How to Research Pricing Decisions

An Overview of Techniques to Measure Price Elasticity

Prepared by: **The Business Advantage Group**

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Contents

- Introduction

- Considering Pricing Research

- Simple Pricing Models

  - Gabor Granger Price Sensitivity Meter

  - Van Westendorp Price Sensitivity Meter

- Multivariate Techniques

  - Discrete Choice Modelling

  - Monte Carlo Simulation

Introduction

- Why do pricing research?
  - **Getting the price of a product or service right is one of the most challenging issues faced by the B2B marketer**
    - Set too low a price and you could miss out on huge potential revenues
    - Set it too high and you could risk alienating customers and losing market share to the competition
  - **Pricing research can significantly reduce the uncertainty and risk involved in pricing strategy**
  - **Business Advantage offers a 'toolbox' of research techniques designed to address a variety of pricing issues faced by companies and help them make better decisions when**
    - Determining the optimum combination of product attributes and price
    - Estimating potential sales and market share
    - Striving for competitive advantage
    - Managing risk in a fluctuating market environment

Considering Pricing Research?

- What do you want to find out?
  - How many pricing points?
    - How will you select the price points to test?
  - What features/functions do you want to include?
- Who to interview?
  - Consider your universe/sample – who do you want to talk to?
  - Specific sub-groups you might want to investigate
    - What level of sub-analysis is required?
  - Where will the sample come from – who will provide it?
  - What sample size will I need?
- What pricing method should I use?
  - What data collection method is best? – web/telephone (some methods are only suitable for web)
  - What research budget do I have/need?

Business Advantage can help you answer these questions

PRICING METHODS

GABOR GRANGER

Gabor Granger Price Sensitivity Meter
Overview

- This is one of the most straightforward methods of measuring **price sensitivity** and involves simply asking customers whether they would purchase a product at a given price; the price is varied until the level at which the customer would not buy is determined

- Having identified the **optimum price** for each individual, we then work out the expected **level of demand for each price point** and plot these in a price curve

- In general, a fall in the price of a product or service is expected to increase the quantity demanded

- **Price elasticity of demand** measures the relationship between changes in price and changes in demand volume

- While offering a good indication of 'willingness to pay,' this model does have its limitations

  - It does not replicate the many variables that might influence actual purchase intention and behaviour, such as available budget, competitive context, brand value, external market conditions, etc.

Gabor Granger PSM

How it Works

- Elasticity is calculated as:
  - If quantity demanded increases by 20% as a result of a 10% decrease in price, the price elasticity of demand would be 20% / (-10%) = -2
  - Average elasticity of demand for a product or service is the mean change from price point to price point
- The larger the value (generally negative) the more price sensitive the item
- When comparing different customer segments, the one with more negative average elasticity is more sensitive

Gabor Granger Price Curve

Legend: Small companies — Medium companies — Large companies
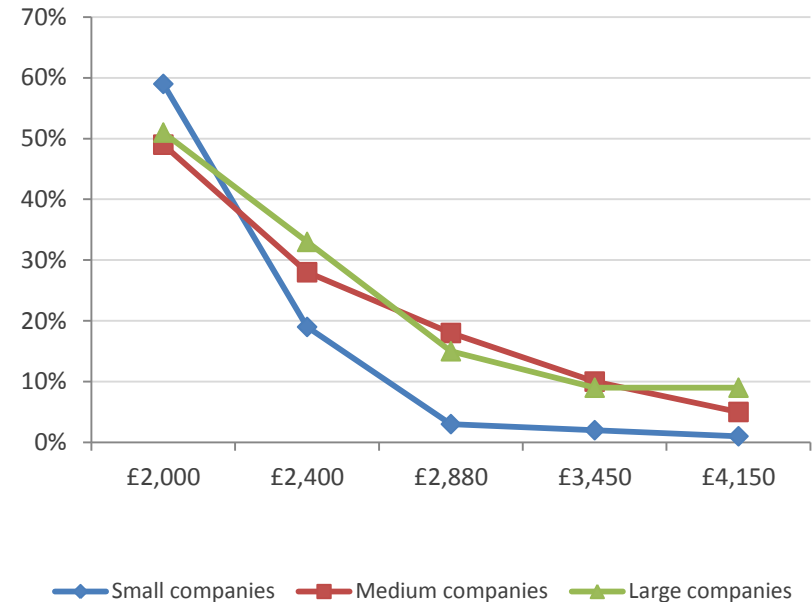
	Average Elasticity
Small companies	-2.5
Medium companies	-0.55
Large companies	-0.54

VAN WESTENDORP

Van Westendorp PSM
Overview

- A slightly **more sophisticated** version of the Gabor Granger technique, this model is based on four questions that require customers to rate a range of prices for a product or service from too cheap to too expensive

- This results in several distributions with intersecting price curves that yield a number of **inputs for pricing decisions** (see following example)

- The Van Westendorp model offers a simple but powerful way to incorporate price perceptions into pricing strategy

- It is most appropriate to help determine pricing options for **existing products** (e.g., improved versions) or products in **well-known categories**
  - When a product or service is conceptually new, however, this model is less effective as customers are not familiar with benchmark prices
  - Moreover, as with the Gabor Granger model, it does not take into account the complexities of actual buying behaviour

Van Westendorp PSM

How it Works

- The four basic questions underlying the model are:
  - Looking at these prices .....
    - At what price would you consider this product to be inexpensive?
    - At what price would you consider this product to be expensive?
    - At what price would you consider this product to be so cheap you would doubt its quality?
    - At what price would you consider this produce to be so expensive you would not want to buy it?

- Depending on situation, wording can be varied or enhanced with additional questions on willingness to purchase

Price Card
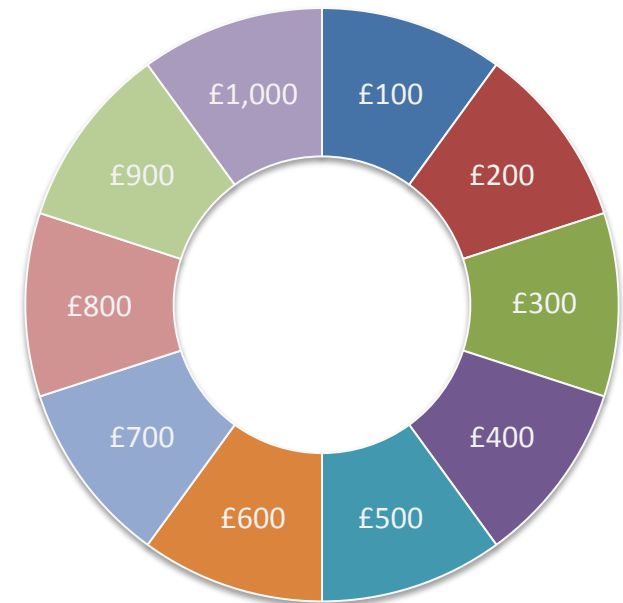
Van Westendorp PSM

How it Works

- Where price curves intersect the following price points are identified:

  - PMC = Point of Marginal Cheapness
    - Price point where more sales would be lost because of questionable quality than gained from those seeking a bargain

  - PME = Point of Marginal Expensiveness
    - Price point above which the cost of the product outweighs the perceived value derived from it

  - OPP = Optimum Price Point
    - Point at which an equal percentage of customers consider the price too expensive as feel it is so low that quality is doubtful

  - IDP = Indifference Price Point
    - Point at which the same proportion of customers feel the product is becoming too expensive as those who feel it is cheap, i.e., where most are indifferent to the price

  - RAI = Range of Acceptable Prices
    - The difference in price between the Point of Marginal Cheapness and Point of Marginal Expensiveness

Price Points for Product A
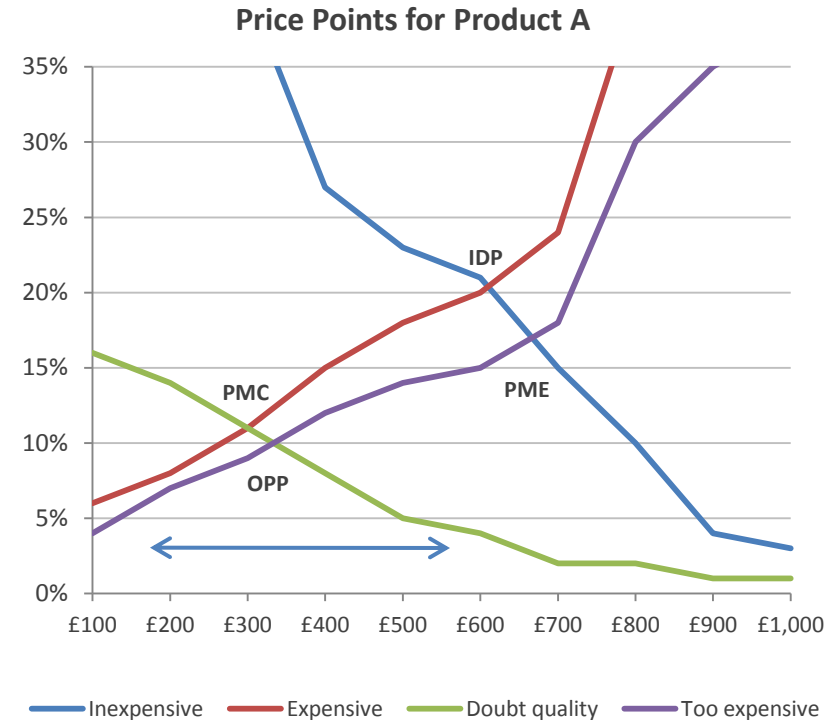
PMC	£300
PME	£660
OPP	£330
IDP	£610
RAI	£360

Van Westendorp PSM

How it Works

- The range of acceptable prices can also be used to determine which product has the best competitive advantage

- In the example below, the RAI for Product A starts at a higher price and is much wider than for Product B; it is also similar to that of competitor, Product C

Range of Acceptable Pricing

Price (£)

MULTIVARIATE TECHNIQUES
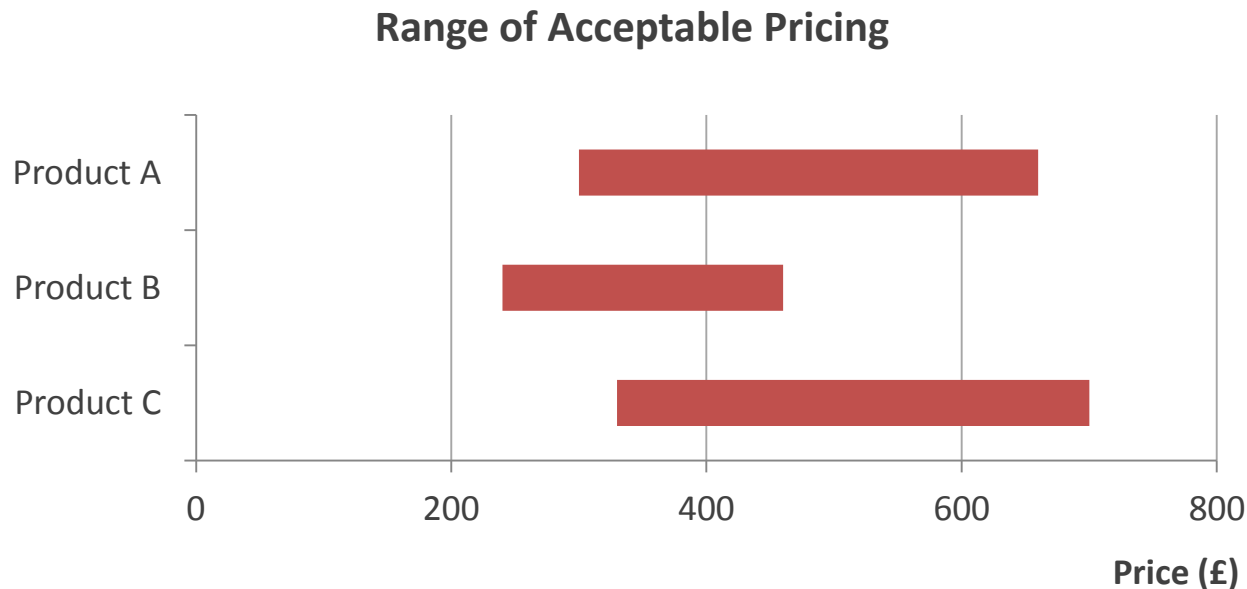
Multivariate Techniques

- While simple measures such as Gabor Granger and Van Westerndorp are useful tools, pricing models using **multivariate techniques** allow **greater flexibility** and **reliability** in decision-making

- Conjoint Analysis (Discrete Choice Modelling) and other similar methods simulate the choices or trade-offs between product attributes, brands, price, etc. that customers make in reality when making a purchase decision

- These methods are particularly appropriate for:
  - testing new concepts to determine the optimum combination of features and price
  - uncovering real or hidden drivers which may not be apparent to customers themselves
  - simulating realistic choice or purchase situations, especially the trade-off that people make between various features and functions

What is Conjoint Analysis?

- In general, conjoint and similar trade-off techniques assess the value that buyers assign to the range of options they consider when making a purchase decision

- Statistics are then used to quantify the contribution of each feature of a product or service so as to identify the 'drivers' and 'non-drivers'

- Armed with this knowledge, marketers can focus on the most important features of products or services and design messages most likely to resonate with target customers

- Central to these choice-based techniques is the ability to perform 'what-if' simulations: users can see the impact of different market events—price changes, new launches, new claims—and identify winners and losers under various scenarios
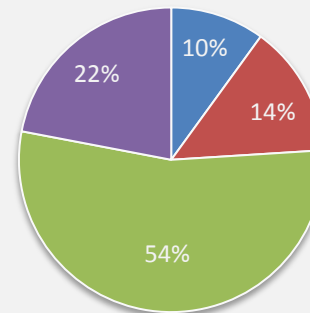
Choice Model Example

How do Product Features/Attributes affect Choices

e.g. If I increase price by £100 how will it effect product share; if I offer a longer battery life on our laptops, how much share will we gain

Product A	10%
Product B	14%
Product C	54%
Product D	22%

How does subgroup membership affect Product & Feature impact
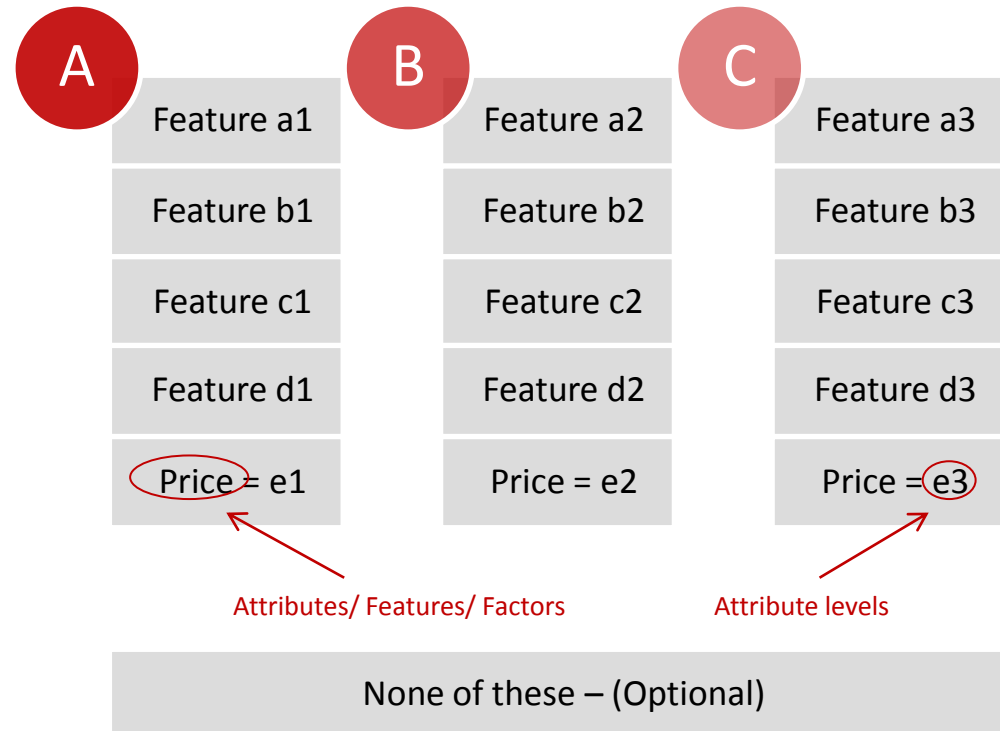
e.g. Do corporates give the same priority to different features as SMEs /SMBs (and will the same set of features result in the same market shares for both)

Choice Exercise Example

- Series of simulated "real world" choice scenarios
  - Designed by the data modeller
  - Based on a product attribute grid
- Attributes (Features) are varied in a controlled way from exercise to exercise
- We only need to ask questions about a small subset of all possible scenarios
- Conjoint Model (developed by statistician) fills in the gaps

Please consider the following services

Concepts/ Alternatives

A	B	C
Feature a1	Feature a2	Feature a3
Feature b1	Feature b2	Feature b3
Feature c1	Feature c2	Feature c3
Feature d1	Feature d2	Feature d3
Price = e1	Price = e2	Price = e3

Attributes/ Features/ Factors   Attribute levels

None of these – (Optional)

Which service are you <u>most</u> likely to buy?

Which service are you <u>least</u> likely to buy?

Questions (up to 16 like this)

Product Attribute Grid Example

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> Levels of each attribute should be mutually exclusive

- Ideal is to agree a grid such as the one below
- It is possible to have attributes which are only specific to one brand or product subset

ATTRIBUTE	Level 1	Level 2	Level 3	Level 4	Level 5
Battery life	12 hours	24 hours	36 hours	48 hours	
Model Type	Picture A	Picture B	Picture C		
Camera Resolution	2.1 megapixel	3.5 megapixel	5.2 megapixel		
Price	£50	£100	£150	£200	£250
Brand	Nokia	Siemens	Sony	Ericsson	

Variants of Discrete Choice Modelling

Overall Objective

- **Establish Market Share**
- **Establish Preference Share**
- **Establish likelihood of adoption**

One off Choice — First choice, but allow a "None of These" option

Choose more than once — Constant Sum (100 points) "None of These" option only if market share required

One off Sale — Choose "best" (favourite) and "worst" (least favourite option)

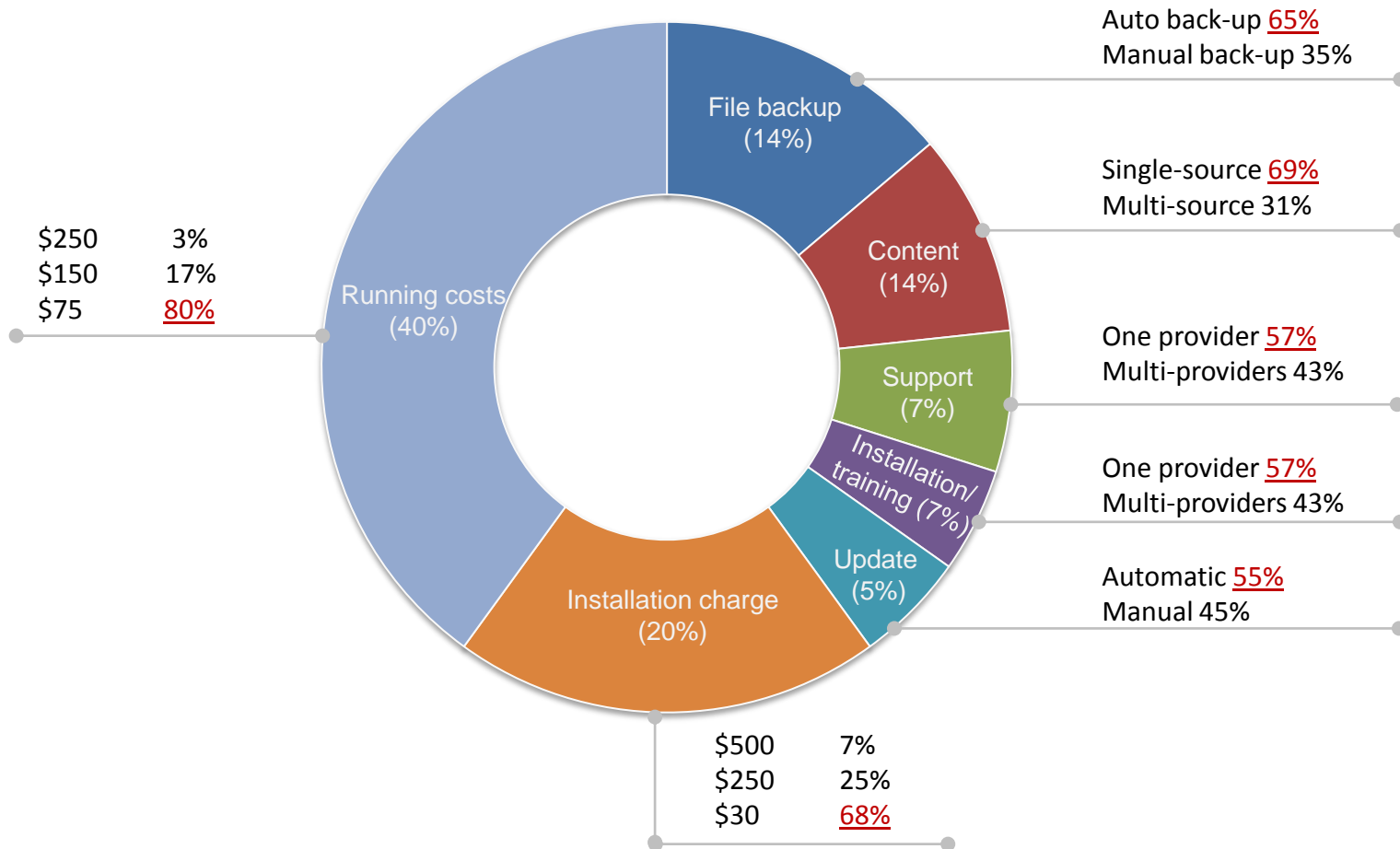Rate one product at a time on a "likelihood to adopt" scale

Example of Outputs
Attribute & Attribute Level Importance

HEADLINE
Running Costs and Installation Charge are the dominant issues
File back-up and Content Libraries are the main product related issues

Note – Callouts show relative popularity of the attribute levels tested

Auto back-up 65%
Manual back-up 35%

Single-source 69%
Multi-source 31%

One provider 57%
Multi-providers 43%

One provider 57%
Multi-providers 43%

Automatic 55%
Manual 45%

$250	3%
$150	17%
$75	80%

$500	7%
$250	25%
$30	68%

File backup (14%)
Content (14%)
Support (7%)
Installation/ training (7%)
Update (5%)
Installation charge (20%)
Running costs (40%)

MONTE CARLO SIMULATION

Monte Carlo Simulation

- Used for modelling scenarios where there are uncertainties in the inputs (which is true for most models)
  - We might only have one measure and that measure might be just a guess at the most likely value
  - Might be a sample estimate, with a sampling error associated with it

- In a spreadsheet model you can typically only change one cell in the spreadsheet at a time; exploring the entire range of outputs is not possible so we cannot quantify the risks in the model results

- Implication: Need a way to capture the range of possible input values and their distribution and determine their probabilistic impact on the outcome of interest

- Monte Carlo performs thousands of simulations using this information and produces forecasts charts showing the probability of different outcomes given the likelihood of different input values

- Best illustrated through an example

Example – Market Growth Simulator

Market Sizing Simulator - Revenue from Brand X

Service is a monthly service
Estimates of current and likely uptake (with and without a 12 month discount) are obtained from market research
Size of addressable population is estimated from an industry report
Other assumptions have been provided by the client
Objective is to project the growth or decline in revenues as a result of offering a 12 month discount on monthly bills to new customers only
(existing customers to pay the same monthly price of £40)

Monthly Discount (from current £40 price) £0 ▼

Monthly Price at discount selected   **£40**

Estimates of Take-up/Churn in Next 12 months

% .of people currently using Brand X   20.0%

%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)   6.0%
% of those saying they will join, who will join   75.0%
Number of months likely to subscribe for in next 12 months   6

Estimated churn in next 12 month from existing customer base (by marketing department)   2.0%
Number of months subscribed before churning   6

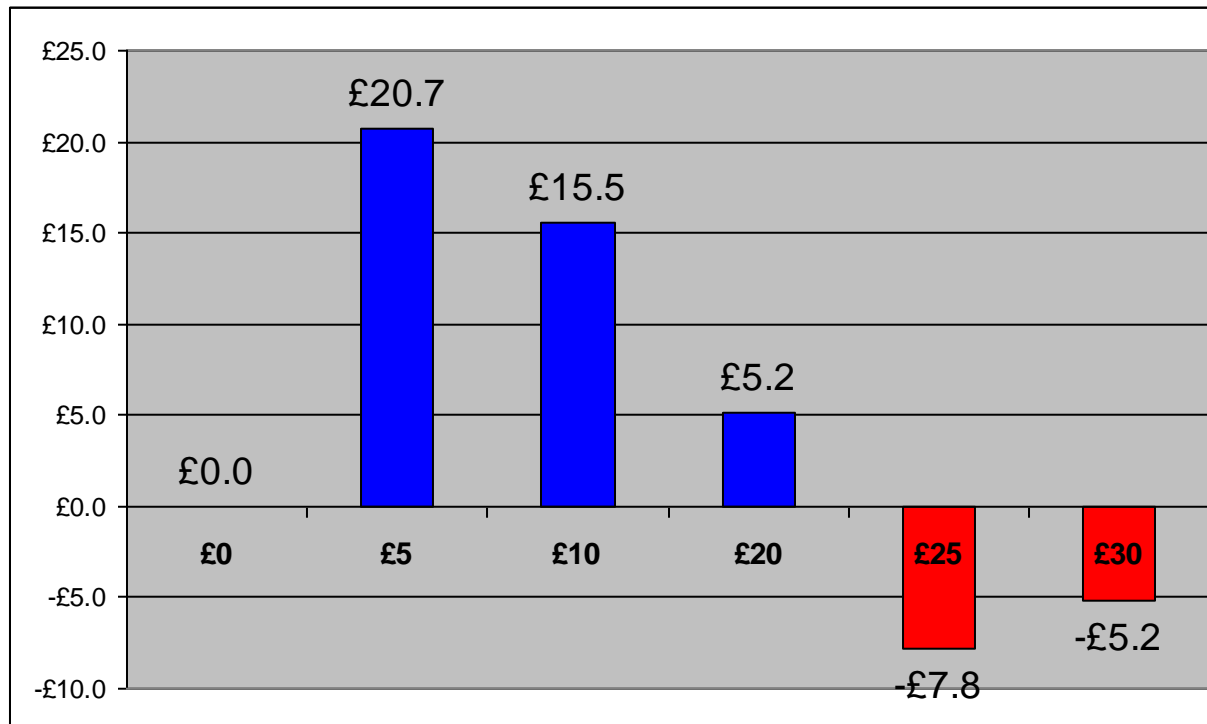Size of addressable population (million)   11.5

Projected Revenue

Projected revenue in next 12 months WITH NO DISCOUNT (£ million)   £1,173

Projected revenue in next 12 months ASSUMING MONTHLY DISCOUNT SELECTED (£ million)   £1,173

Net gain in revenue through offering discount (£ million)   £0

Net Gain £m (spreadsheet)

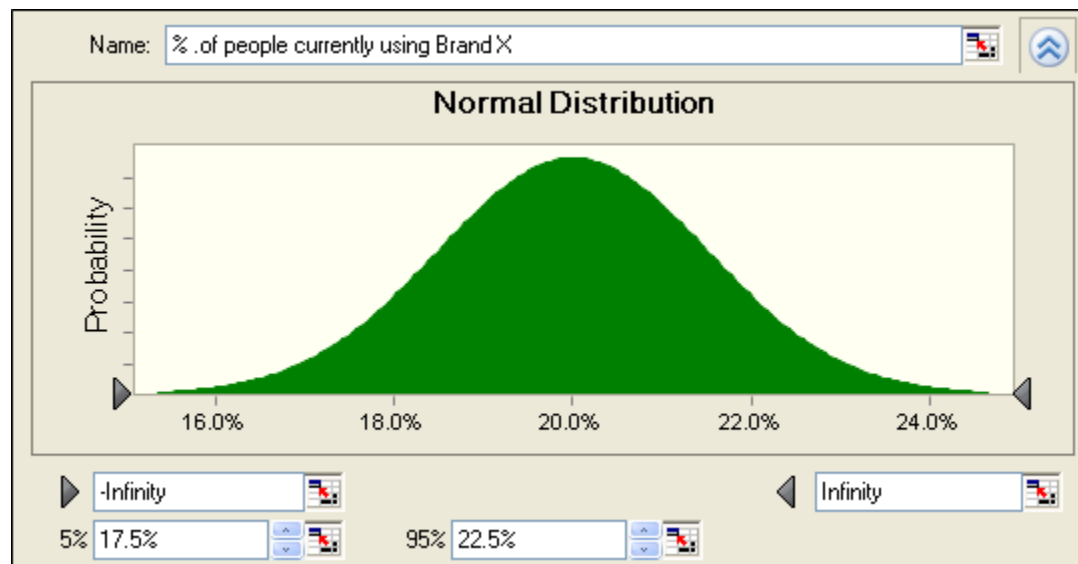Net gain in revenue though offering discount shown for 12 months

What are the Risks?

- This only gives projections for our "best guess"
- What is the range of possible outcomes?
- How certain are we to make a net gain in revenue?
- What variables are most influential on the outcome?

- Monte Carlo Simulation helps us answer these questions
  - Need to define assumptions
  - Run simulations
  - Investigate distribution of outcome

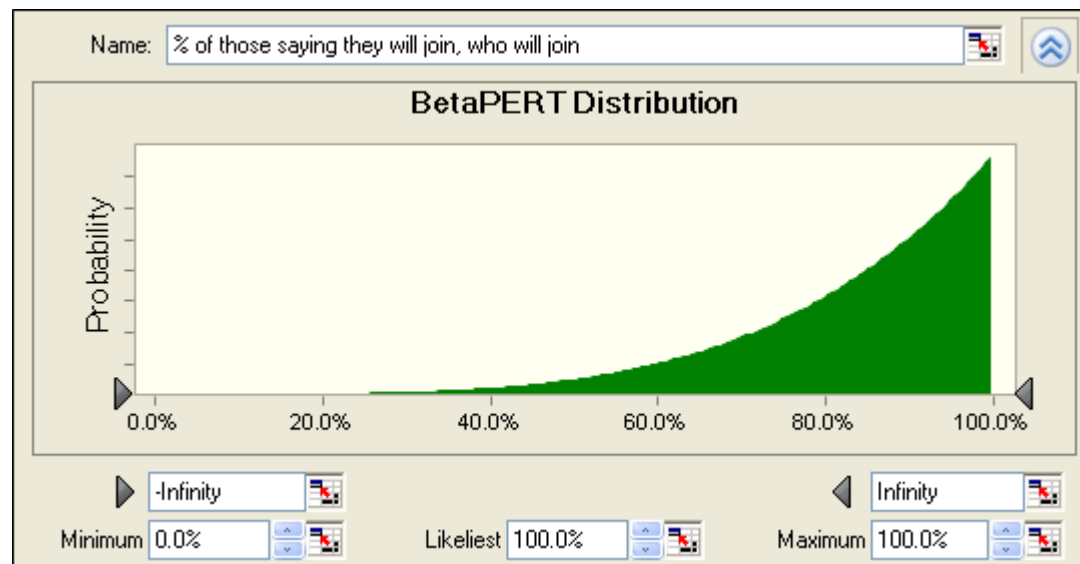# Assumptions (1)

Estimates of Take-up/Churn in Next 12 months

% .of people currently using Brand X	20.0%
%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)	18.0%
% of those saying they will join, who will join	75.0%
Number of months likely to subscribe for in next 12 months	6
Estimated churn in next 12 month from existing customer base (by marketing department)	2.0%
Number of months subscribed before churning	6
Size of addressable population (million)	11.5

Name: % .of people currently using Brand X

Normal Distribution

Probability

16.0%   18.0%   20.0%   22.0%   24.0%

-Infinity   Infinity

5% 17.5%   95% 22.5%

Assumptions (2)

Estimates of Take-up/Churn in Next 12 months
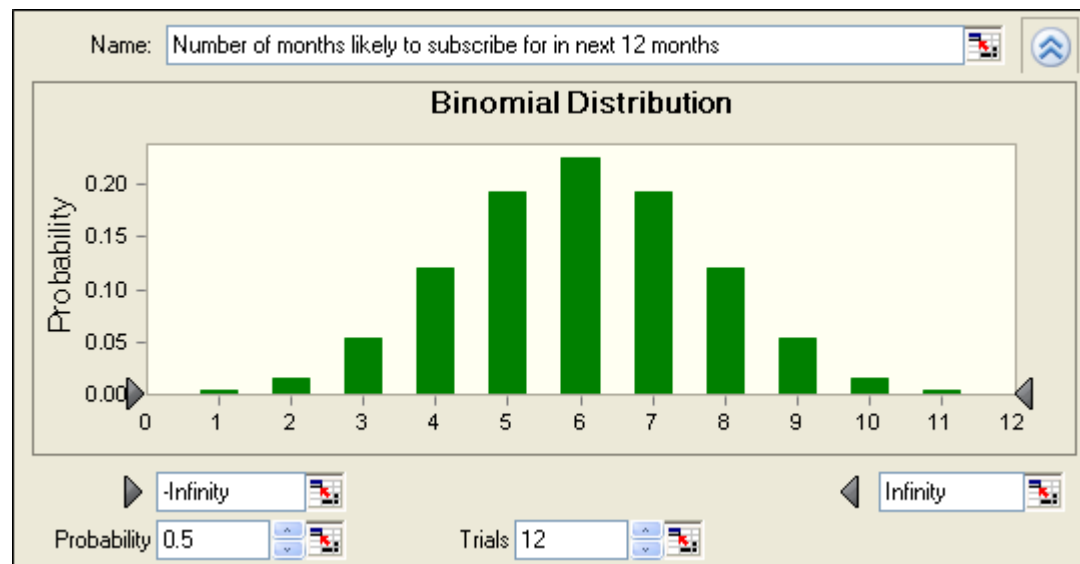
% .of people currently using Brand X	20.0%
%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)	18.0%
% of those saying they will join, who will join	**75.0%**
Number of months likely to subscribe for in next 12 months	6
Estimated churn in next 12 month from existing customer base (by marketing department)	2.0%
Number of months subscribed before churning	6
Size of addressable population (million)	11.5

Name: % of those saying they will join, who will join

BetaPERT Distribution

Probability

0.0% 20.0% 40.0% 60.0% 80.0% 100.0%

-Infinity   Infinity

Minimum 0.0%   Likeliest 100.0%   Maximum 100.0%

Assumptions (3)

Estimates of Take-up/Churn in Next 12 months

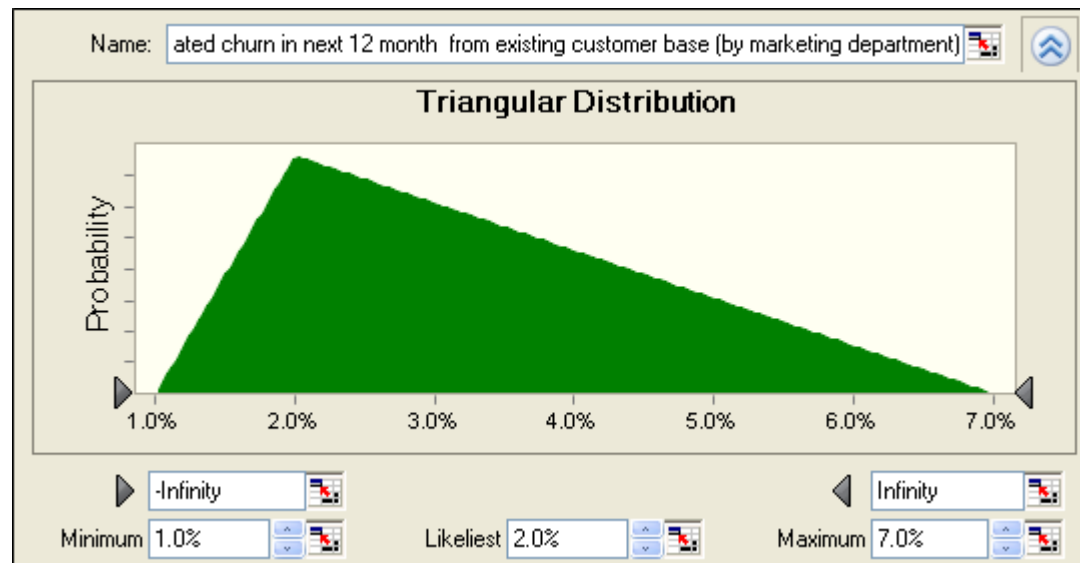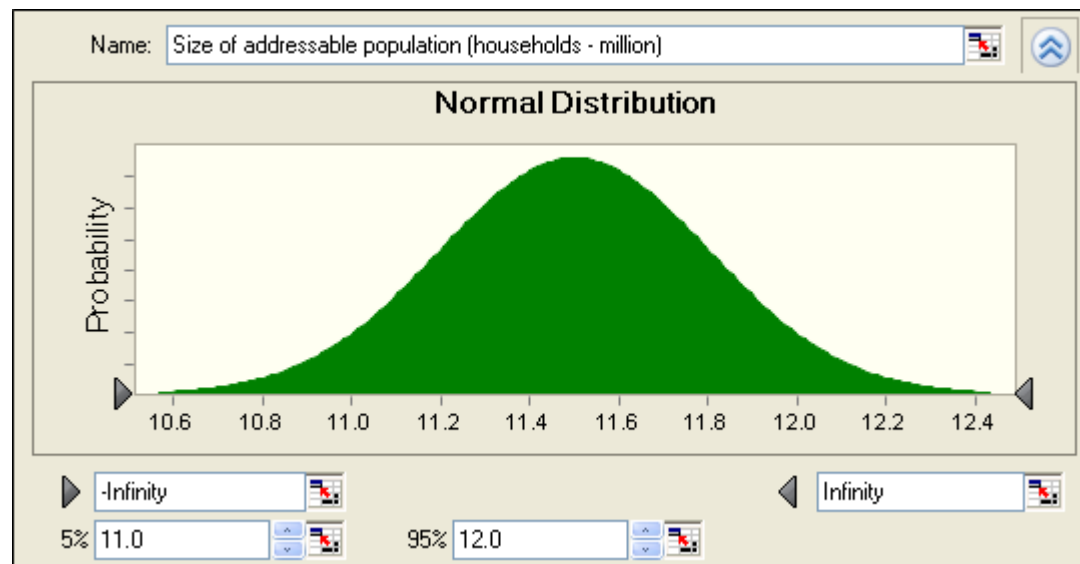|	
% .of people currently using Brand X	20.0%
%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)	18.0%
% of those saying they will join, who will join	75.0%
Number of months likely to subscribe for in next 12 months	**6**
Estimated churn in next 12 month from existing customer base (by marketing department)	2.0%
Number of months subscribed before churning	6
Size of addressable population (million)	11.5

Name: Number of months likely to subscribe for in next 12 months

Binomial Distribution

-Infinity   Infinity

Probability 0.5   Trials 12

Assumptions (4)

Estimates of Take-up/Churn in Next 12 months

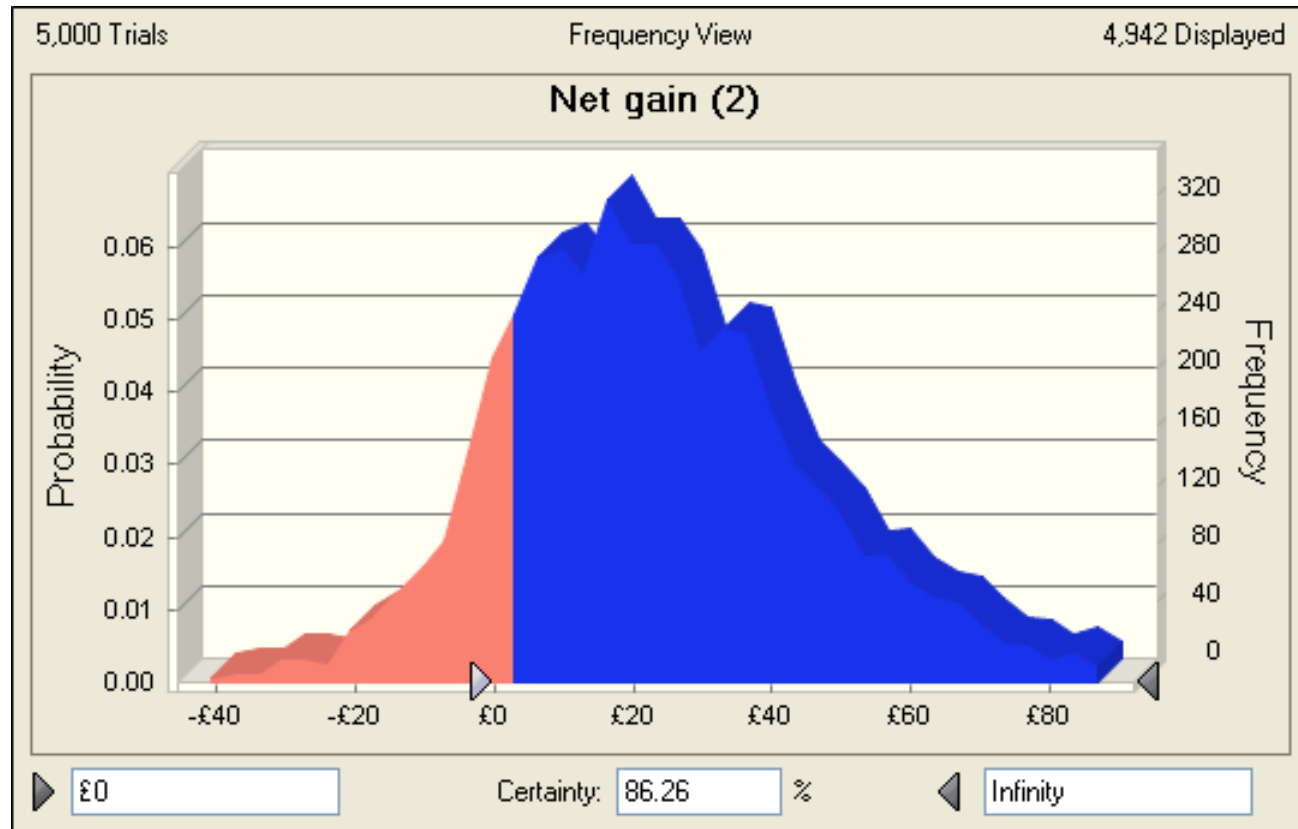|	
% .of people currently using Brand X	20.0%
%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)	18.0%
% of those saying they will join, who will join	75.0%
Number of months likely to subscribe for in next 12 months	6
Estimated churn in next 12 month from existing customer base (by marketing department)	**2.0%**
Number of months subscribed before churning	6
Size of addressable population (million)	11.5

Name: ated churn in next 12 month from existing customer base (by marketing department)

Triangular Distribution

Probability

1.0% 2.0% 3.0% 4.0% 5.0% 6.0% 7.0%

-Infinity   Infinity

Minimum 1.0%   Likeliest 2.0%   Maximum 7.0%

Assumptions (5)

Estimates of Take-up/Churn in Next 12 months

% .of people currently using Brand X	20.0%
%. of people very/fairly likely to adopt brand X in next 12 months (assuming discount selected)	18.0%
% of those saying they will join, who will join	75.0%
Number of months likely to subscribe for in next 12 months	6
Estimated churn in next 12 month from existing customer base (by marketing department)	2.0%
Number of months subscribed before churning	6
Size of addressable population (million)	**11.5**

Name: Size of addressable population (households - million)

Normal Distribution

Probability

10.6 10.8 11.0 11.2 11.4 11.6 11.8 12.0 12.2 12.4

-Infinity   Infinity

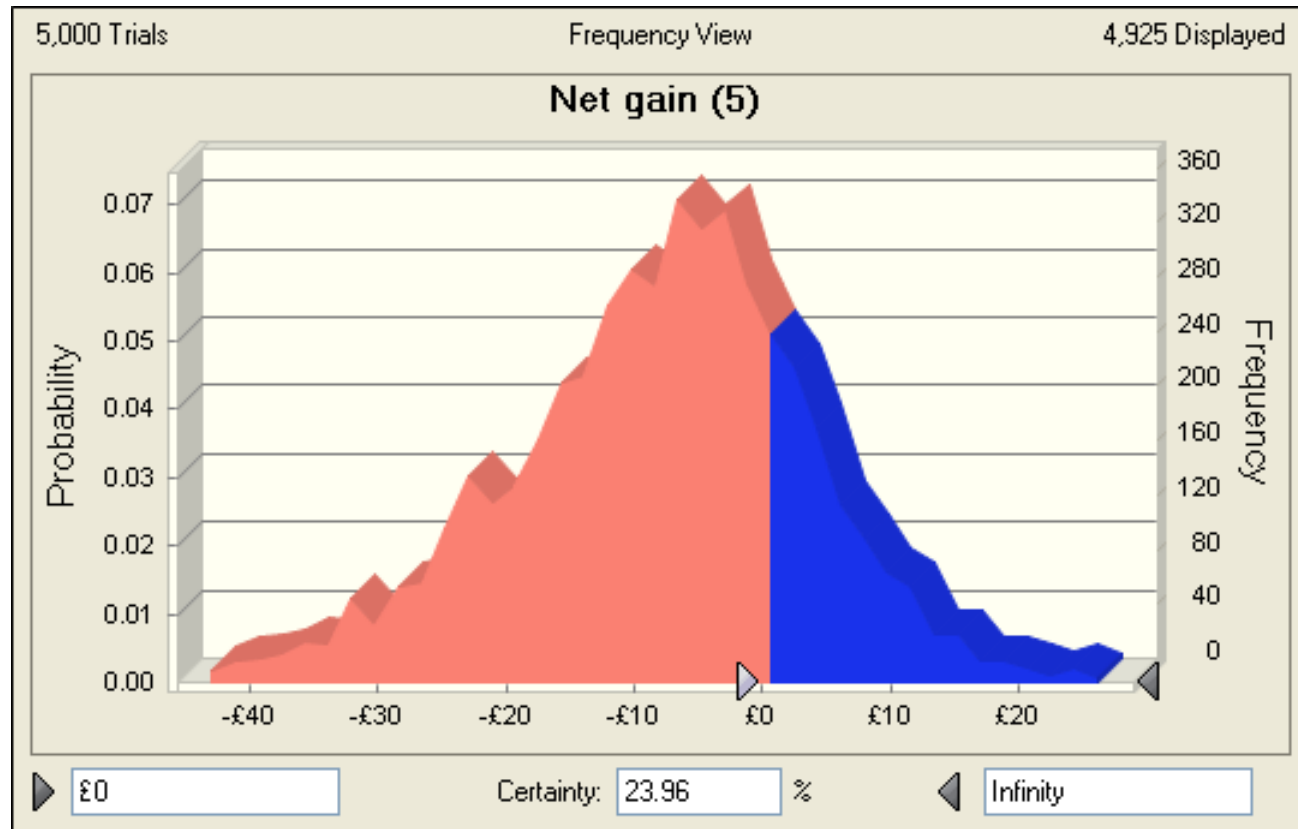5% 11.0   95% 12.0

What are the likely outcomes?
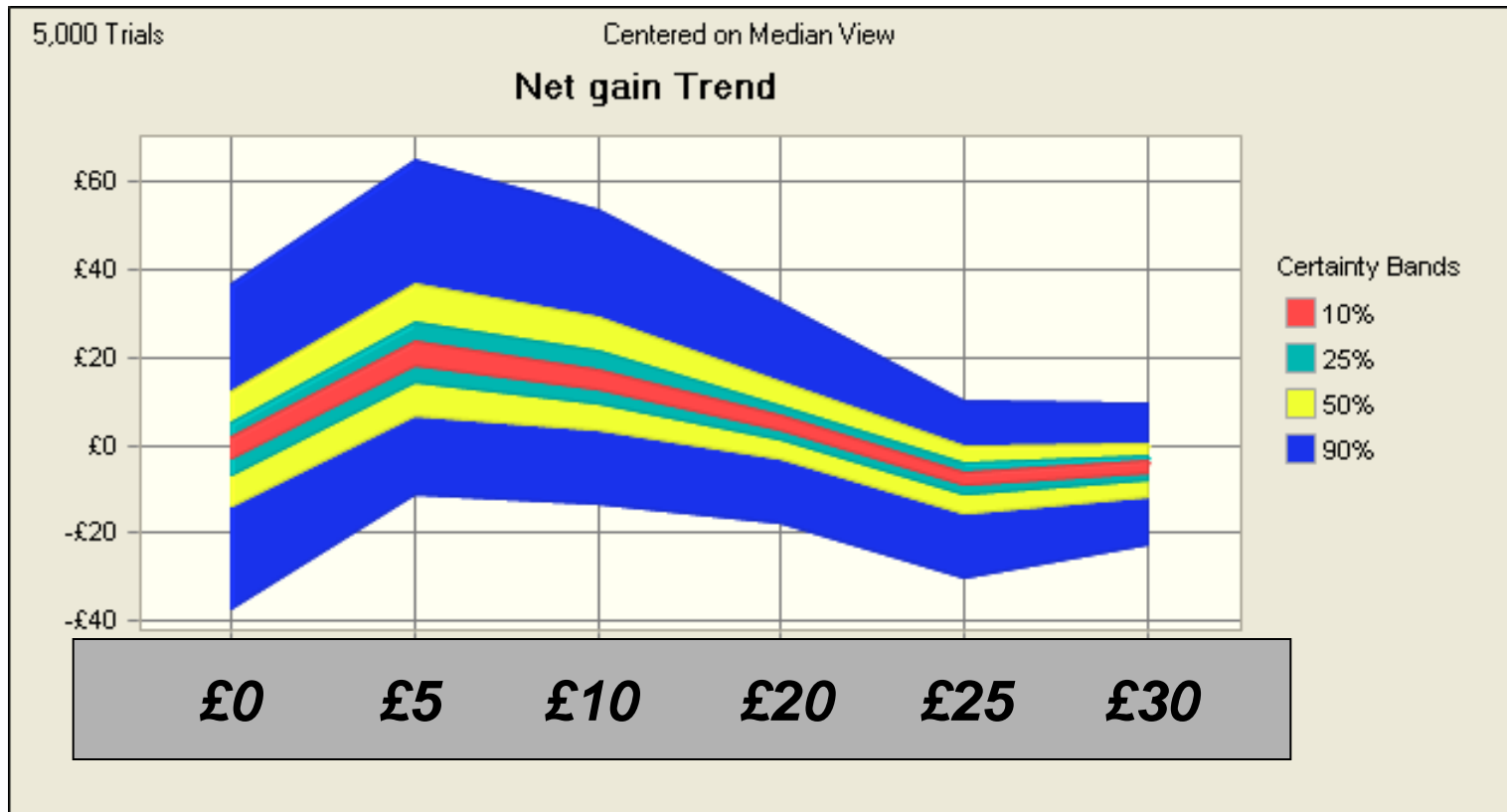
In detail – Discount of £5

In detail – Discount of £25

Monte Carlos Simulation - Summary

- Can build more informative/more intelligent models from our survey data

- Quantifies risk in percentage terms

- Can incorporate:

  - Management hunches/external sources

  - Survey error

  - Previous data

- Identifies troublesome data/data where greater precision is needed

Next Steps

- Interested in exploring your options further?
  - Whether you are at the early thinking stage or have more developed plans
  - Call or email us to see how we can help

Nicola Mansfield – Market & Competitor Analysis Director

nicola.mansfield@business-advantage.com

Sue Hannay – Research Services Director

sue.hannay@business-advantage.com

Chris Turner – CEO

chris.turner@business-advantage.com

US – Bill Gordon

bill.gordon@business-advantage.com

Telephone

UK: +44 (0) 1689 873636

US: +1 650 558 8870
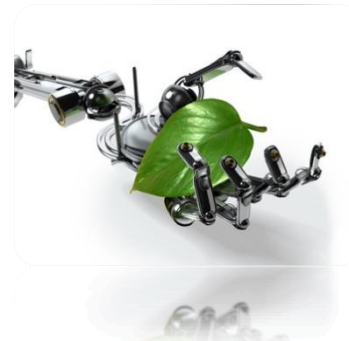
CEO/Managing Director: Chris Turner   Email: chris.turner@business-advantage.com   Tel: +44 (0) 1689 873708

The Business Advantage Group Plc, Pel House, 35 Station Square, Petts Wood, BR5 1LZ, Kent, England, www.business-advantage.com, Switchboard: +44 (0) 1689 873636