The Application of Behavioural Economics to Impact Controllable Risk Factors and create Shared-Value

James Lidgett
Behavioral Economics is the idea that people don’t always make strictly rational decisions. People have **emotions, imagination and are unpredictable** and hence do not make perfectly rational, economic decisions.
What is Behavioural Economics?
% who think they belong in the top 30% for driving safety

83%
Overconfidence and Optimism | People’s expectations exceed the reality

83% of participants think they belong in the top 30% for driving safety, yet only 62% of participants who scored in the 12th percentile estimated themselves to be in the 62nd percentile.
Overconfidence - How would you rate your health?

Correlation between perception of health and risk factor prevalence

Number of risk factors:
- 0: 49% Excellent, 49% Good
- 1: 60% Excellent, 33% Good
- 2: 65% Excellent, 23% Good
- 3: 61% Excellent, 15% Good
- 4+: 52% Excellent, 7% Good

Legend:
- Excellent
- Good
- Fair
- Poor/very poor
Correlation between perception of health and risk factor prevalence

- **Excellent**
- **Good**
- **Fair**
- **Poor/very poor**

Overconfidence - How would you rate your health?

Number of risk factors:
- 0: 49%
- 1: 60%
- 2: 65%
- 3: 61%
- 4+: 52%
Individuals prefer rewards that happen in an immediate future rather than a distant one of higher value.
Loss Aversion

People like gains.....

....but hate losses more
Endowment effect
Endowment effect

Expected trade
Endowment effect

Students with the mugs were willing to sell them, on average, for $4.50

Students with no mugs were willing to buy them, on average, for $2.25
What is a nudge?

Nudge: Exercise

What if using the stairs was fun?
Traditional insurance

A trade-off exists between consumer value and insurer profit
Incentivising healthier behaviour creates value for policyholders, insurers, and society.

- **Society**
  - Reduced state expenditure
  - Improved employee productivity

- **Policy-holders**
  - Better price
  - More benefits
  - Reduced risk

- **Insurer**
  - Lower claims
  - Improved selectivity
  - Lower lapses
  - Higher margins

**Shared-Value Insurance**

**Taxes**

**Premiums**

**Expenditure**

**Claims**

**Incentives**

**Vitality**

*Changing Health Insurance for Good*
Shared-Value Equation

\[
\text{VALUE MEMBER} = \frac{\text{Incentive Member}}{\text{Incentive} \times \Delta \text{Behaviour} \times \text{Risk Improvement}} \times \text{Value}
\]
Shared-Value Equation

\[
\text{VALUE} \quad \text{MEMBER} = \frac{\text{Incentive}}{\text{Member}} \times \frac{\Delta \text{Behaviour}}{\text{Incentive}} \times \frac{\text{Risk Improvement}}{\Delta \text{Behaviour}} \times \frac{\text{Value}}{\text{Risk Improvement}}
\]
Removing the cost barriers to entry - reducing the impact of hyperbolic discounting

1. UNDERSTAND YOUR HEALTH

INCLUDED:
- Vitality | AGE
- Vitality | HEALTHCHECK
- Vitality | GP
- Virgin active

Up to 50% off:
- Nuffield Health
- BMI Healthcare

Correct as at February 2018
Science behind the Vitality Age

An individual’s health age, adjusted for the impact of lifestyle and clinical physical and mental health risks
Science behind the Vitality Age

An individual’s health age, adjusted for the impact of lifestyle and clinical physical and mental health risks
Removing the cost barriers to entry - reducing the impact of hyperbolic discounting

Up to 50% cashback: 
50% off: 
Up to 40% off: 

Earn points: 

50% off: 
Up to 40% off: 

Correct as at February 2018
Removing the cost barriers to entry - reducing the impact of hyperbolic discounting
Intelligent incentives lead to behaviour change
Loss aversion and the endowment effect used to incentivise healthy behaviour

1. Understand your health
   - Vitality | AGE
   - Vitality | Healthcare
   - Vitality | HealthCheck

2. Get healthy
   - Eat Well
   - Access: weight watchers
   - Stop Smoking
   - Access: Easyway
   - Wellbeing & Relaxation
   - 75% off:

3. Get rewarded
   - Status Rewards
     - Up to 25% off: Smith & Nephew, Disney Store, British Airways, Eurostar
   - Active Rewards
     - Vue, Apple Watch, Cineworld, Starbucks

Earn points:
- Fitbit, Nokia, Vivacity, Parkrun

Up to 50% cashback:
- Evans Cycles
- 50% off: Sweatshop
- Up to 40% off: Garmin, Polar

Correct as at February 2018
Active rewards with Apple Watch – Using loss aversion to encourage behaviour change

Members who earn **160 Vitality activity points** each month will have a **Direct Debit** payment of £0

£29

**Up-front activation**

The table shows the monthly direct debit payment based on activity points earned in a month:

<table>
<thead>
<tr>
<th>ACTIVITY POINTS EARNED IN A MONTH</th>
<th>0-39</th>
<th>40-79</th>
<th>80-119</th>
<th>120-159</th>
<th>160+</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONTHLY DIRECT DEBIT PAYMENT</td>
<td>£12.50</td>
<td>£10.00</td>
<td>£7.50</td>
<td>£5.00</td>
<td>£0.00</td>
</tr>
</tbody>
</table>
Active rewards with Apple watch – Using loss aversion to encourage behaviour change

People like gains.....

....but hate losses more

£12.50 loss

£12.50 gain

More Utility

Less Utility

Losses

Gains
The mathematics of Shared-Value

VALUE
MEMBER = Incentive × ∆ Behaviour × Risk Improvement × Value

VITALITY WELLNESS PROGRAMME × BEHAVIOUR CHANGE × IMPROVED HEALTH OUTCOMES
VITALITY SHOPPERS HAVE SIGNIFICANTLY HIGHER PERCENTAGES OF HEALTHY FOOD IN THEIR BASKET

Reducing costs balances our mental discounting
VITALITY SHOPPERS HAVE SIGNIFICANTLY HIGHER PERCENTAGES OF HEALTHY FOOD IN THEIR BASKET
Loss aversion as a tool to prompt further behaviour change

GET APPLE WATCH 3

GET ACTIVE

£29

Up-front activation

<table>
<thead>
<tr>
<th>Activity Points Earned</th>
<th>Monthly Direct debit payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-39</td>
<td>£12.50</td>
</tr>
<tr>
<td>40.79</td>
<td>£10</td>
</tr>
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Loss aversion as a tool to prompt further behaviour change

GET APPLE WATCH 3 ➔ GET ACTIVE

£29
Up-front activation

<table>
<thead>
<tr>
<th>Activity Points Earned in Activity</th>
<th>Monthly Directivity &amp; Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.39</td>
<td>£12.50</td>
</tr>
<tr>
<td>40.79</td>
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POINTS PRE APPLE WATCH
(MEMBERS EARNING PHYSICAL ACTIVITY POINTS)

POINTS POST APPLE WATCH
(MEMBERS EARNING PHYSICAL ACTIVITY POINTS)

25%
Intelligent incentives lead to behaviour change

\[
\text{VALUE} \quad \text{MEMBER} \quad = \quad \frac{\text{Incentive}}{\text{Member}} \times \frac{\Delta \text{Behaviour}}{\text{Incentive}} \times \frac{\text{Risk Improvement}}{\Delta \text{Behaviour}} \times \text{Value}
\]

- **VALUE MEMBER**
- **Incentive**
- **Δ Behaviour**
- **Risk Improvement**
- **Value**

**Impact Areas:**
- **VITALITY WELLNESS PROGRAMME**
- **BEHAVIOUR CHANGE**
- **IMPROVED HEALTH OUTCOMES**
- **SHARED VALUE**
The effect of the incentives and the resulting improvement in health outcomes has resulted in substantial additional value for all stakeholders.

### Value by Status

<table>
<thead>
<tr>
<th>Status</th>
<th>18-34</th>
<th>35-44</th>
<th>45-59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze</td>
<td>545</td>
<td>869</td>
<td>605</td>
</tr>
<tr>
<td>Silver</td>
<td>374</td>
<td>1,058</td>
<td>635</td>
</tr>
<tr>
<td>Gold</td>
<td>247</td>
<td>1,289</td>
<td>1,198</td>
</tr>
<tr>
<td>Platinum</td>
<td>1,234</td>
<td>1,242</td>
<td>1,398</td>
</tr>
</tbody>
</table>

### Overall value from Vitality

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/2013</td>
<td>17.7</td>
</tr>
<tr>
<td>2013/2014</td>
<td>34.1</td>
</tr>
<tr>
<td>2014/2015</td>
<td>41.4</td>
</tr>
<tr>
<td>2015/2016</td>
<td>51.4</td>
</tr>
<tr>
<td>2016/2017F</td>
<td>62.4</td>
</tr>
</tbody>
</table>

Principal member and spouse (£ per annum)

**Value derived through the Vitality wellness programme (£m)**
Better lifestyle behaviours lead to lower morbidity and mortality and derive actuarial surplus.

**ENGAGEMENT RESULTS IN REDUCED RISK FACTORS**

- **35% of 2,120 members**
  - Were smokers and quit

- **46% of 12,140 members**
  - Were insufficiently active and became more active

- **32% of 20,425 members**
  - Had poor diets and improved their nutrition

*of members who completed a Vitality Age in both 2016 and 2017*
Better lifestyle behaviours lead to lower morbidity and mortality and derive actuarial surplus.

**ENGAGEMENT RESULTS IN REDUCED RISK FACTORS**

- **35% of 2,120 members** were smokers and quit.
- **46% of 12,140 members** were insufficiently active and became more active.
- **32% of 20,425 members** had poor diets and improved their nutrition.

**REDUCTIONS IN VITALITY AGE MORE EVIDENT AMONGST HIGHER RISK GROUPS**

- Two-thirds of engaged Vitality members reduce their Vitality Age gap over a period of 1 year.

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% of members with reduction, hold or increase in Vitality Age gap by starting Vitality Age gap:

- Up to 0: 35%
- 0-3: 23%
- 3-6: 17%
- More than 6: 12%

- Decreased Vitality Age Gap: 11%
- Increased Vitality Age Gap: 26%
- Maintained Vitality Age Gap: 77%

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*Vitality*
The Vitality claims cost study demonstrates the impact of health outcomes on claims

Claims rates for Vitality members based on initial wellness engagement and subsequent changes in wellness engagement

Source: 47,000 Vitality Health members 2014 - 2016
The Vitality claims cost study demonstrates the impact of health outcomes on claims.

Claims rates for Vitality members based on initial wellness engagement and subsequent increases in health engagement.

**INCREASING WELLNESS ENGAGEMENT**

Members with high levels of physical activity who continually increase their activity experience up to 33% lower claims.

Impact of positive behaviour change.

Source: 47,000 Vitality Health members 2014 - 2016
The Vitality claims cost study demonstrates the impact of health outcomes on claims

Claims rates for Vitality members based on initial wellness engagement and subsequent decreases in health engagement

Impact of negative behaviour change

Members who became even less active, experience up to 4% higher claims compared with the unengaged members

Level of claims (£)

DECREASING WELLNESS ENGAGEMENT

Low initial engagement

High initial engagement

Change in engagement (physical activity points earned)

Source: 47,000 Vitality Health members 2014 - 2016
Shared Value for employer

Cross Sectional Study (90,000 members)

Means of tracking physical activity

- UK average absence days:
  - Gym Only: 3.7
  - Device and Gym: 3.6
  - Steps Only: 3.3
  - Heart Rate: 2.1
  - No Activity: 4.6

Members tracking higher-intensity activity (such as heart rate and calories burned) had 53% fewer sick days.

Members tracking lower-intensity activity (steps) were found to have 24% fewer sick days.
Shared Value for employer

1 Cross Sectional Study (90,000 members)

2 Longitudinal study (30,000 members)

Change in absence over 1 year:
-23% Vitality age gap reduced
-18% Fruit and veg increased

Means of tracking physical activity:
- Gym only
- Device and gym
- Steps only
- Heart rate

Change in absence days:
- No activity: 8.9%
- Gym only: 15.7%
- Device and gym: 36.4%
- Steps only: 32.7%
- Heart rate: 49.0%

53% fewer sick days
24% fewer sick days
The impact of health on productivity holds true across a number of dimensions.

1. Employee lifestyle choices, health and productivity

Days productive time lost by health status

<table>
<thead>
<tr>
<th>Vitality Age gap</th>
<th>&lt; 0</th>
<th>0-2</th>
<th>2-4</th>
<th>4-6</th>
<th>6-8</th>
<th>8-10</th>
<th>10-12</th>
<th>12+</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>17</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>35</td>
<td>36</td>
<td>42</td>
<td>50</td>
</tr>
</tbody>
</table>

Employee health and lifestyle choices are a key driver of work impairment.
The impact of health on productivity holds true across a number of dimensions

1. Employee lifestyle choices, health and productivity
   - Days productive time lost by health status
   - Vitality Age gap
   - Changes in lifestyle and impact on productivity

2. Changes in lifestyle and impact on productivity
   - Change in days lost due to presenteeism related to changes in lifestyle behaviours over 1 year
   - Before: 17.4, 20.2, 20.2
   - After: 17.4, 17.4, 18.4

Employee health and lifestyle choices are a key driver of work impairment
When employees improve their lifestyle choices, their productivity improves
The impact of health on productivity holds true across a number of dimensions

1. Employee lifestyle choices, health and productivity
   - Days productive time lost by health status
     - < 0: 17
     - 0-2: 20
     - 2-4: 24
     - 4-6: 28
     - 6-8: 35
     - 8-10: 36
     - 10-12: 42
     - 12+: 50

2. Changes in lifestyle and impact on productivity
   - Obese to overweight: 23.2 → 17.4
   - Exercise into range: 20.2 → 17.4
   - Increased sleep: 20.2 → 18.4

3. Employee health and organisational productivity
   - Lost productive time (days per employee per year)
     - Bottom 20%: Least healthy employees: 29.2
     - Top 20%: Healthiest employees: 23.4

Employee health and lifestyle choices are a key driver of work impairment
When employees improve their lifestyle choices, their productivity improves
6 additional days of productive time per employee in healthier organisations
Vitality Shared-Value Insurance is being exported to the world’s leading insurers

China (2009)
Japan (2018)
The Vitality model is recognised globally for delivering social value

- Fortune’s Change the World list
- Harvard Business School
- Michael Porter
- McKinsey Quarterly
- International media
- World Economic Forum

Vitality named leading health innovator at Davos in 2017