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The marketing trends of ski resorts in the wake of climate change

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Abstract

The purpose of this paper was to examine what products ski resorts offered and to what degree they were marketed. The ski resort industry, as a whole, has been strongly affected by climate change (Dyer & Mote, 2006). Snow coverage has significantly decreased, especially in areas such as the Rocky Mountains and Midwest United States (Pickering, 2006). Resorts have been forced to adapt to the changing landscape of the industry by product diversification. Increases in summer activities lessened the risk of winter months failing (Sorensen, 2016). Understanding how resorts have been adapting to these changes is important for the health of the multi-billion dollar industry. Stratified random sampling was used to select 50 ski resort websites to examine what products were offered and to what degree they were marketed. After the sampling, the resorts were categorized in two groups, resorts with a base elevation <3,500 feet and >3,500 feet. Resorts with a base elevation <3,500 feet offered far more products and services than resorts with higher elevations. It was also found that resorts in both categories were similarly efficient with website marketing. Ski resorts with a base elevation >3,500 focused primarily on winter activities due to longer ski seasons than lower based elevations. The findings of this research was important because it has offered insight on how the skiing industry has been marketing their products on an important marketing platform. Product diversification reduces the issue of potential shortened winter months so, it is important that consumers affectively understand what ski resorts offer.

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Executive Summary

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Introduction

The study of climate change was thoroughly discussed in the scientific community. In the past 100 years, the surface temperature of the planet rose 1.0^{o} F and global sea levels has increased 4 - 10 inches (clintonwhitehouse, 2016). With rising temperatures, snow coverage has become less prevalent. Ski resorts heavily rely on the environment because it is necessary for their core business. In order to combat climate change, resorts have diversified their product lineup and offer activities that do not rely on snow sports. Many resorts have purchased other lands (Sorensen, 2016), provided other activities such as hiking or other recreational activities and adopted sustainable practices in order to stay profitable (Clark, 2011).

The purpose of this paper was to determine what products and services ski resorts offered and how well they marketed them. Most ski resorts were forced to change their business practices, as mentioned by Sorensen (2016) and this paper investigated if those practices match their business practices. This research was important because it showed if ski organizations represented what they are marketing. This research was practical because it showed the changes that resorts made in the face of climate change.

The research question for this paper is:

> What products are offered by ski resorts and how have those ancillary products been marketed on their websites?

The goal of this research was to gain a clear understanding of the ski resort industry, mainly in North America. The ski resort industry has faced a multitude of challenges in the last 30 seasons. The creative ideas to decrease their dependence on snow coverage must be shown on their websites so that customers are aware of the additional products.

Background

Climate Change

Climate change has affected all aspects of the planet's ecosystem. Most scientists agree that the warming temperatures are related to human activity (Montoya & Raffaelli, 2010). The burning of fossil fuels and other heat trapping gases have caused ice sheets and polar ice caps to melt. Rising Sea Levels (2011) stated that in the last century alone, sea levels rose 7 inches. Typically, polar ice caps and glaciers melt in the summer months and then regenerate in the winter months. Due to the rise in temperatures, ice caps and glaciers have been melting at a higher rate and the winter months are unable to regenerate the ice (Schupak, 2015).

The along with melting ice, snow fall is also on a steady decline. Snow coverage is the amount of land covered by snow at any given time (EPA, 2016). Warmer temperatures and changes in precipitation expect to decrease the extent of winter months and snow coverage (Dyer & Mote, 2006). Snow coverage across the United States significantly declined (EPA, 2016) - the most significant reduction in season length occur in the upper Midwest and Northeast (EPA, 2016). Between the years 1972-2015 snow coverage decreased at a rate of 3,000 miles per year (EPA, 2016). Since 1972, the snow coverage season has declined by nearly two weeks. Pickering (2006) stated that temperatures in the Alpine areas of Australia were expected to rise by 1 degree Celsius between 2006 and 2026. With potentially greater increases in temperature and decreases in precipitation by the year 2050, decrease in snow coverage may be even more dramatic than it already is (Pickering, 2006).

Gilaberte-Burdalo (2017) suggested that recreational snow sports, such as skiing & snowboarding, may be the one industry most reliant on the winter months. A lack of precipitation or high temperatures is a challenge for winter destinations. The argument is made

that without proper snow coverage, ski resorts will struggle to stay open long enough to be sustainable. A study done in the Pyrenees Mountains, located in northern Spain, looked at 11 different ski resorts to determine the relationship of 14 different climate and snow parameters with skiing. The start of the ski season was greatly delayed and the length of the season was shortened, especially in low - mid level resorts, (Gilaberte-Burdalo, 2017). When looking at North American ski resorts, most resorts experienced the same phenomenon. In the northeast and upper Midwest region of the United States, season lengths declined in the last two decades. However, resorts in areas such as the lower Midwest had some increase in ski season. This was possibly due to the arid environment of the region (Wobus, 2017). Pickering (2011), reported in Australia, ski seasons only lasted 60 - 70 days. Australia's ski season have been substantially shorter than the United States ski season. Gilaberte-Burdalo (2017) postulated that in the ski industry, resorts had natural ski reliability if there was sufficient snow coverage (30cm.) for 100 days between the months of December – April. This rule is important because without 100 days of natural snowfall, resorts have to rely on the costly process of snowmaking.

Almost no studies have considered the impacts of other climate variables that may have contributed to skiability, the ability to ski. Some of these variables included the frequency of high winds, heavy snowfall days, rainy days, and extremely cold days (Gilaberte-Burdalo, 2017). There are a multitude of variables that cause ski resorts to shut down. Gilaberte-Burdalo concluded that high winds were a reason for ski lift closers in the Pyrenees. Gilaberte-Burdalo also made the conclusion that snowpack thicker than 30cm. and 100cm. declined significantly at all ski resorts in low and mid elevations respectively. Under natural snow conditions, the start of the season was clearly delayed. This was caused by warmer temperatures. For most ski resorts, it is crucial to open before Christmas or New Year's in order to see profit (Wobus, 2017).

Gilaberte-Burdalo found that there was a relationship between decreased wind speed and chill on skier visitation. The less wind and chill factor, the greater the chance of visitation. Stations that are located at lower elevations and more inland show trends of reduced skiability; some of the factors in reduced skiability include reduced snow depth, snowmaking ability, and very cold days (wind chill <20℃) (Gilaberte-Burdalo, 2017).

Ski Resort and Climate Change

Without an abundant amount of water, resorts have not been able to create snow. Operators spent time and resources filing for water permits, negotiating land deals, and dealing with government tape (McCune, 1994). In a statement to the public by Vail's CEO, Robert Katz, mentioned the government restrictions that ski resorts face, especially having adequate water supply. State governments and environmental agencies limit the amount of water resorts could use. This could be detrimental if organizations purchased land and cannot receive the proper water permits to lay snow. The government does not offer subsidies in the case of a bad winter season as mentioned by McCune (1994).

Wobus (2017) discussed that snowmaking was an important factor for ski resorts. In order to have a successful ski season, ski resorts had to produce snow. Most ski resorts were able to reach about 450 hours' worth of snowmaking by December 15, 10 days before the 100-day rule. In places such as the Rocky Mountains, resorts were able to reach the 450 hours of snowmaking threshold by late October. In other areas such as the southeast, resorts failed to reach the threshold until January in some cases. Temperatures in the southeast were substantially warmer than in other areas of the country. By the year 2090, it is expected that only 23% of ski resorts have the ability to open the season by December 15. Results showed that the number of

hours when there was potential for snowmaking declined by 20% at low level and 8% at mid-level resorts in the Pyrenees (Gilaberte-Burdalo, 2017).

Wobus (2017) created statistical models to calculate season lengths in the coming decades. They used a multitude of variables in their calculations to determine length and they used 247 recreational sites as subjects for the study. Under climate change scenarios, meaning rising temperatures, the team discovered the date to reach the 450 hours of snowmaking will be delayed 10 - 20 days to start the season. The average projected decrease in season length for Bretton Woods Nordic Center in New Hampshire (low elevation) is projected to decrease 65% by the year 2050 and 90% by 2090. Low elevation resorts are affected the most by climate change because of warmer temperatures (Wobus, 2017). Typically, low elevation resorts are not owned by conglomerates which have hefty amount of funds and will have to be more creative in finding ways of combatting rising temperatures. This was a more significant number for low altitude resorts than high altitude. For the purpose of this paper, low altitude was defined as resorts with a base elevation of less than 3,500 feet. The projected changes in season length were most dramatic in the northeast and upper Midwest. The authors anticipated that downhill ski visits will decrease 20.6 million by 2050 and 36.3 million by 2090. This research was consistent with what Pickering (2011) discussed; warmer years resulted in reduced natural snow coverage, reduced the ski season, increased reliance on snowmaking, decreased visitation, and increase in operating costs to run the resort. Her study concluded that there was a direct relationship between visitation and snow coverage in Australia. Snowmaking had the ability to offset the problems of rising temperatures but there were environmental and economic constraints that restricted resorts from making snow.

Falk and Hagsten (2016), determined that snow conditions, especially at the beginning of the season, had an important role on ticket sales. The researchers looked at 80% of Swedish ski resorts to find the effects of climate change on the business. Stagnation was apparent in Swedish ski resorts. This trend was also apparent in the world market. Climate change was the main factor for this. Because of poorer winters, especially at the beginning of the season, it prevented resorts from opening by Christmas, the imperative date for resorts to be successful (Gilaberte-Búrdalo, 2017).

McCune (1994) wrote that there were obstacles that ski resorts needed to overcome if they wanted to be profitable. Climate issues, market share, water permits were some to mention. She commented that the most successful organizations diversified their products and services.

Ski Resorts Business Practices

Whistler Blackcomb Holdings is an organization that owns a publicly traded company has plans to construct a new facility called "Watershed" (Sorensen, 2016). The point of this project is to become less dependent of the winter months. The complex cost Whistler Blackcomb $345 million and will provide guests with waterslides, surf simulator, rock climbing, wave pool, bowling, and many other activities. Sorensen (2016) mentioned that the company has also began construction on a mountain coaster with the ability to be used all year round. Sorensen (2016) studies suggested that weather patterns from one extreme to another were becoming more common. This makes the business of running a ski organization uncertain. Gilaberte-Burdalo (2017) discussed that in the winter months, extremely cold conditions could have adverse visitation by skiers. Sorensen (2016) also made the comment that ski resorts needed to be open for at least 100 days in order for the resort to be profitable. The CEO of Blackcomb Whistler, Dave Brownlie, was quoted "It is vital for small ski resorts to stay open. It's a way for beginners

to learn and become experienced", (Sorensen, 2016). It is important for the ski resort industry to ensure that small resorts continue to remain open and allow beginners to improve so they have the ability to ski Whistler-Blackcomb. The business decision by Whistler was not new, S-K-I Limited made a similar switch in operations years earlier. They diversified their product line to reduce the risk when faced with poor winters arise. S-K-I offered its consumers tennis, golf, and mountain biking.

Vail Resorts has been one of the most renowned ski companies in the world. Along with owning over 15 ski resort sites, they have also been in the business of real estate and lodging (vailresort.com, 2017). In the 1990s, the company pioneered the idea of attracting the non-skier to their resorts. Some of the attractions they added were bobsledding, snow biking, laser tag, mountain-top parks, and more, (Nelson, 1997). Even in recent in years, Snowmas Ski Resort in Aspen Company offered mechanical bull riding sessions each Wednesday in the summer for kids to enjoy. Snowmas made attempts to target the family market and provided events in the summer months. Telluride Ski & Golf, a competitor to Vail, spent $7 million on their Mountain Village Activity Center. This center will provide a daycare center, ski school, and other hotel amenities to make family visits more enjoyable. Even in the 1990s, climate change was an issue.

Resorts have followed the practice of offering a family experience with events and attractions offered all year around. Jackson Hole, Wyoming offered ranger led hikes, boat cruises, or even track wildlife. Smugglers Notch, Vermont offered an event where guests brought their dogs and performed dog carting, the summer version of dog mushing (Clark, 2011). They also provided zip lines, have pools, and waterslides. At Bristol Mountain, New York, the organization invested in developing a ropes course and in the autumn, they routinely opened the lifts for people to watch the leaves (bristolmountain.com, 2017).

Climate change has had a great effect on the ski resort industry. Many of the organizations have had to alter or change their practices in order to stay profitable. Whether it be making the company more efficient and sustainable, or providing more attractions, or moving into different sectors, ski resort companies have not been able to rely on the winter as they used to.

Method

Desired Sample

What products are offered by ski resorts and how have those ancillary products been marketed on their websites? Ski Resorts within the United States was chosen as opposed to worldwide resorts due to the ease of access to data. There were 481 ski resorts located within the United States. Data was collected from the National Ski Association Area (NSAA). NSAA compiled data on the total number of resorts in North America as well as categorized the data by state.

Procedure

Stratified random sampling was used to select the ski resorts. Ski resorts were separated into two groups: high elevation and low elevation. Low elevation was defined as resorts that have a base elevation less than 3,500 feet. Many high elevation resorts were conglomerates and are publicly traded, which made their sources of revenue substantially different than low elevation resorts that were typically independently run.

After the resorts were separated into high and low elevation, the resorts were separated into geographic areas that were defined by the National Ski Areas Association; Northeast, Southeast, Midwest, Pacific Northwest, and Pacific Southwest, and Rocky Mountain. The northeast consisted of the New England states and New York. The southeast states consisted of West Virginia, Maryland, North Carolina, Alabama, Pennsylvania, and New Jersey. The Midwest consisted Iowa, Illinois, Indiana, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota, Tennessee, and Wisconsin. Pacific Northwest states included Washington, Oregon, and Alaska. Pacific Southwest consisted of California, Nevada, and Arizona. The Rocky Mountains was comprised of Montana, Idaho, Wyoming, Utah, Colorado, New Mexico. The

resorts were separated in this fashion due to the unique environmental traits they all possess. The Rockies and Sierra Nevada Mountains have a higher elevation than the Appalachian, Adirondacks or Smoky Mountains of the northeast or southwest. The southeast, of course, has a warmer climate than that of northern states.

After the stratified random sampling was completed, the ski resorts' websites were investigated to determine what products and services the organization marketed.

Mostly qualitative data was collected in this experiment. The demographic variables that were examined included: The state in which the resort is located, the region in which the resort is located, the elevation of the base of the mountain, town population, average snowfall in 2017, type of company (if the resort is a corporation or not), the status (if resort is publicly traded or private)

The next set of variables that were examined was the products they offered. A binary system was used to determine the status of each variable, 1 means the product is offered and 0 means the product is not offered. These variables included: skiing, snowboarding, sledding/tubing, cross country skiing, ice rink, lodging/hotel accommodations in ski season, lodging/hotel accommodations out of ski season festivals offered in ski season, festivals offered out of ski season (festivals was defined if the resort marketed the event with the word "festival" in the phrasing), Mountain Biking, educational outreach program in ski season, educational outreach program out of ski season, snow sports team/team sponsorship, ski/snowboard rentals, pro/gift shop, restaurant/bar/club/snacks offered, zip lining, lift rides out of ski season, horseback riding in ski season, horseback riding out of ski season, hiking/tours in ski season, hiking/tours out of ski season, weddings in ski season, weddings out of ski season, snowshoeing, wildlife tracking in ski season, wildlife tracking out of ski season, dog carting/mushing, concerts,

ski/snowboard lessons, childcare, parties in the ski season, parties out of the ski season (parties was defined if the resort marketed the event with the word “parties” in the phrasing).

After it has been determined what products are offered, testing how they were marketed was the next segment. Nine variables were used to determine the ease of access that consumers have to the product, the amount of exposure they had to the product, and how easy it was to purchase or reserve. The variables include: if the product has its own page or shared page, least number of clicks to the product, number of pictures on the product page, if the product has a menu tab on the home screen, search bar results (does the product show up once you begin typing in the search bar), if the price is available on the website, if the date to reserve the product is available on the website, if there is a time to reserve the product, and if the consumer has the ability to buy/reserve online.

These nine variables were then tested to discover how well each ski resort advertised their products. Tests included the mean, median, and mode of each variable to their product. These tests has shown what products and marketing strategies were used as well as what products received the most marketing.

Results

The average elevation of the tested resorts was 3,284.1 feet. 62% of the study were in the lower elevation category (n=50). Some outliers could have affected the height. Some resorts in the Rock Mountain region were substantially higher than the Midwest and Northeast regions. The average population of the residing towns were 9916. Average snowfall was 78.52 (n=50). The standard deviation for average snowfall and population were very large at 14630.43 (n=50) and 48.39 (n=50) respectively. The vast majority of the sample was corporate owned and open to the public.

Table 1 represents the products that were offered by the sample. The data was separated into two categories: <3500 feet and >3500. The only product that was offered by all 50 tested resort was skiing. Wildlife tracking both in season and out of season was the least offered product with only three resorts offering that product (n=50). In general, there was more variation in product offerings for lower elevation resorts than there was in higher elevation.

Table 1

Elevation & Product Results

	Ski		SB		ST	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.		31	1	30	16	15
>3500 ft.		19	1	18	14	5
	CC		IR		Hotel	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	21	10	26	5	23	8
>3500 ft.	13	6	16	3	8	11
	HotelOut		FestivalsIn		FestivalsOut	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	23	8	26	5	28	3
>3500 ft.	8	11	13	6	17	2
	MB		EO		Team	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	23	8	27	4	20	11

>3500 ft.	12	7	19	0	13	6
	Rental		ProShop		Rest	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	4	27	16	15	13	18
>3500 ft.	1	18	8	11	4	15
	Zip		Lift		Horse	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	29	2	28	3	28	3
>3500 ft.	18	1	13	6	17	2
	HorseOut		Hiking		HikingOut	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	30	1	29	2	24	7
>3500 ft.	17	2	17	2	11	8
	Wedding		WeddingOut		SS	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	28	3	22	9	22	9
>3500 ft.	15	4	10	9	13	6
	Tracking		TrackingOut		Concerts	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	29	2	29	2	23	8
>3500 ft.	18	1	18	1	11	8
	Lessons		Child		Parties	
Elevation	No	Yes	No	Yes	No	Yes
<3500 ft.	5	26	24	7	26	5
>3500 ft.	1	18	12	7	14	5
	PartiesOut		Misc.			
Elevation	No	Yes	No	Yes		
<3500 ft.	28	3	17	14		
>3500 ft.	17	2	12	7		

The next table represented to what degree each product was marketed. 70% (n=50) of the sample had a search bar located on their website. For all websites and resorts, not one had a search bar in which suggestions showed up when an individual started typing. Thus, the "product*search*" variable had no results. For most cases in the study, "price", "time", and "date" availability were tested similarly, meaning when one of those three variables were marketed, so were the other two.

Table 2

Marketing Frequency Results

Page	Skiing	SB	ST	CC	IR	Hotel
Elevation	Own	Own	Own	Own	Own	Own
<3500	31	0	12	5	3	7
>3500	19	1	3	4	3	10
Total	50	1	15	9	6	17

Page	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Own	Own	Own	Own	Own	Own
<3500	6	2	2	6	2	8
>3500	9	2	0	3	0	5
Total	15	4	2	9	2	13

Page	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Own	Own	Own	Own	Own	Own
<3500	13	10	11	2	3	2
>3500	8	9	12	0	3	1
Total	21	19	23	2	6	3

Page	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Own	Own	Own	Own	Own	Own
<3500	0	0	6	3	8	4
>3500	1	1	4	2	8	2
Total	1	1	10	5	16	6

Page	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Own	Own	Own	Own	Own	Own
<3500	2	2	5	19	7	3
>3500	1	0	3	9	7	3
Total	3	2	8	28	14	6

Page	PartiesOut
Elevation	Own
<3500	3
>3500	1
Total	4

Menu	Skiing	SB	ST	CC	IR	Hotel
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	12	16	12	4	3	8
>3500	1	18	4	5	3	11
Total	13	34	16	9	6	19

Menu	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	7	3	2	3	3	6
>3500	11	3	1	6	0	4
Total	18	6	3	9	3	10

Menu	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	17	11	11	1	2	2
>3500	16	8	10	0	5	1
Total	33	19	21	1	7	3

Menu	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	1	2	2	8	6
>3500	1	2	6	3	9	4
Total	1	3	8	5	17	10

Menu	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	7	21	7	2
>3500	1	0	4	18	7	3
Total	1	0	11	39	14	5

Menu	PartiesOut
Elevation	Yes
<3500	2
>3500	2
Total	4

Search	Skiing	SB	ST	CC	IR	Hotel
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0

>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0
>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0
>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0
>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0
>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	0	0	0	0
>3500	0	0	0	0	0	0
Total	0	0	0	0	0	0

Search	Parties Out
Elevation	Yes
<3500	0
>3500	0
Total	0

Price	Skiing	SB	ST	CC	IR	Hotel

Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	29	28	13	7	5	8
>3500	17	17	3	5	2	11
Total	46	45	16	12	7	19

Price	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	8	3	1	5	3	10
>3500	11	2	1	6	0	3
Total	19	5	2	11	3	13

Price	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	27	3	2	1	1	3
>3500	17	5	1	0	5	1
Total	44	8	3	1	6	4

Price	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	1	2	1	1	6
>3500	1	0	3	1	1	4
Total	1	1	5	2	2	10

Price	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	1	1	3	24	7	1
>3500	0	0	1	17	7	2
Total	1	1	4	41	14	3

Price	PartiesOut
Elevation	Yes
<3500	1
>3500	2
Total	3

Date	Skiing	SB	ST	CC	IR	Hotel
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	26	23	13	8	4	8
>3500	17	17	3	5	3	11
Total	43	40	16	12	7	19

Date	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	8	5	2	5	2	11
>3500	10	4	2	6	0	5
Total	18	9	4	11	2	16

Date	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	24	6	6	0	2	3
>3500	17	10	10	0	5	1
Total	41	16	16	0	7	4

Date	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	1	1	1	1	7
>3500	1	1	5	0	0	4
Total	1	2	6	1	1	11

Date	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	2	5	21	7	0
>3500	1	1	5	17	7	2
Total	1	3	10	38	14	2

Date	PartiesOut
Elevation	Yes
<3500	0
>3500	1
Total	1

Time	Skiing	SB	ST	CC	IR	Hotel
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	24	23	12	8	4	7
>3500	17	17	3	5	3	11
Total	42	40	15	13	7	18

Time	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	7	5	2	3	2	8

>3500	10	4	2	6	0	4
Total	17	9	4	9	2	12

Time	Rental	ProShop	Rest	Zip	Lift	Horse
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	23	8	7	0	2	2
>3500	17	10	10	0	5	1
Total	40	18	17	0	7	3

Time	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	1	1	1	1	7
>3500	1	1	5	0	0	4
Total	1	2	6	1	1	11

Time	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	2	0	3	22	7	0
>3500	1	0	5	17	6	2
Total	3	0	8	39	13	2

Time	PartiesOut
Elevation	Yes
<3500	0
>3500	1
Total	1

Online	Skiing	SB	ST	CC	IR	Hotel
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	22	21	11	5	4	7
>3500	17	17	2	4	0	8
Total	39	38	13	9	4	15

Online	HotelOut	FestIn	FestOut	MB	EO	Team
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	6	2	1	2	1	7
>3500	8	1	1	1	0	2
Total	14	3	2	3	1	9

Online	Rental	ProShop	Rest	Zip	Lift	Horse

Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	19	3	1	0	1	0
>3500	9	4	0	0	0	0
Total	28	7	1	0	1	0

Online	HorseOut	Hiking	HikingOut	Wedding	WeddinOut	SS
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	1	1	3	0	3
>3500	0	0	0	4	0	3
Total	0	1	1	7	0	6

Online	Tracking	TrackinOut	Concerts	Lessons	Child	Parties
Elevation	Yes	Yes	Yes	Yes	Yes	Yes
<3500	0	0	2	18	3	0
>3500	0	0	0	10	0	1
Total	0	0	2	28	3	1

Online	PartiesOut
Elevation	Yes
<3500	0
>3500	1
Total	1

The number of clicks in order to get to the product and number of pictures on the product page were the only two continuous variables of the study. Lower based resorts had an average of 1.79 clicks per product while the higher resort had 1.82. Resorts with an elevation lower than 3,500 feet averaged 1.98 pictures per page as opposed to 1.68 for higher resorts.

Table 3

Continuous Variables By Elevation

Elev.		SkiingClicks	SkiingPictures
<3500	Mean	1.39	1.16
	N	31	31
	Std. Deviation	1.256	1.485
>3500	Mean	1.16	1.74
	N	19	19

	Std. Deviation	0.688	1.284		

Elev.		SBClicks	SBPictures	STClicks	STPicture
<3500	Mean	1.33	1.03	1.4	1.4
	N	30	30	15	15
	Std. Deviation	1.295	1.497	0.737	0.986
>3500	Mean	1.16	1.74	1.4	1.6
	N	19	19	5	5
	Std. Deviation	0.688	1.284	0.548	0.894

Elev.		CCClicks	CCPictures	IRClicks	IRPictures
<3500	Mean	1.8	2.9	1.4	1.8
	N	10	10	5	5
	Std. Deviation	0.919	4.725	0.548	1.304
>3500	Mean	2.17	1.5	2.67	2.33
	N	6	6	3	3
	Std. Deviation	0.753	0.837	0.577	0.577

Elev.		HotelClicks	HotelPictures	HotelOutClick	HotelOutPicture
<3500	Mean	1.63	1.88	1.25	2.88
	N	8	8	8	8
	Std. Deviation	0.744	1.126	0.707	2.031
>3500	Mean	1.45	4.36	1.55	3.45
	N	11	11	11	11
	Std. Deviation	0.82	4.589	0.688	4.321

Elev.		FestInClick	FestInPicture	FestOutClicks	FestOutPictures
<3500	Mean	2.2	2.8	2	4
	N	5	5	3	3
	Std. Deviation	0.837	2.95	0	3.606
>3500	Mean	1.83	0.83	2	0.5
	N	6	6	2	2
	Std. Deviation	1.169	1.169	0	0.707

Elev.		MBClicks	MBPictures	EOClicks	EOPictures
<3500	Mean	2.13	2.75	1.75	2.5
	N	8	8	4	4
	Std. Deviation	0.991	2.252	0.957	1.732
>3500	Mean	2	1.43		
	N	7	7		

	Std. Deviation	0.816	0.787		

Elev.		TeamClicks	TeamPictures	RentalClicks	RentalPictures
<3500	Mean	1.55	1.55	1.7	0.74
	N	11	11	27	27
	Std. Deviation	0.688	0.688	0.823	1.059
>3500	Mean	2.33	2.17	1.61	1.61
	N	6	6	18	18
	Std. Deviation	0.816	2.041	0.778	1.42

Elev.		ProShopClick	ProShopPicture	RestClicks	RestPictures
<3500	Mean	1.47	1.8	1.28	2
	N	15	15	18	18
	Std. Deviation	0.915	2.541	0.826	3.548
>3500	Mean	1.58	2.17	1.5	1.57
	N	12	12	14	14
	Std. Deviation	0.793	1.992	0.65	1.089

Elev.		ZipClicks	ZipPictures	LiftClicks	LiftPictures
<3500	Mean	3	2	2.33	1.67
	N	2	2	3	3
	Std. Deviation	1.414	0	0.577	0.577
>3500	Mean	2	1	1.67	1.33
	N	1	1	6	6
	Std. Deviation	.	.	0.816	0.816

Elev.		HorseClicks	HorsePictures	HorseOutClick	HorseOutPicture
<3500	Mean	2	1.33	2	3
	N	3	3	1	1
	Std. Deviation	1	0.577	.	.
>3500	Mean	2	1	2	1
	N	2	2	2	2
	Std. Deviation	0	0	0	0

Elev.		HikingClicks	HikingPictures	HikingOutClick	HikingOutPicture
<3500	Mean	2	0.5	2.14	1.86
	N	2	2	7	7
	Std. Deviation	1.414	0.707	1.215	0.69
>3500	Mean	2	2.5	2.14	1.43
	N	2	2	7	7

	Std. Deviation	1.414	0.707	1.069	0.787
Elev.		WeddinClick	WeddinPicture	WeddinoutClic	WeddinOutPic
<3500	Mean	1.67	3.67	1.67	3.22
	N	3	3	9	9
	Std. Deviation	1.155	2.082	0.866	2.279
>3500	Mean	2.5	3.75	1.7	3.3
	N	4	4	10	10
	Std. Deviation	0.577	3.594	0.823	2.452
Elev.		SSClicks	SSPictures	TrackingClicks	TrackingPictures
<3500	Mean	1.89	2.11	2.5	0.5
	N	9	9	2	2
	Std. Deviation	0.601	2.088	0.707	0.707
>3500	Mean	2.17	1.33	1	1
	N	6	6	1	1
	Std. Deviation	0.753	1.033	.	.
Elev.		TrackOutClic	TrackOutPic	ConcertsClicks	ConcertsPictures
<3500	Mean	2.5	0.5	1.88	2.38
	N	2	2	8	8
	Std. Deviation	0.707	0.707	0.641	1.598
>3500	Mean	3	0	2.13	1.88
	N	1	1	8	8
	Std. Deviation	.	.	0.835	2.232
Elev.		LessonsClicks	LessonsPictures	ChildClicks	ChildPictures
<3500	Mean	1.42	2.19	1.57	1.86
	N	26	26	7	7
	Std. Deviation	0.643	3.6	0.787	1.069
>3500	Mean	1.28	1.67	2.14	1.57
	N	18	18	7	7
	Std. Deviation	0.461	1.328	0.9	1.134
Elev.		PartiesClicks	PartiesPictures	PartiOutClicks	PartiOutPictures
<3500	Mean	1.6	1.4	1.33	2
	N	5	5	3	3
	Std. Deviation	0.894	1.673	0.577	2
>3500	Mean	1.8	0.8	2.5	1.5
	N	5	5	2	2

Std. Deviation	0.837	0.837	0.707	0.707

Discussion

Findings

After the resorts were separated into the two groups, <3,500 feet and >3,500 feet, it was apparent that those resorts residing in the <3,500 feet group offered far more products than those with a base elevation of >3,500 feet. This is quite different than the research from (Nelson, 1997). Out of the 32 product categories, 22 of those had a higher frequency in the <3,500 feet group. Those products included skiing, snowboarding, sledding/tubing, cross country skiing, ice rink, festivals out of season, mountain biking, educational outreach, sponsorship/team racing, rentals, pro shop, restaurant, ziplining, horse rides in season, snowshoeing, wildlife tracking in season, wildlife tracking out of season, lessons, and parties out of season. Some of these products were found in the work of Clark (2011) such as wildlife tracking, hiking, and sledding/tubing. Products offerings have increased since the 1970s and 1980s (McCune, 1994) and it can be seen from this study because resorts are offering much more than skiing and lodging. Some of the product variation by elevation can be explained due to the topography of the resorts. Cross country skiing requires flatter areas so a region such as the Rocky Mountains have higher elevations, relief, and steepness, which would make the sport quite difficult to perform. The same effect could apply to sledding/ tubing. As for the racing/sponsorship product, many of the Rocky Mountain and Pacific Northwest resorts are well known for their racing teams. Resorts such as Breckinridge and Keystone do not market sponsorship racing on their website. A potential reason for this could be that they have the resources to find talented skiers and snowboarders. Their racing teams are viewed as marketing tools not a source of revenue.

After summer products were examined, both groups were somewhat consistent with what was offered. Mountain biking (n=15) and zip-lining (n=3) were within one frequency to each

other, although few mountains offered these products. The higher elevation group had twice as many resorts offering lift rides (n=9) than the lower elevation. It is important to mention that throughout the study, multiple non-winter products were discovered. Some of these include golf, disc golf, archery, and a beach. Some winter products that were discovered were snowmobiling and biathlon. These products were placed in the miscellaneous category for the study. McCune (1994) has mentioned that market share is an issue that resorts needed to overcome. Offering more products has increased the potential market who resorts can promote to.

The marketing of the products greatly varied from resort to resort. For the skiing and snowboarding products, very few had their own separate page. For nearly every website, skiing and snowboarding were a shared page. It would make sense that these products are shared because there is no difference between the products, logistically speaking.

The product price, date, and time had a consistent results when looking at frequency (table 2). For most resorts, for products that they offered the price, date, and time of when you can use that product was located somewhere on the website. Some of these include lessons (n=44), sledding/tubing (n=20) and cross country skiing (n=16). Many summer products did not see this relationship. For products such as hiking or mountain biking, the pricing variable was left absent although the date and time was available. A possible reason for this was the time of the year this study was conducted, which was March. Resorts might have not priced their summer services yet and the information was not on the website.

One marketing variable that was not found on any website was the product search. This variable was intended to discover if resorts had search bars that gave the reader suggestions as they typed in the search bar. No tested resort used this function. However, many resorts used

drop down functions when one hovers their mouse over the home page banner. This was not examined in the study.

When comparing the clicks per product, the lower based resorts had an average of 1.79 and the higher resort had 1.82. These are nearly identical and does not provide evidence as to who markets their products better. Lower based resorts did have more pictures on their product pages; 1.98 pictures per page as opposed to 1.68 for higher resorts.

Opposite to what the previous research has stated, those resorts in higher based elevations offer less products and focus mainly on snow (Sorensen, 2016). Winter seasons last much longer in the Pacific Northwest and Rocky Mountain Region and can rely on skiing and snowboarding. These resorts focus on a few main services rather than diversifying their portfolio. It was important to analyze ski resorts in two different groups for this reason. The way these two groups run their organizations is much different and the environmental challenges they face certainly has its challenges (Pickering, 2011).

There were a few limitations that was established during the study. For products that were discovered during the study, they were placed in the miscellaneous product variable. The study was not changed due to the discovery of these new products, meaning they did not receive their own variable. Clearly defining variables was another limitation in the study. “Festivals” in and out of season and “parties” in and out of season had clear definitions as to what they were. Certain products/services were discovered that could have been considered a party such as conferences halls or other spaces to rent, but were left out of the study. This was different than the first limitation because these conference halls could have been used for a party or festival or anything else the renter would want. Having a conference hall was very ambiguous, so leaving it out of the study meant maintaining the clear definitions that were established.

Some delimitations were present in the study. The time of the year had a great influence on the status of the website. The time of data collection was during ski season, so resorts could have had continued promotions for ski and snowboard season. If the study was performed in summer months, ski resorts may promote more summer activities. Some websites were particularly difficult to navigate. This could have increased the margin of error for data collection. The start of season date was important to the study when first thought of. After trials of attempting to collect the start date of the ski season, it proved to be too problematic for collection and was taken out of the study.

Conclusion

This study had shed light on what products are offered and how well they are marketed. The next phase for this research is to repeat the study in the non-skiing season. Results could vary based off of what ski resorts want to display on their website. An expansion of the data was needed in order to provide a more comprehensive view of what products ski resorts offer. More products had been identified throughout the study and must be included for a more accurate test of the data. It was also evident that ski resorts used their social media platforms for promotions and marketing efforts. This study can be used to test social media platforms and how well resorts market their products.

Resorts have marketed their products in multiple ways on their websites. Skiing and snowboarding have had similar treatment to how they were marketed. Summer activities had a greater variation in how they were marketed. Product offerings greatly varies by elevation. Ski resorts will face continued issues in the future. Based off the previous research, ski seasons have been increasingly shorter and shorter (Wobus, 2017). A strong winter season is required for successful resorts (Gilberte-Burdalo, 2017). Snow coverage will continue to deplete (EPA,

2016). How well they adapt to those issues, especially climate change, will determine if they thrive or not. For some Midwest ski resorts, they have to make some significant changes in order for their survival. Rocky Mountain and Pacific Northwest resorts will need to continue to hold their dominance of skiing and snowboarding in the United States. Northeast ski resorts have the most competition and will have need to differentiate themselves from other nearby resorts. Most of all, the industry will need to innovate in order to fight off the effects of climate change.

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