Autonomous Shipment & Customer Value Analysis
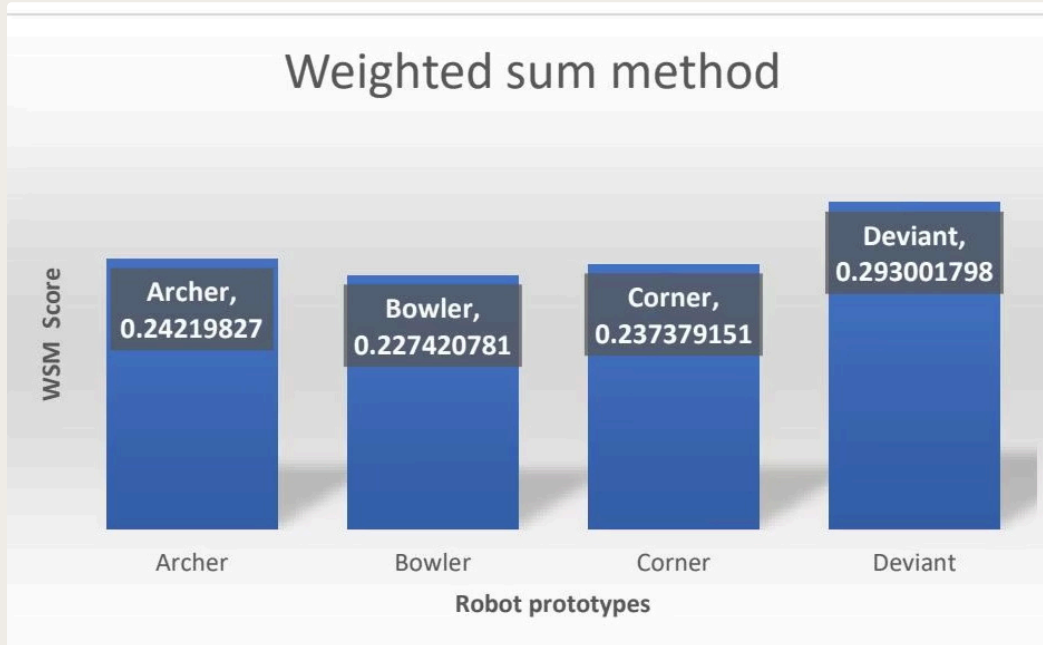
Exploring autonomous delivery trial and customer spending insights for strategic growth.

by Harshal John Robson

Autonomous Shipment Trial: Robot Selection

Weighted sum method

Archer, 0.24219827 | Bowler, 0.227420781 | Corner, 0.237379151 | Deviant, 0.293001798

WSM Score — Robot prototypes

Robot Prototype Scores

Deviant robot leads with 20.98% higher WSM score

Prototypes Compared

- Archer
- Bowler
- Corner
- Deviant

Criteria

Cost, speed, capacity, battery, reliability

Method

Weighted Sum Method for clarity and accuracy

Made with GAMMA

mber orders per day by Stores

Grocery Store

Clothing Store

30

Sport Equipment...

20

221

Sum of No. orders per day

244300

Sum of Operating cost

Sum of T

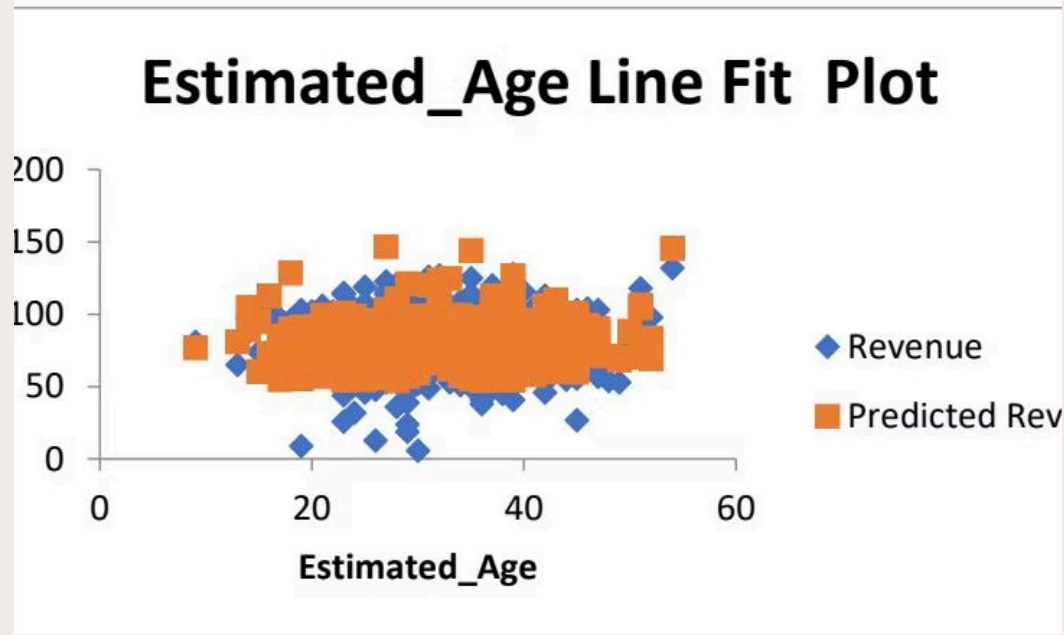# Robot Allocation Across Stores

Stores

- Grocery
- Clothing
- Sports

Constraints

- Min 5 robots/store
- £250,000 budget
- 250 technician hours/week

Goal

Maximise orders, minimise cost

Goal Programming for Optimal Trial

Findings

More robots allocated to grocery store for max orders

Budget Use

97% of £250,000 budget utilised efficiently

Technician Hours

Full 250 hours/week utilised

Customer Spending Analysis: Data Preparation

Estimated_Age Line Fit Plot — scatter plot of Revenue and Predicted Revenue vs Estimated_Age

Time_On_Site Line Fit Plot — scatter plot of Revenue and Predicted Revenue vs Time_On_Site
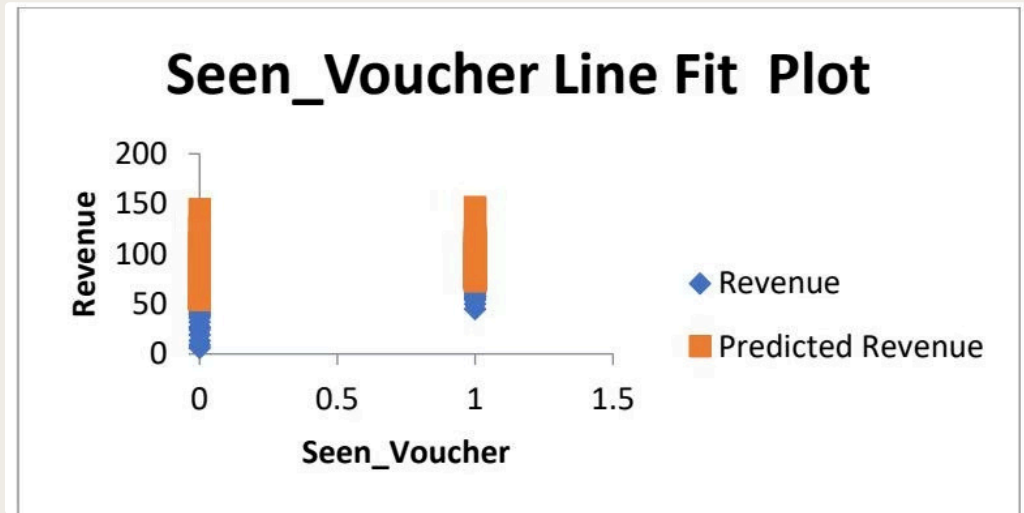
Age vs Revenue

Non-linear relation, insignificant impact

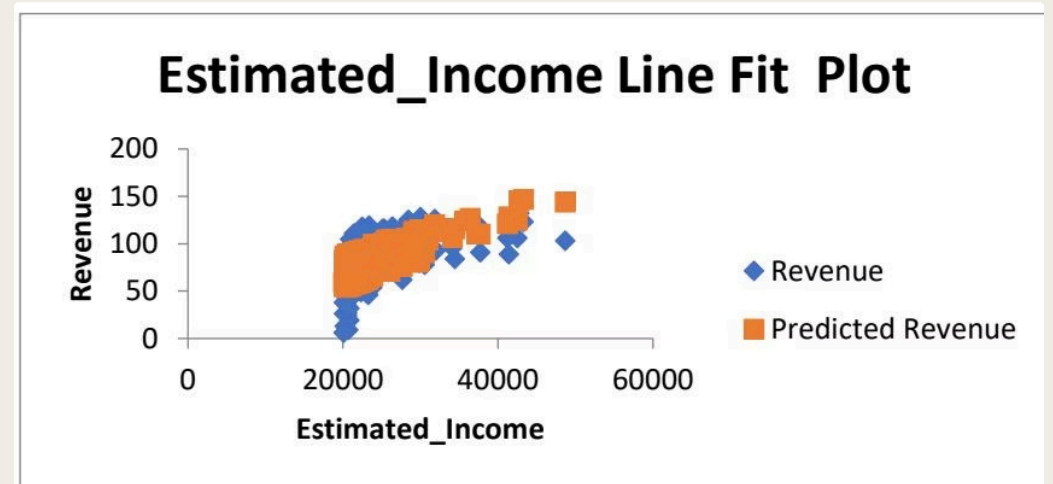Data includes revenue, age, income, voucher use, ad channels
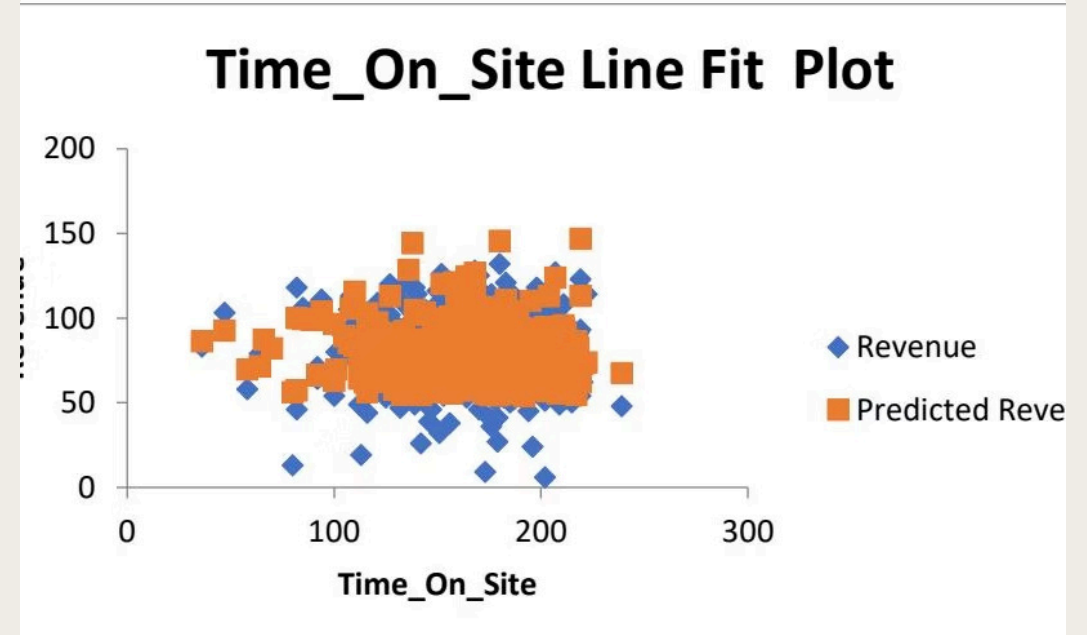
Time on Site vs Revenue

No clear positive or negative influence

Made with GAMMA

Voucher & Income Impact on Revenue

Voucher Influence

Strong positive effect on revenue

Estimated Income

Positive correlation with revenue

Advertisement Channels Driving Revenue

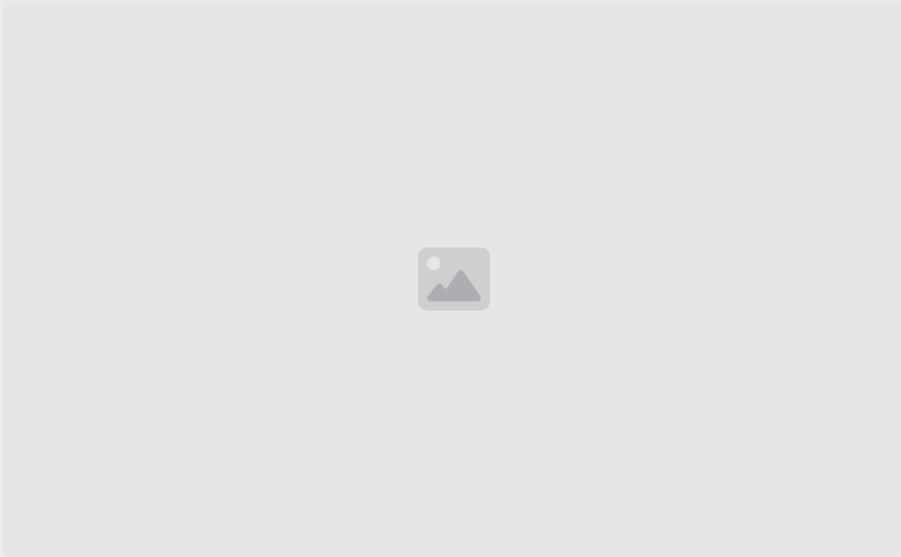**Influencer**

Highest impact on revenue
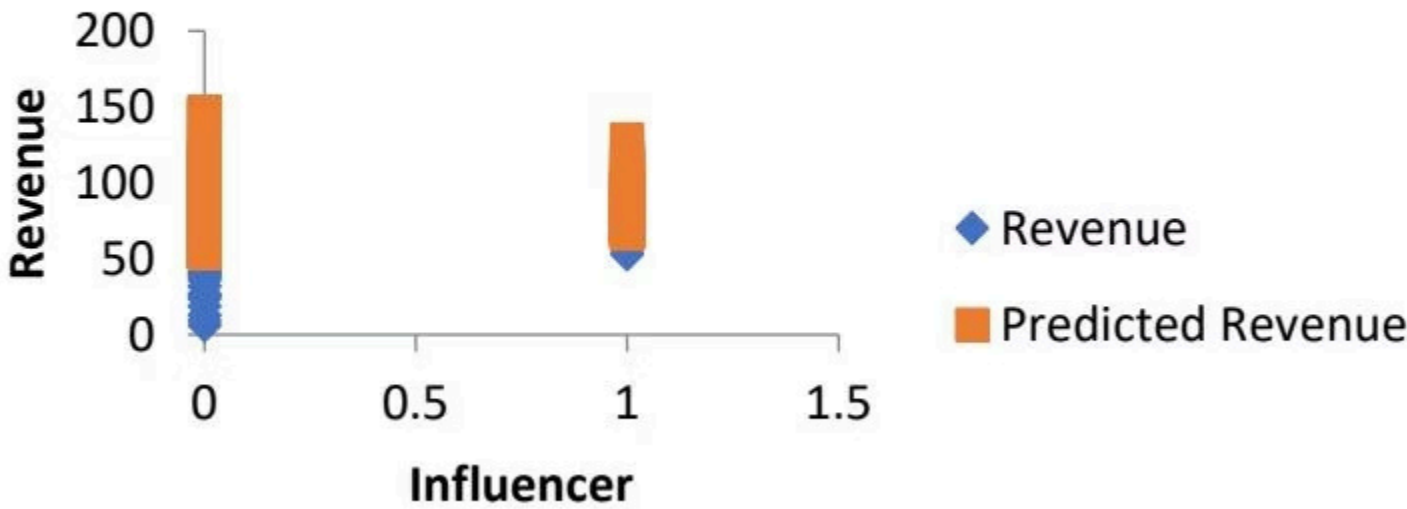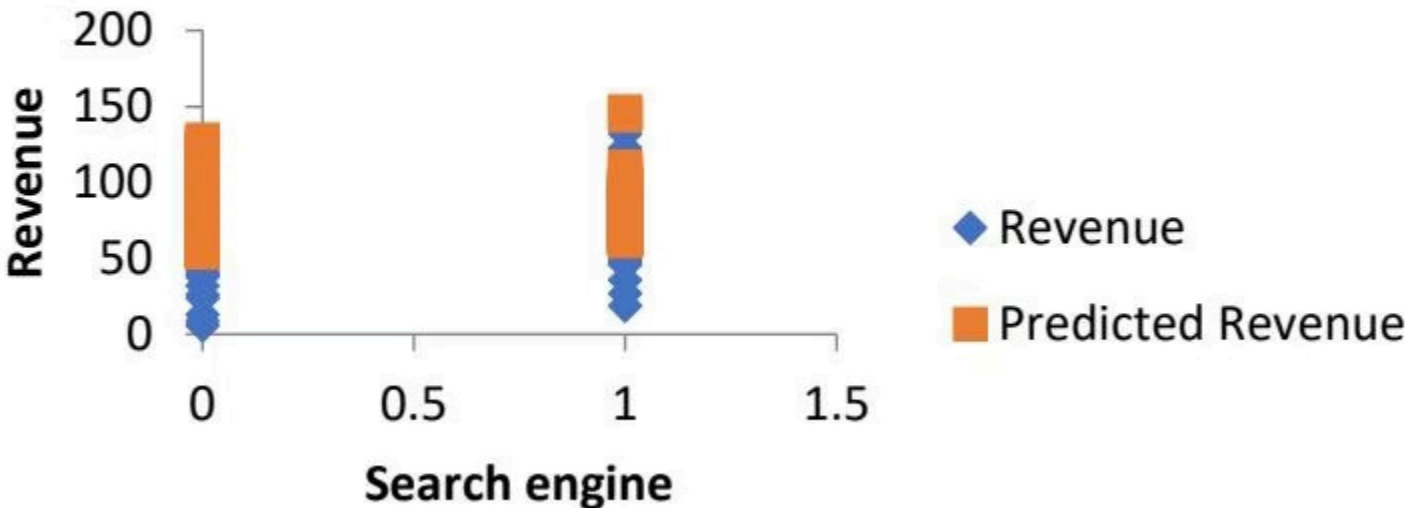
Search Engine

Significant positive effect

Social Media
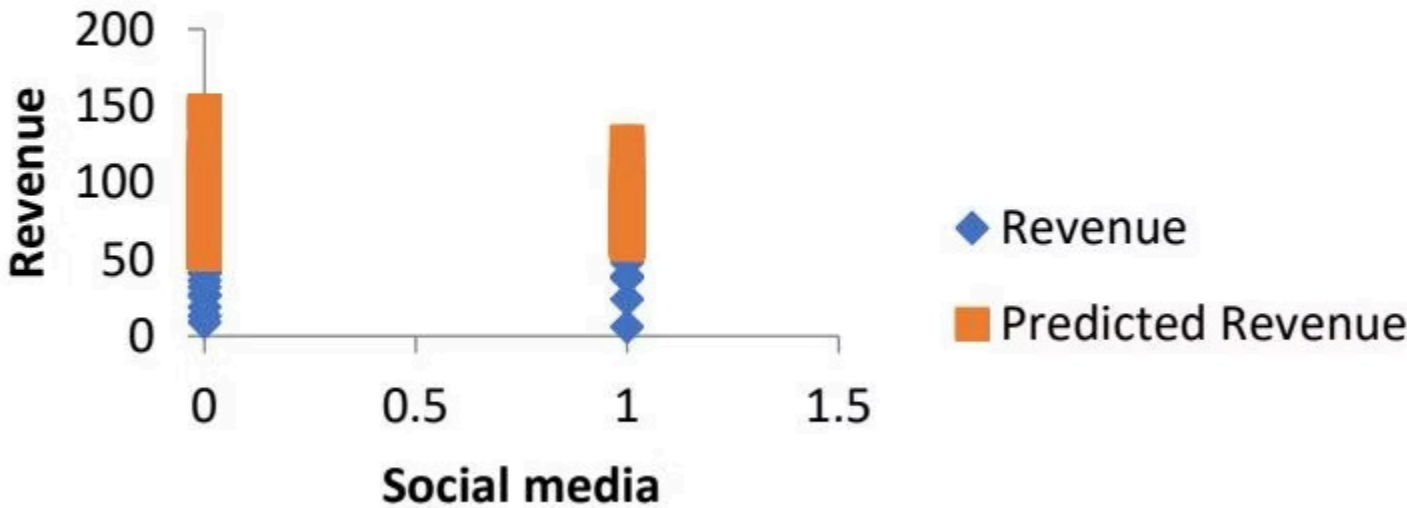
Statistically significant influence

Influencer Line Fit Plot

Revenue (y-axis: 0, 50, 100, 150, 200)
Influencer (x-axis: 0, 0.5, 1, 1.5)

◆ Revenue
■ Predicted Revenue

Search engine Line Fit Plot

Revenue (y-axis: 0, 50, 100, 150, 200)
Search engine (x-axis: 0, 0.5, 1, 1.5)

◆ Revenue
■ Predicted Revenue

Social media Line Fit Plot

Revenue (y-axis: 0, 50, 100, 150, 200)
Social media (x-axis: 0, 0.5, 1, 1.5)

◆ Revenue
■ Predicted Revenue

Key Recommendations for Drinks@home.uk

Target Age Group

Not effective to focus on 45+ age

Voucher Offer

£20 voucher strongly boosts sales

Influencer Marketing

Effective for increasing revenue

Voucher and influencer strategies recommended for profit growth