Maximizing Profitability Through Smart Pricing Presentation

Agenda

Introduction

Objectives:

- Step 1 Model development
- Step 2 Compare the models
- Step 3 Model evaluation and selection
- Step 4 Model the business
- Summarize and take aways

Introduction

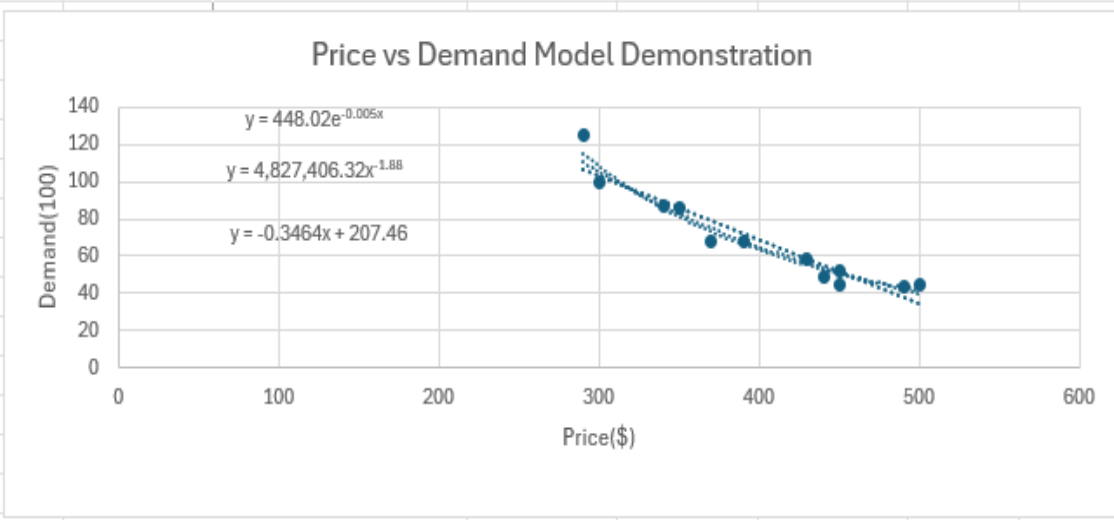
Business problem:

Top Good Electronics is a company specializing in designing and manufacturing of robotic floor vacuum and mop machine.

This year, Top Good has decided to launch a direct marketing campaign and sell its products independently, rather than relying on a distribution partner. In response to the highly competitive market landscape, the company plans to leverage historical data and statistical modeling to refine its pricing strategy—enabling data-driven decision-making and strengthening its market presence.

Step 1 Model development

Month Number	Sale Price($)	Demand Q'ty (00s)
1	450	45
2	300	100
3	440	49
4	350	86
5	290	125
6	450	52
7	340	87
8	370	68
9	500	45
10	490	44
11	430	58
12	390	68



Model development

Liner:	y=mx+b	Power:	y=ax^b	Exponential:	y=ae^(bx)
Intercept(b):	207.46	Constant a:	4827406.32	Constant a:	448.02
Slope(m):	-0.3464	Exponent b:	-1.88	Exponent b:	-0.005

Based on historical sales data, including price and demand trends from the past year, the marketing team has developed three predictive models to compare and identify the most effective one.

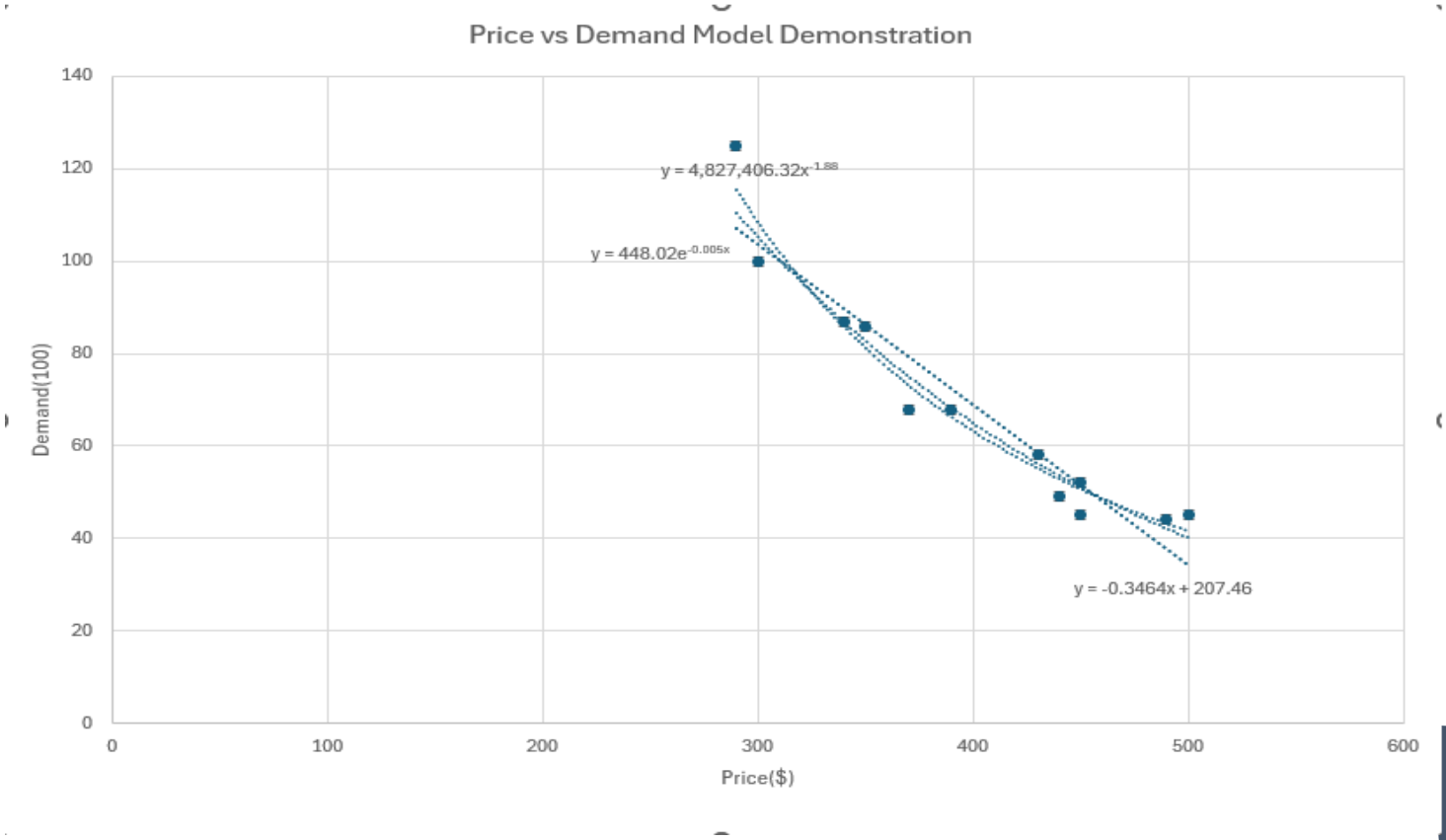
Models:

Linear,

power,

exponential

Step 2 Compare the models



Findings:

Among the line graphs from Linear, Power, and Exponential Models, the **Power model** appears to be more accurate, as it aligns better with the actual demand in the price vs. demand relationship.

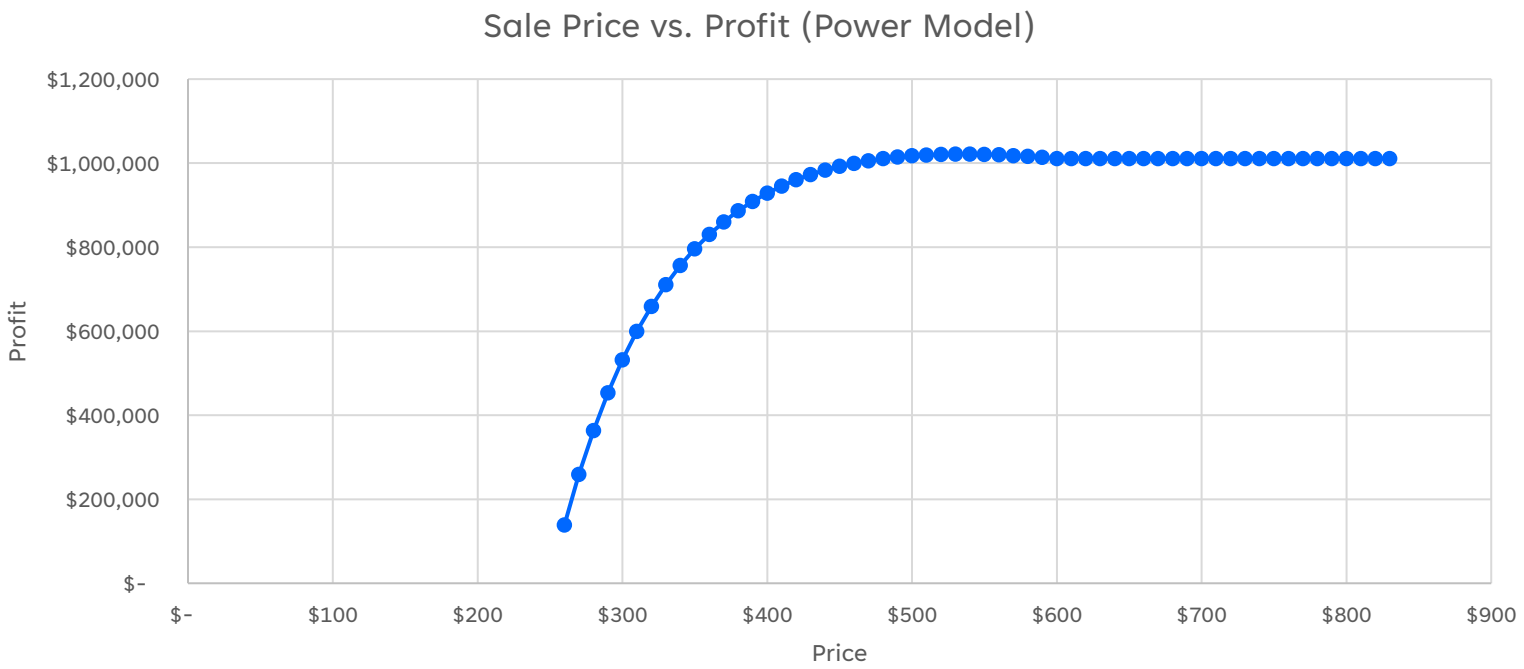
Step 3 Model evaluation and selection

Calculate absolute percent error					Absolute Percent Error			
Sale Price	Linear	Power	Exponential	Demand(00s)	Linear	Power	Exponential	
450	51.6	49.6	47.2	45	14.6%	10.3%	4.9%	
300	103.5	106.3	100.0	100	3.5%	6.3%	0.0%	
440	55.0	51.8	49.6	49	12.3%	5.6%	1.3%	
350	86.2	79.6	77.9	86	0.3%	7.5%	9.5%	
290	107.0	113.3	105.1	125	14.4%	9.3%	15.9%	
450	51.6	49.6	47.2	52	0.8%	4.6%	9.2%	
340	89.7	84.0	81.8	87	3.1%	3.4%	5.9%	
370	79.3	71.7	70.4	68	16.6%	5.4%	3.6%	
500	34.3	40.7	36.8	45	23.9%	9.5%	18.3%	
490	37.7	42.3	38.7	44	14.3%	3.9%	12.1%	
430	58.5	54.0	52.2	58	0.9%	6.8%	10.0%	
390	72.4	64.9	63.7	68	6.4%	4.5%	6.3%	
				Avg:	9.3%	6.4%	8.1%	<-us

Findings:

Among the three models, the Power model has the smallest absolute percent error, which is consistent with the results observed in the prediction graphs. Therefore, it is the most suitable choice for further analysis.

Step 4 Model the Business(Power model)



y = ax^b

x = price

a = 4827406.32

b = -1.88

Cost per unit: $250

Findings:

With a fixed cost of $250 per unit, the graph illustrates that profit increases up to a price of $530, after which it slightly decreases and remains steady thereafter.

Conclusion & Take Aways

- Used techniques: MS Excel (graph, VLOOKUP), PowerPoint
- Best predictive model: power model
- **Pricing strategy:** price the product robotic vacuum at **$530** per unit will maximize annual profit.
- Constrain: optimal pricing subject to change if the cost of unit changes.

Thank you

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