

# Marketing Data Analysis for Adventure Works

Tendências da receita e do lucro,  
sazonalidade e recomendações

Dino Monteiro  
Marina Neto  
Nathalia Gaiarim





# Contexto geral

- A **Adventure Works Cycles**, a empresa fictícia na qual os bancos de dados de amostra da base de dados AdventureWorks se baseiam é uma grande empresa multinacional de manufatura.
- A empresa **fabrica e vende bicicletas e acessórios** para os mercados comerciais da América do Norte, Europa, Ásia e Oceania.
- Embora sua **operação principal** esteja localizada em **Bothell, Washington**, com **290 funcionários**, várias equipes regionais de vendas estão distribuídas ao longo de sua base de mercado.



# Questões colocadas

1. Receita e o lucro são sazonais?
2. Existe uma tendência de crescimento ou de declínio da receita e do lucro da empresa ao longo dos meses e anos?
3. Quais fatores afetam a rentabilidade da empresa e como podem ser melhorados?



# Data Panel

- Base de dados: AdventureWorks2017
- Tabelas analisadas:
  - SalesOrderHeader (Pedidos de Venda)
  - SalesOrderDetail (Detalhes das Vendas)
  - Production.Product
  - SalesTerritory ( Vendas por regiões)
  - Product.Subcategory (Categoria dos productos)
- Variáveis selecionadas:
  - SalesOrderID
  - SalesOrderDetailID
  - OrderQty
  - UnitPrice
  - UnitPriceDiscount
  - LineTotal
  - OrderDate
  - SubTotal
  - TotalDue
  - ProductID
  - [Name] as ProductName
  - Color
  - StandardCost
  - ListPrice
  - ProductSubcategoryID
  - [Name] as CategoryName
  - [Name] as Territory
  - [Group] as Territory Group



# Data Panel

	SalesOrderID	SalesOrderDetailID	OrderQty	UnitPrice	UnitPriceDiscount	LineTotal	OrderDate	CustomerID	SubTotal	TotalDue	ProductID	ProductName	ProductNumber	Color	StandardCost	ListPrice	ProductSubcategoryID	CategoryID
1	47832	19777	1	2443,35	0,00	2443.350000	2012-09-13 00:00:00.000	13478	2443,35	2699,9018	790	Road-250 Red, 48	BK-R89R-48	Red	1518,7864	2443,35	2	Road Bike
2	47833	19778	1	2181,5625	0,00	2181.562500	2012-09-13 00:00:00.000	22031	2181,5625	2410,6266	793	Road-250 Black, 44	BK-R89R-44	Black	1554,9479	2443,35	2	Road Bike
3	47834	19779	1	2181,5625	0,00	2181.562500	2012-09-13 00:00:00.000	22196	2181,5625	2410,6266	794	Road-250 Black, 48	BK-R89R-48	Black	1554,9479	2443,35	2	Road Bike
4	47835	19780	1	1000,4375	0,00	1000.437500	2012-09-13 00:00:00.000	24904	1000,4375	1105,4834	798	Road-550-W Yellow, 40	BK-R64Y-40	Yellow	713,0798	1120,49	2	Road Bike
5	47836	19781	1	2071,4196	0,00	2071.419600	2012-09-14 00:00:00.000	28707	2071,4196	2288,9187	781	Mountain-200 Silver, 46	BK-M68S-46	Silver	1265,6195	2319,99	1	Mountain
6	47837	19782	1	2071,4196	0,00	2071.419600	2012-09-14 00:00:00.000	12277	2071,4196	2288,9187	781	Mountain-200 Silver, 46	BK-M68S-46	Silver	1265,6195	2319,99	1	Mountain
7	47838	19783	1	2181,5625	0,00	2181.562500	2012-09-14 00:00:00.000	13456	2181,5625	2410,6266	792	Road-250 Red, 58	BK-R89R-58	Red	1554,9479	2443,35	2	Road Bike
8	47839	19784	1	782,99	0,00	782.990000	2012-09-14 00:00:00.000	20838	782,99	865,204	759	Road-650 Red, 58	BK-R50R-58	Red	486,7066	782,99	2	Road Bike
9	47840	19785	1	782,99	0,00	782.990000	2012-09-14 00:00:00.000	20584	782,99	865,204	766	Road-650 Black, 60	BK-R50B-60	Black	486,7066	782,99	2	Road Bike
10	47841	19786	1	2049,0982	0,00	2049.098200	2012-09-14 00:00:00.000	26490	2049,0982	2264,2536	784	Mountain-200 Black, 46	BK-M68B-46	Black	1251,9813	2294,99	1	Mountain
11	47842	19787	1	782,99	0,00	782.990000	2012-09-14 00:00:00.000	15338	782,99	865,204	760	Road-650 Red, 60	BK-R50R-60	Red	486,7066	782,99	2	Road Bike
12	47843	19788	1	782,99	0,00	782.990000	2012-09-14 00:00:00.000	15339	782,99	865,204	765	Road-650 Black, 58	BK-R50B-58	Black	486,7066	782,99	2	Road Bike
13	47844	19789	1	2181,5625	0,00	2181.562500	2012-09-14 00:00:00.000	21996	2181,5625	2410,6266	792	Road-250 Red, 58	BK-R89R-58	Red	1554,9479	2443,35	2	Road Bike
14	47845	19790	1	2443,35	0,00	2443.350000	2012-09-15 00:00:00.000	16206	2443,35	2699,9018	790	Road-250 Red, 48	BK-R89R-48	Red	1518,7864	2443,35	2	Road Bike
15	47846	19791	1	2443,35	0,00	2443.350000	2012-09-15 00:00:00.000	14779	2443,35	2699,9018	789	Road-250 Red, 44	BK-R89R-44	Red	1518,7864	2443,35	2	Road Bike
16	47847	19792	1	2443,35	0,00	2443.350000	2012-09-15 00:00:00.000	16278	2443,35	2699,9018	789	Road-250 Red, 44	BK-R89R-44	Red	1518,7864	2443,35	2	Road Bike
17	47848	19793	1	2049,0982	0,00	2049.098200	2012-09-15 00:00:00.000	26328	2049,0982	2264,2536	782	Mountain-200 Black, 38	BK-M68B-38	Black	1251,9813	2294,99	1	Mountain
18	47849	19794	1	782,99	0,00	782.990000	2012-09-15 00:00:00.000	15342	782,99	865,204	760	Road-650 Red, 60	BK-R50R-60	Red	486,7066	782,99	2	Road Bike
19	47850	19795	1	782,99	0,00	782.990000	2012-09-15 00:00:00.000	15350	782,99	865,204	759	Road-650 Red, 58	BK-R50R-58	Red	486,7066	782,99	2	Road Bike
20	47851	19796	1	2049,0982	0,00	2049.098200	2012-09-16 00:00:00.000	26331	2049,0982	2264,2536	782	Mountain-200 Black, 38	BK-M68B-38	Black	1251,9813	2294,99	1	Mountain
21	47852	19797	1	2071,4196	0,00	2071.419600	2012-09-16 00:00:00.000	26342	2071,4196	2288,9187	780	Mountain-200 Silver, 42	BK-M68S-42	Silver	1265,6195	2319,99	1	Mountain
22	47853	19798	1	2049,0982	0,00	2049.098200	2012-09-16 00:00:00.000	26487	2049,0982	2264,2536	784	Mountain-200 Black, 46	BK-M68B-46	Black	1251,9813	2294,99	1	Mountain

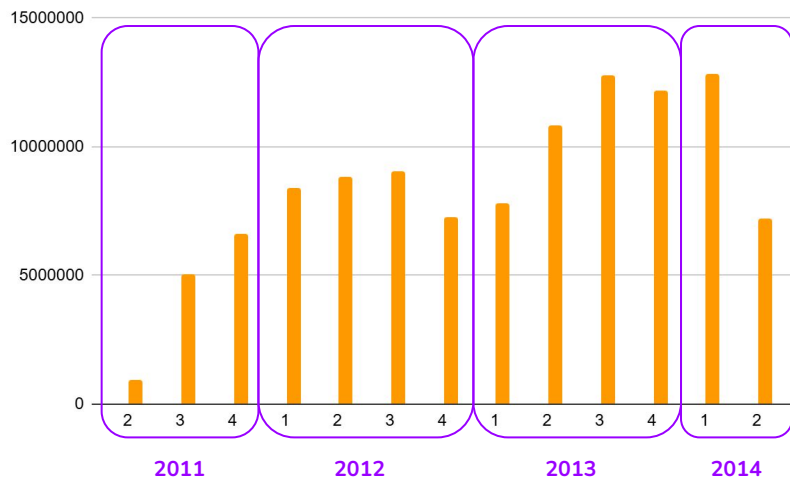


# Análise dos resultados

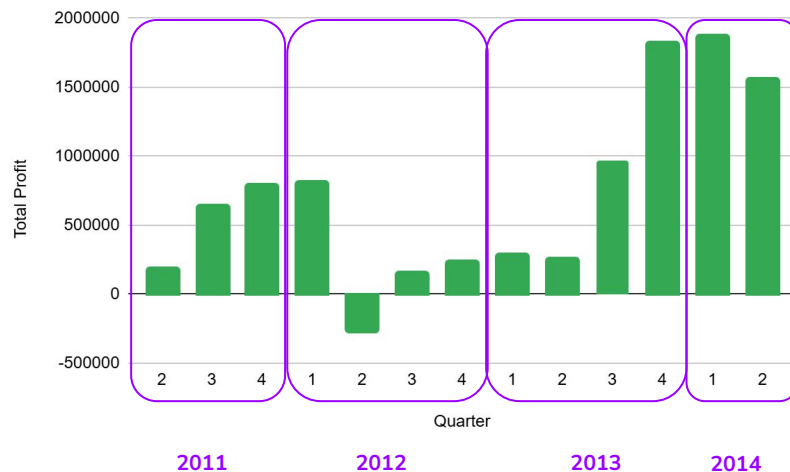
## 1. Receita e lucro são sazonais?

Dados disponíveis apenas entre **maio/2011** e **junho/2014**

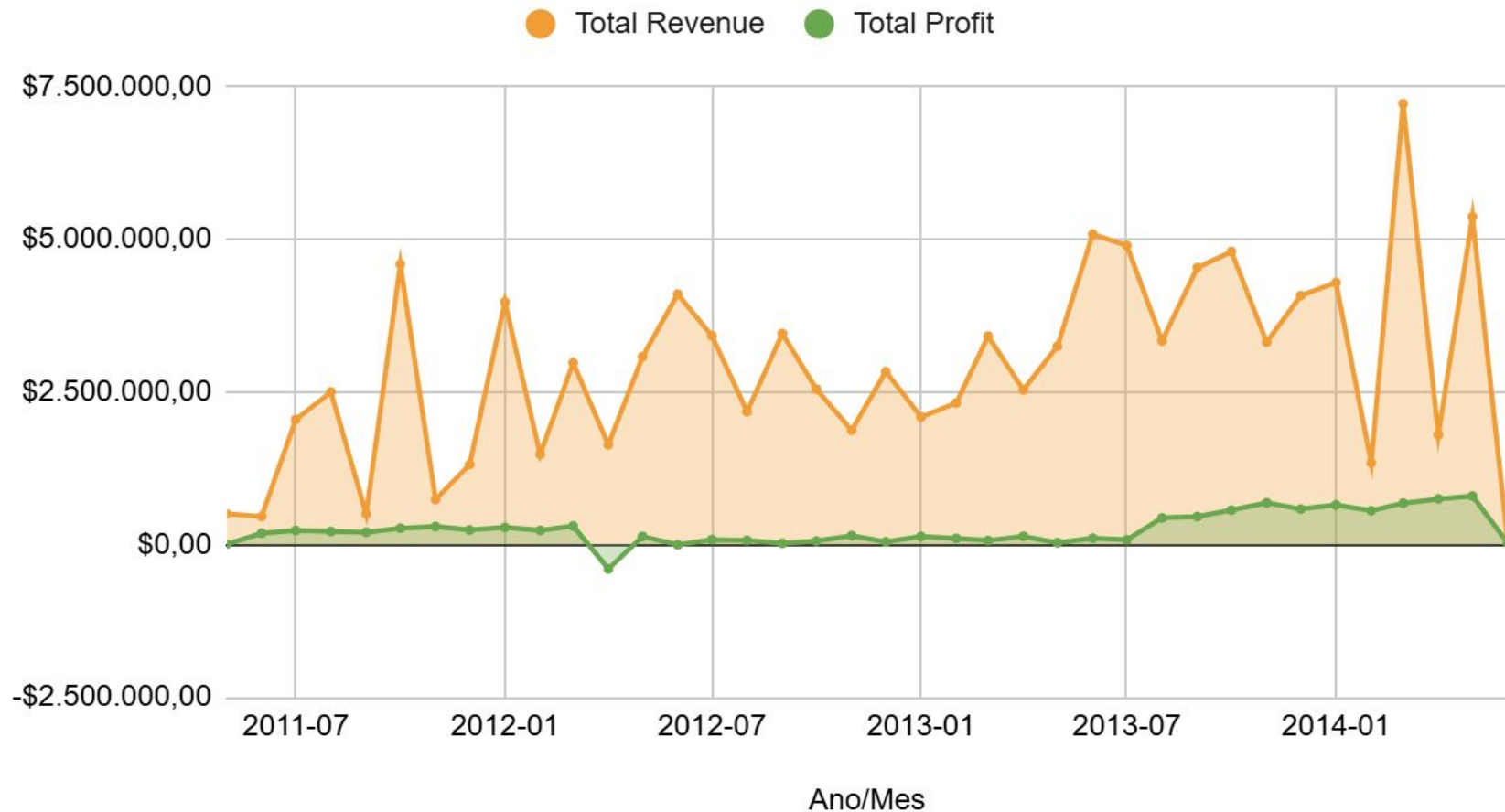
Receita por trimestre



Lucro por trimestre



# Receita e Lucro Total

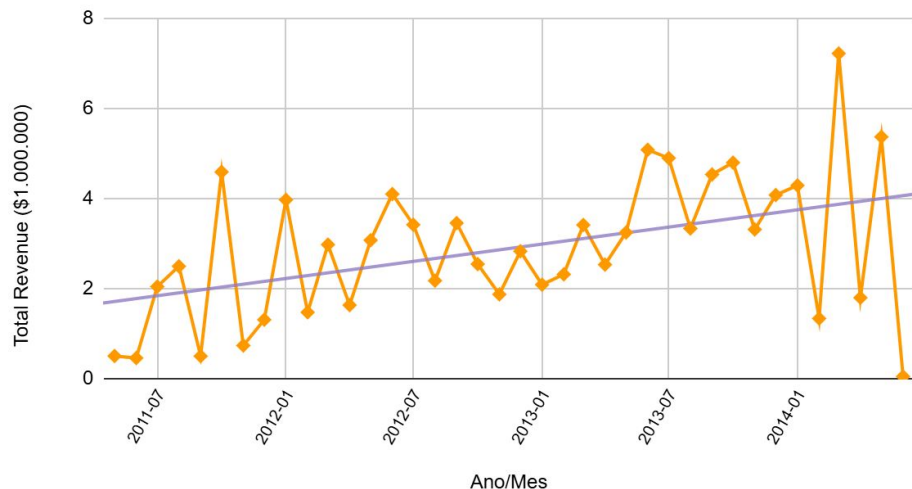




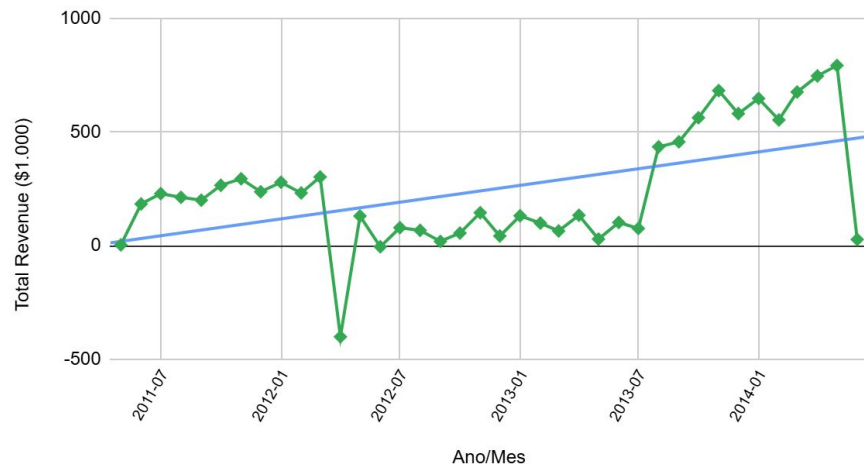
# Análise dos resultados

## 2. Tendência da receita e do lucro ao longo dos meses e anos

Receita mensal



Lucro mensal







# Fatores que impactam a rentabilidade

## Lucro em abril 2012

Product Name	Total profit (\$)	Margin %
Mountain-100 Black, 38	-87.092	-158
Mountain-100 Silver, 38	-83.914	-182
Mountain-100 Black, 42	-75.072	-162
Mountain-100 Black, 48	-67.560	-101
Mountain-100 Black, 44	-66.465	-113
Mountain-100 Silver, 42	-64.623	-140
Mountain-100 Silver, 44	-60.672	-149
Mountain-100 Silver, 48	-45.459	-107
Road-650 Black, 52	-4.939	-16
Road-650 Red, 44	-4.014	-14
Road-650 Black, 58	-3.228	-16
Road-650 Red, 60	-3.083	-15
Road-650 Red, 48	-2.792	-12
Road-650 Red, 62	-2.198	-12
Road-650 Black, 44	-1.603	-13
Road-650 Red, 52	-1.593	-11
Road-450 Red, 58	-1.197	-2
Long-Sleeve Logo Jersey	-1.091	-33
Road-650 Black, 48	-987	-9
LL Road Frame - Black, 44	-859	-15
HL Mountain Frame - Silver, 42	-714	-3

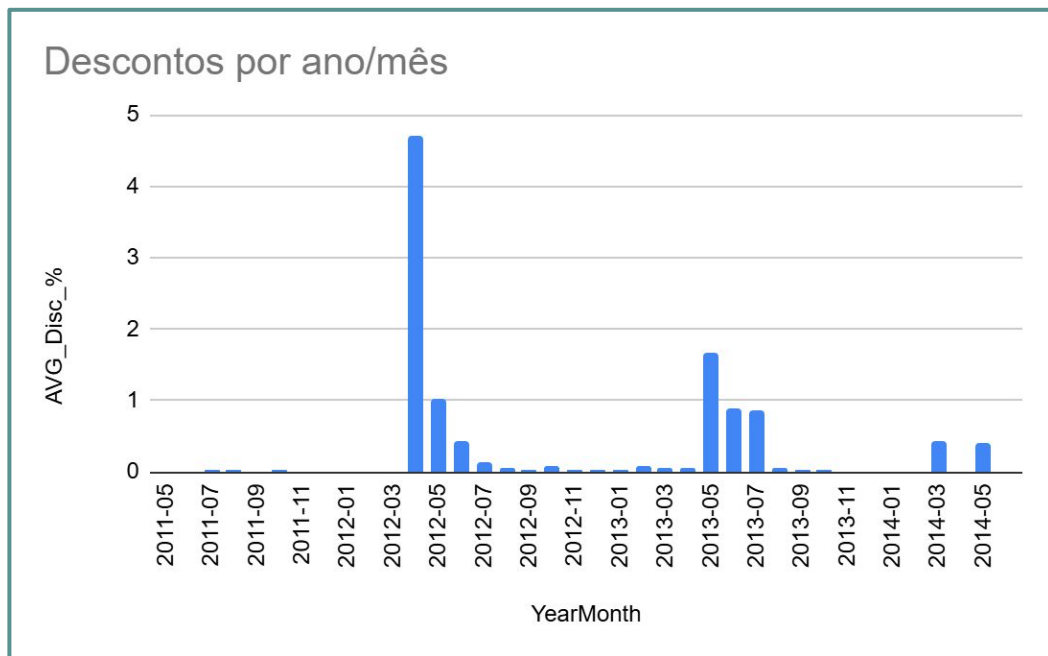
Product Name	Total profit (\$)	Margin %
Road-450 Red, 52	-635	-1
LL Road Frame - Black, 58	-599	-14
Road-650 Black, 60	-541	-3
HL Mountain Frame - Black, 38	-511	-3
Long-Sleeve Logo Jersey, XL	-454	-34
Long-Sleeve Logo Jersey, M	-444	-34
HL Road Frame - Red, 62	-442	-15
HL Mountain Frame - Silver, 46	-394	-3
HL Mountain Frame - Black, 42	-389	-3
Road-650 Black, 62	-372	-4
Road-650 Red, 58	-361	-4
Road-450 Red, 44	-327	-1
Road-450 Red, 60	-317	-1
AWC Logo Cap	-198	-33
Road-450 Red, 48	-159	-1
LL Road Frame - Red, 44	-116	-2
HL Road Frame - Red, 44	-111	-15
LL Road Frame - Red, 60	-84	-2
LL Road Frame - Red, 48	-71	-2
LL Road Frame - Red, 62	-68	-2

Product Name	Total profit (\$)	Margin %
LL Road Frame - Black, 44	-52	-15
HL Mountain Frame - Silver, 42	-49	-3
Mountain Bike Socks, L	9	40
ML Road Frame - Red, 52	62	1
ML Road Frame - Red, 48	114	1
Mountain Bike Socks, M	196	35
HL Mountain Frame - Black, 44	332	14
Sport-100 Helmet, Red	369	35
Sport-100 Helmet, Black	525	35
Sport-100 Helmet, Blue	611	35
HL Mountain Frame - Black, 48	1.660	14
HL Mountain Frame - Silver, 48	2.685	14
Road-150 Red, 62	27.458	21
Road-150 Red, 44	33.354	27
Road-150 Red, 48	34.809	29
Road-150 Red, 56	40.218	26
Road-150 Red, 52	43.154	28



# Fatores que impactam a rentabilidade

## Média de descontos





# Fatores que impactam a rentabilidade

## Quantidade vs Margem

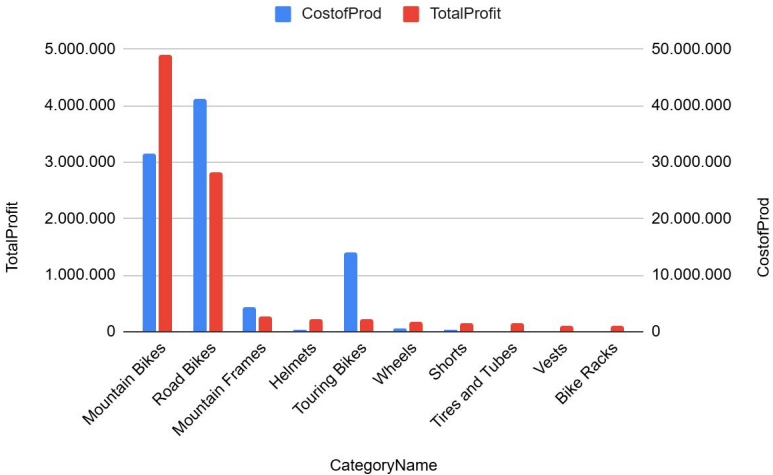
Product ID	Product Name	QTY Sold	Total revenue	Total profit	Margin %
712	AWC Logo Cap	8311	51229	-6302	-12,30
870	Water Bottle - 30 oz.	6815	28654	15935	55,61
711	Sport-100 Helmet, Blue	6743	165407	77166	46,65
715	Long-Sleeve Logo Jersey, L	6592	198755	-54986	-27,67
708	Sport-100 Helmet, Black	6532	160870	75390	46,86
707	Sport-100 Helmet, Red	6266	157772	75774	48,03
864	Classic Vest, S	4247	156398	55536	35,51
873	Patch Kit/8 Patches	3865	8233	4922	59,79
884	Short-Sleeve Classic Jersey, XL	3864	129146	-31490	-24,38
714	Long-Sleeve Logo Jersey, M	3636	115249	-24709	-21,44



# Fatores que impactam a rentabilidade

## Custo de produção vs Lucro total

Custo de produção vs Lucro total



CategoryName	TotalQuantity Sold	TotalRevenue	CostofProd	TotalProfit	%TotalMargin
Mountain Bikes	28321	36.445.443	31537402	4.908.042	13,46%
Road Bikes	47196	43.909.437	41098363	2.811.074	6,40%
Mountain Frames	11621	4.713.930	4452325	261.605	5,54%
Helmets	19541	484.048	255719	228.329	47,17%
Touring Bikes	14751	14.296.291	14079014	217.278	1,51%
Wheels	5273	680.831	504786	176.045	25,85%
Shorts	9967	413.600	257626	155.974	37,71%
Tires and Tubes	18006	246.454	92406	154.049	62,50%
Vests	6738	259.488	160021	99.468	38,33%
Bike Racks	3166	237.096	142090	95.006	40,07%



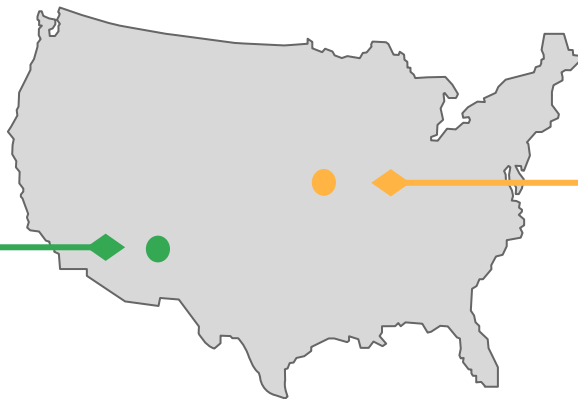
# Fatores que impactam a rentabilidade

## Região

Territory	Territory Group	Total Quantity Sold	Total Revenue	Cost of Production	Total Profit	%Total Margin
Austrália	Pacific	18293	10.655.336\$	7.221.081\$	3.434.255\$	32,23
Southwest	North America	59105	24.184.610\$	22.620.899\$	1.563.711\$	6,47
Northwest	North America	36776	16.084.943\$	14.720.341\$	1.364.602\$	8,48
United Kingdom	Europe	20099	7.670.721\$	6.438.812\$	1.231.909\$	16,06
Germany	Europe	13143	4.915.408\$	3.872.391\$	1.043.017\$	21,22
France	Europe	19906	7.251.556\$	6.358.461\$	893.095\$	12,32
Canadá	North America	49381	16.355.770\$	15.951.454\$	404.316\$	2,47
Central	North America	19493	7.909.009\$	8.051.460\$	-142.451\$	-1,80
Southeast	North America	18875	7.879.655\$	8.030.712\$	-151.057\$	-1,92
Northeast	North America	19843	6.939.374\$	7.208.868\$	-269.493\$	-3,88

# Fatores que impactam a rentabilidade

Região



Product Category	Average Unit Price	Total Quantity Sold	Cost Per Unit	Total Production Cost	Total Profit
Mountain Bikes	1.444\$	5.902	1.136\$	6.704.964\$	915.985\$
Road Bikes	1.067\$	12.283	855\$	10.501.752\$	248.455\$
Touring Bikes	1.280\$	2.333	996\$	2.324.784\$	107.734\$
Caps	7\$	1.702	7\$	11.782\$	-1.513\$
Touring Frames	440\$	523	450\$	235.539\$	-2.743\$
Jerseys	40\$	4.481	39\$	176.993\$	-30.097\$

**Southwest US**

(Among the most Profitable)

Product Category	Average Unit Price	Total Quantity Sold	Production Cost Per Unit	Total Cost of Production	Total Profit
Mountain Bikes	1.055\$	2.553	1.092\$	2.787.323\$	102.227\$
Mountain Frames	424\$	1.116	372\$	414.603\$	26.879\$
Wheels	123\$	517	93\$	47.925\$	16.838\$
Jerseys	30\$	1.675	40\$	66.363\$	-16.079\$
Touring Bikes	891\$	407	1.038\$	422.532\$	-37.312\$
Road Bikes	783\$	4.532	832\$	3.769.568\$	-283.268\$

**Central US**

(Among the least profitable)



# Conclusões e recomendações

- A variação, tanto da receita como do lucro, não é linear, apesar de ambos terem uma tendência de crescimento.
- Fica claro um ganho de maturidade da empresa ao longo dos anos, mostrando uma tendência mais positiva de se manter no mercado.
- Sem dados completos de 2014, a projeção para os próximos anos é positiva, caso sejam adotadas estratégias eficazes.
- Receita e lucro variam significativamente conforme a região de comercialização dos equipamentos.
- Acompanhamento frequente dos descontos, principalmente em produtos com margens negativas ou muito baixas.
- Apostar mais em produtos universais com margens positivas em todas as regiões e focar em nichos para regiões específicas.

# Perguntas?

Obrigada!

