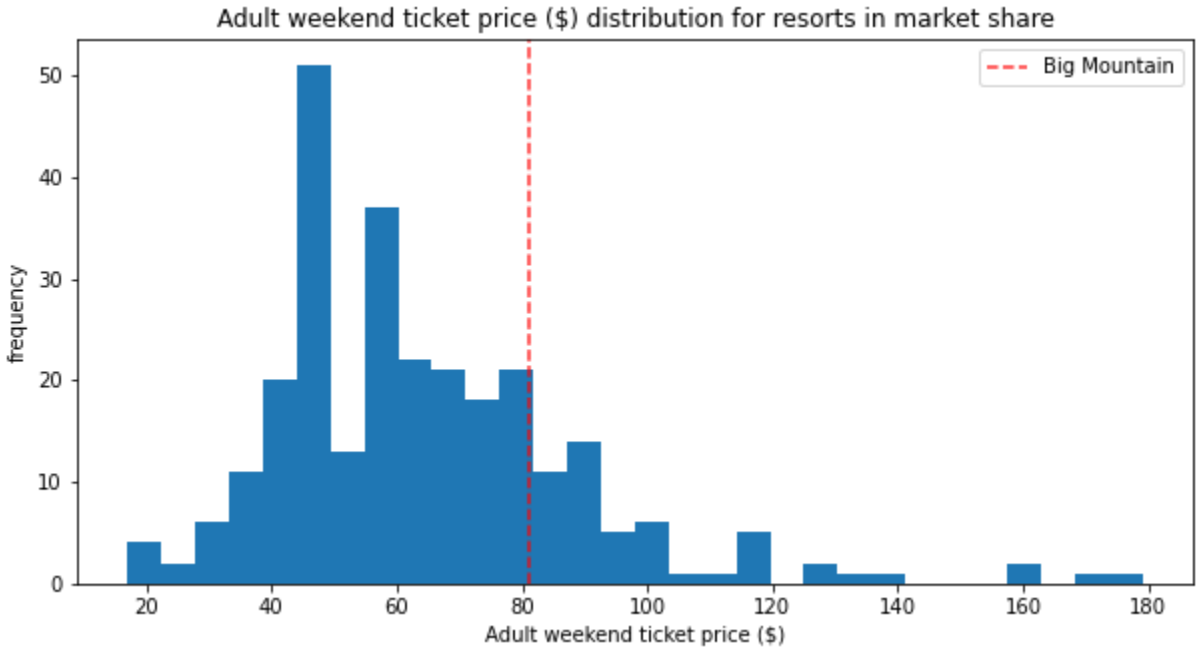
But what if we could do more? What if we started to look at our resort not just through the eyes of our guests, but through the lens of data as well? That is to ask, where do we stand against our competing resorts? Are we the best value for what we charge? Can we ask more of our guests in return for giving more to our guests?

To answer these questions, the Data Sciences team performed a competitive analysis of both nationwide and regional (Montana) resort destinations. We first selected the key features from the data that was available to us (technical details of model and feature selection are available upon request). We found that the following features are most characteristic in supporting an accurate prediction of adult ticket prices:

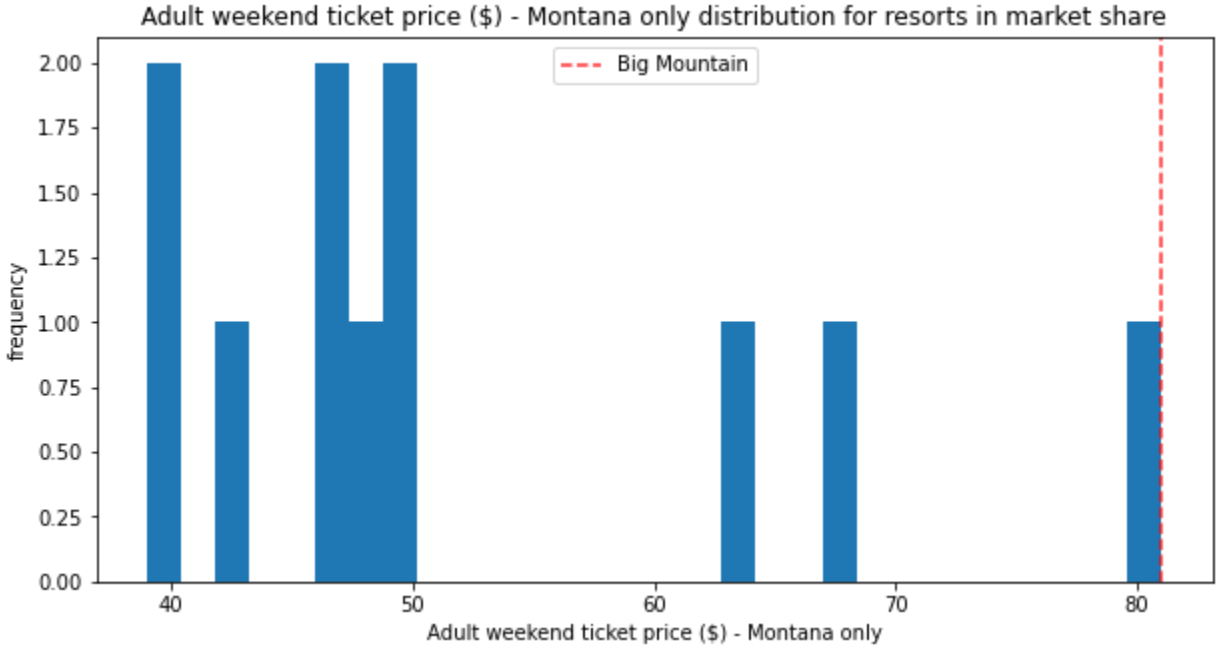
- The number of Fast Quad lifts
- The number of runs
- The ability to produce snow (in acres)
- The maximum vertical drop of a run
- The total number of chair lifts available
- The longest run (in miles)
- The total acreage of skiable terrain

We examined our ticket pricing through these features to come to a recommended ticket price of $95.87. Our model has an estimated accuracy of +/- $10.39. Let's examine the features that led us to this price outcome.

Since we are examining these features as a mechanism to find a data justified price point for adult ticket pricing, let's start with a look at where we rank today.



The histogram above shows (as a red line) where Big Mountain Resort is price positioned amongst our nationwide set of resort competition. As you can see, we are about average in pricing as an absolute (disregarding frequency). However, when we look at our regional competition, we see another picture:

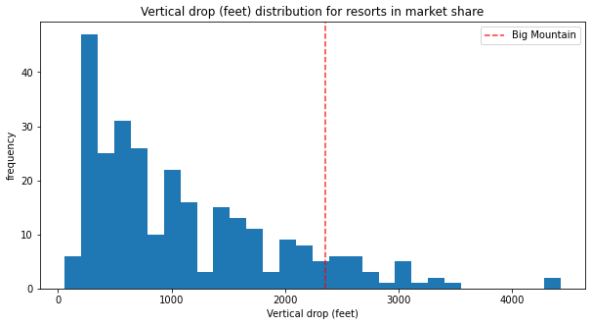


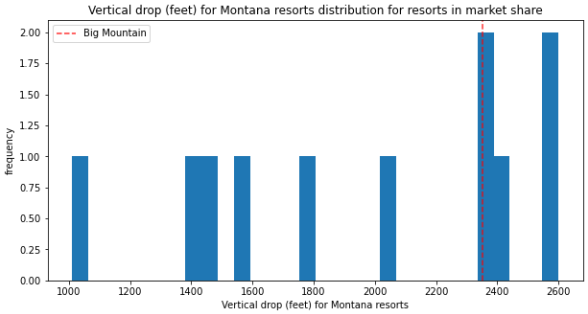
We are the highest priced resort in Montana. So the question naturally becomes - are we justified in holding this distinction? If we charge less and offset the loss in revenue with operational shutdowns, would we be more profitable? Or, can we charge more and keep our current amenities?

Ultimately, we need to compete with other resorts to remain viable. So do we do this via austerity or capital investments? Let's look into this, first by taking a glimpse of how our amenities compare.

Vertical Drop

The chart on the left shows our vertical drop against all national competitors, while the chart on the right shows our regional comparison:

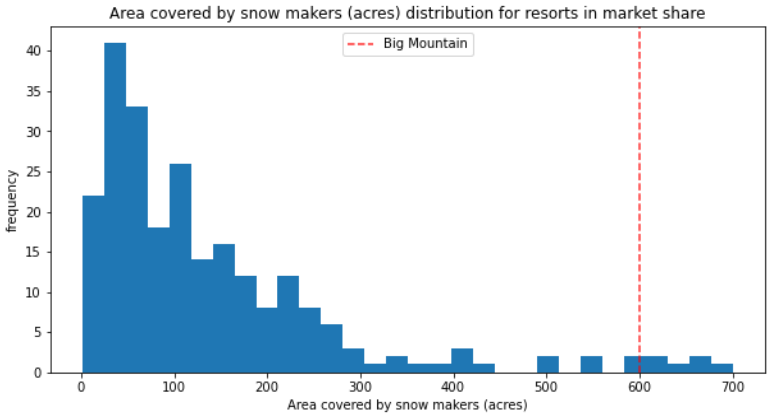




Here, we have some room to grow.

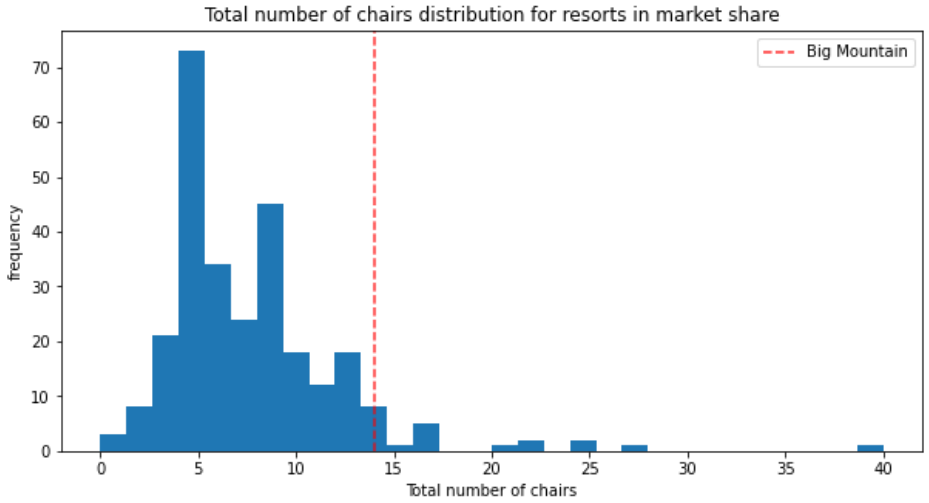
Snow Making

Big Mountain offers more consistent snow than most resorts across the nation:

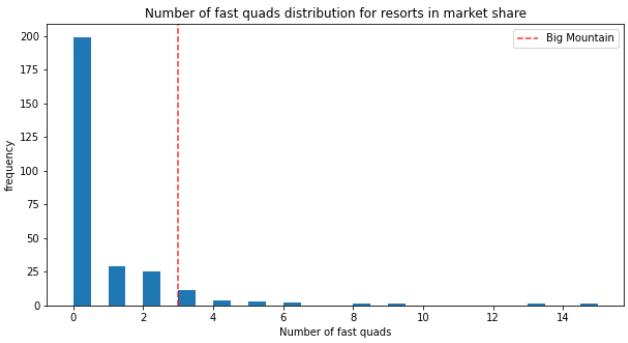


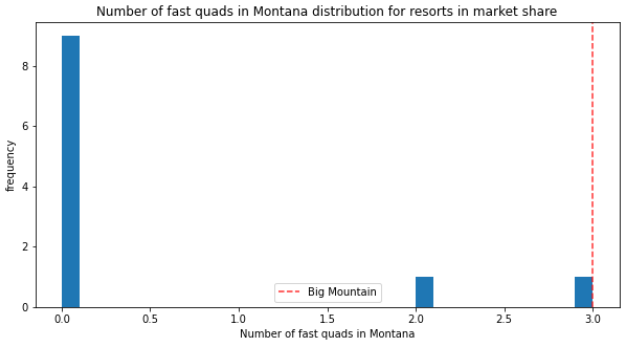
Chair Lifts

Big Mountain has a significant investment in the ability to shuttle our guests around the mountain. In the national market, we are ahead of the pack of most resorts in total chairs offered:



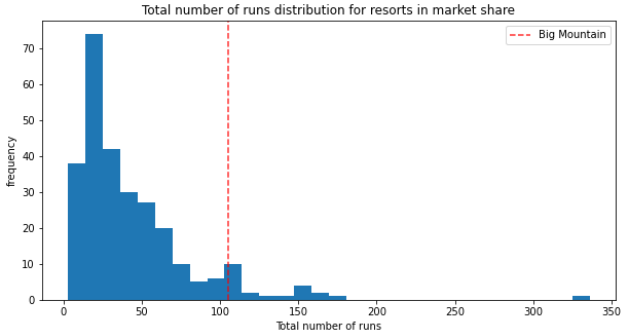
To be more specifically focused, we also lead nationally on Fast Quad seating (chart on the left), where we dominate the regional market (right):

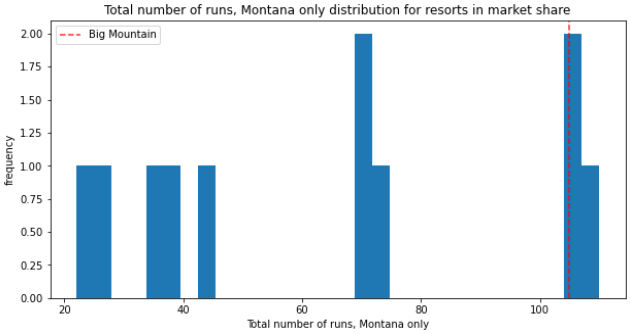




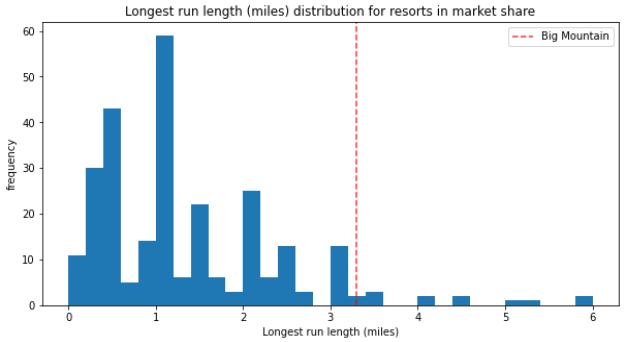
Runs

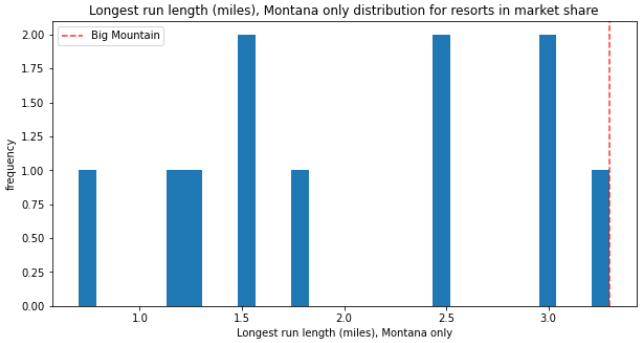
We see another bifurcated distribution in the total number of available runs, where we rank toward the top third nationally (the chart on the left), but lead locally (right):





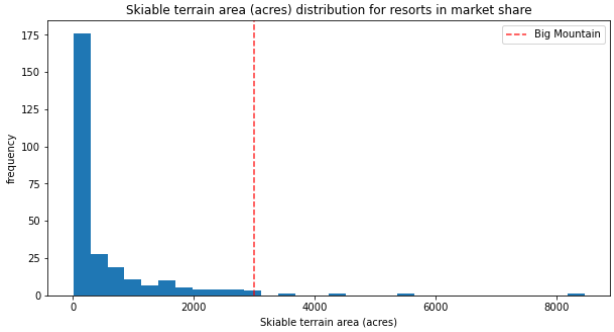
The story is similar when we consider the longest runs:

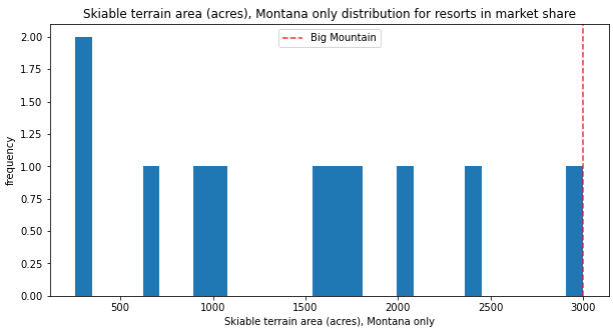




Total Skiable Terrain

Finally, we look at a comparison of the total available skiable terrain. Big Mountain is truly big!





A Path Forward

Management compiled a set of scenarios to consider and tasked the Data Sciences team to evaluate each against the pricing model that we developed. The scenarios are as follows:

Scenario One

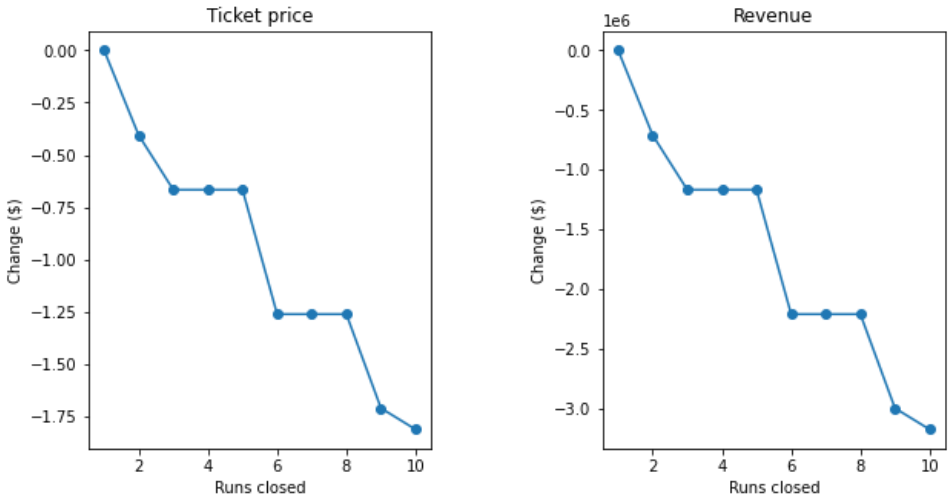
Scenario one examines the option of permanently closing down up to 10 of the least used runs. This doesn't impact any other resort statistics. To evaluate this, we ran the model for price predictions of closing up to ten runs:

The model made the following predictions:

Number of closed runs	**Effect on ticket pricing**

1	No effect
2	-$0.40
3-5	-$0.67
6-8	-$1.26
9	-$1.71
10	-$1.81

Or, graphically:



Scenario Two

This scenario looks at the effect of increasing the vertical drop by adding a run to a point 150 feet lower down but requiring the installation of an additional chair lift to bring skiers back up, without additional snow making coverage.

Running predictions on this scenario found an increased support for ticket price by $1.99 (or a total revenue increase of $3,474,638 annually).

Scenario Three

This scenario is the same as above (scenario two), but adding 2 acres of snow making cover. We found no support for snow making. That is to say, the predictions were the same for scenario two.

Scenario Four

This scenario stated an increase of our longest run (Hellfire) by 0.2 mile to boast a new length of 3.5 miles length, plus the requirement of additional snow making coverage of 4 acres. Our model predicted zero support for ticket price adjustment.

Summary

Big Mountain Resort currently charges $81.00 for a single adult ticket per day. This is on the upper end of all resorts that were examined as part of its nationwide market competitors, and the highest ticket price for all resorts in Montana.

Big Mountain Resort's predicted price from the selected model is $95.87 +/- $10.39 (a range of $85.48 - $106.26), suggesting a minimum increase of approximately $15.00 could be supported.

The model supports the following changes that should be recommended to management:

- closing one run (perhaps an unpopular or particularly expensive to maintain one) has no effect on ticket pricing, and will save on operational costs.
- Scenario two (increasing the vertical drop by 150 feet, and installing an additional chair lift) will support an additional $1.99 on ticket prices, or $3,474,638 in annual revenue.

An additional chair lift will cost on the order of $1.5M per season. With the other changes involved in scenario two, this cost could be offset by support for ticket price increase of at least $1.99. We learned from our model that both vertical drop and total number of chairs are strongly correlated to predicted price support. This would seem to suggest that capital investment in extending the vertical drop of the longest run, along with the addition of a new chair lift, is warranted.

The business might decide to progress with confirmation of model predictions by closing one or more runs for the upcoming season and observing any loss of revenue in ticket sales. However, keeping existing runs open and adding an additional run would also test the model. A third option would be to add tiered ticket pricing and reserve certain runs for elite memberships. This would supply A/B pricing data on the pressure to access all trails without either a capital investment or potential loss of revenue. Suggest how the business might test, and progress, with any run closures.