Transforming Healthcare delivery and Health Insurance through Technology

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1. Background

Current trends and challenges in the healthcare industry

2. The Opportunities

Leveraging digital health technologies to accelerate transformation of health insurance and healthcare

3. Results

Technology has the potential to drive superior health insurance performance and improve healthcare delivery
Key relevant global health care trends

Covid has exposed the cracks in health systems across the world

- Cost inflation
- Ageing population
- Increased incidence of chronic diseases
- Accelerated adoption of high-cost technology
- Outdated private health insurance models
- Supply/workforce shortage
- Convergence of offline and online
These trends increase the relevance of the Shared Value Model in healthcare

The nature of risk is behavioural

1. Attract good risk policies through differentiated benefits
   - Health Insurers benefit from scaling

2. Health Insurers benefit from scaling
   - Better engagement >> Enables customer centricity
   - Member behaviour change >> avoid onset of disease

3. Provider behaviour change >> improved quality for the cost of care
   - Health insurers experiences better claims performance, diffusing the time bomb in claims costs; improved lapse rates; and growth in new members

4. Members benefit through improved pricing and benefit
   - Members benefit through improved pricing and benefit

5. Society benefits through more affordable healthcare and better outcomes
   - Society benefits through more affordable healthcare and better outcomes

6. Health insurers benefit from scaling
   - Health insurers benefit from scaling

7. Members benefit through improved pricing and benefit
   - Members benefit through improved pricing and benefit

8. Providers benefit through efficiency and member loyalty
   - Providers benefit through efficiency and member loyalty

9. Health Insurers
   - Health Insurers

10. Health Providers
    - Health Providers

11. Society
    - Society

ECONOMIC VALUE GENERATED

ECONOMIC SHARED VALUE

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Technology driven transformation across the health insurance value chain

**Attract**
- Attract a disproportionate share of young and healthy lives

**Select and Price**
- Use rich datasets to underwrite risk accurately and price appropriately, and leverage D2C capabilities for sales

**Change Member Behavior**
- Incentivise members to increase their healthy behaviour through Vitality programs

**Change Provider Behavior**
- Reduce claims costs through procurement and network design, and align quality outcomes through value-based care payment arrangements

**Retain**
- Structure incentives and member engagement to drive selective retention of young and healthy lives

**INCREASED NEW BUSINESS | IMPROVED OPERATIONAL EFFICIENCY | MEDICAL COST OPTIMISATION**
Vitality | A behaviour change and engagement platform with curated programs, rewards & partners integrated with other health technology to deliver a comprehensive health and wellbeing ecosystem
A well-designed behaviour change platform is effective at attracting and retaining a good risk pool and can facilitate effective pricing & underwriting through accurate prediction of customer behaviour.

Data rich, AI based underwriting

Sophisticated machine learning algorithms such as deep learning neural nets that combine complex interactions for accurate predictions.

Amplify Health confidential and proprietary information. Not for Distribution.
Accurate prediction of customer behaviour allows granular assessment of profitability of new business

Efficient frontiers, based on different rating structures, give us more optimal choices around driving more volume and/or value

£m new business premium

£m year 1-5 contribution profit

Increasing rates but writing less premium at higher profit

Reducing rates but writing more premium at lower profit

Customer claims  
Vitality engagement  
Product demand  
Customer profitability

APPLY ALGORITHMS
Behaviour change platform can also significantly impact claims ratios through positive change in member behaviour.
Impact of Vitality in Health Insurance

Risk claims by Vitality engagement for leading chronic diseases

Heart disease

-51%

Diabetes

-43%

Lung disease

-50%

Healthcare utilisation by Vitality engagement

Lower admission rates

Not registered

-10%

Shorter hospitals stays

Not registered

-25%

Lower healthcare costs

Not registered

-14%
Recent COVID-19 data demonstrates the power of behaviour change

Impact of risk factors on COVID-19 mortality

- **45-year-old unengaged male**
  - No chronic conditions: 1.0
  - Hypertension: 1.6
  - Hypertension and diabetes: 2.0

- **65-year-old male**
  - No chronic conditions: 2.5
  - Hypertension: 0.9
  - Hypertension and diabetes: 1.0

**Exercise** significantly reduces the risk compared to **No exercise**.
Machine Learning models to predict future risk of chronic conditions - Diabetes cases and progression

Evaluation of model predictive performance

- Model over-predicts (lot of False Positives)
  - Expensive to intervene in so many cases
  - But, picks up more actual cases (high recall)
- Model under-predicts (few False Positives), but those it predicts are more likely to be True
  - Ensures intervention resources not wasted
  - But, leaves more actual cases unidentified (low recall)
High risk members then enrolled in personalised journeys

Qualifying members have access to the relevant condition support management programme through a simple, verified 3 step enrolment process through their Vitality programme.

1. Visit your Doctor
2. Complete a HbA1c test
3. Upload doctor completed enrolment form

Diabetes

Unlock relevant condition management journeys
Results | **DiabetesCare programme** integrated with Vitality has improved engagement

Enrollment unlocks additional risk benefits

Access to high quality coordinated care

**% diabetics who have had an HbA1c test**

- DiabetesCare: +30%
- Non-DiabetesCare: -1%

**% diabetics with medication compliance**

- DiabetesCare: +14%
- Non-DiabetesCare: +1%
Members have access to connected care at home, enabling on-demand healthcare delivery at home.

**Detailed medical examinations and advanced virtual consultations**

**24/7 doctor support**
*Discovery TytoCare Dr Network*

**End-to-end digital experience**
*Including e-scripting, same-day medicine delivery and automatic EHR updates*
Technologies to impact provider behaviour | Value Based Care
Technologies to impact provider behaviour | Value Based Care
Using rich datasets, health professional outliers can be identified and governed appropriately

Profiling doctor driven hospital utilisation

Hospitals

Profiling physician usage of investigations
DIGITAL HEALTH PLATFORM | Provides fully integrated solution for providers to guide care and keep them engaged

- Attact
- Select and Price
- Change Member Behavior
- Change Provider Behavior
- Retain

Virtual Care
- Care team app and web portal

Integrated Patient Management
- Member companion app and web portal

Coaching
- EHR & EMR
A Vitality Active Rewards program for Doctors has been initiated in South Africa to drive engagement and performance improvement.

**Positive impact on Doctors**

Doctor engagement increased from **15.5% - 19%**

- **23%** Increase in frequency of exercise
- Proportion high intensity exercise increase from **7% - 13%**
- Exercise days per month increase by **23%**

**Healthier Doctors have Healthier Patients**

The Cue
View Monday’s recommendations

The Routine
Select a weekly goal

The Reward
Spin the wheel

Log completion

Download recommended app if applicable

Perform activity

**Discovery rewards doctors for going the extra mile.**

We understand that your busy lifestyle may leave you with little time to engage in structured wellness activities, so we have found a way for you to get rewarded for the Extra Mile you put in work rounds and calls as well as your Healthy activities.

Discovery cares about the health of doctors and invites all doctors with a valid DAHA DBHI number to join Vitality Active Rewards for Doctors (VARD) free of charge and edge Discovery Miles for going the Extra Mile.

**To get started:**

- **Step 1:** Scan QR code, follow link and fill in your details.
- **Step 2:** Await the confirmatory email from Discovery VARD team.
- **Step 3:** Download the Discovery App.
- **Step 4:** Get active – reach goals and earn miles.
- **Step 5:** Get rewarded – play the gameboard and spend or accumulate miles.
- **Step 6:** Compete for a spot on the leaderboard and enjoy boosted rewards.
Amplify Health’s Value Chain integrates technology to create high performance health insurance businesses and transform healthcare delivery.
AI tools can be used for value-based renewal pricing to conserve good risk

1. Statistical projection of claims using blend of portfolio claims and own experience
2. Add allowance for expenses, commission and profit
3. Fit into required shape of renewal increases

Every SME policy undergoes a projection of claims at renewal using a sophisticated statistical algorithm. For SME, this is the same as that used directly in pricing.

The policy value is calculated over the next two years (i.e. premium – claims – commission – vitality costs). Based on this value, a PRAG category is assigned.

The value is used to determine discount availability and retention prioritisation.

**Value (“PRAG”)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple</td>
<td>High value policies</td>
</tr>
<tr>
<td>Green</td>
<td>Medium value policies</td>
</tr>
<tr>
<td>Amber</td>
<td>Low value policies</td>
</tr>
<tr>
<td>Red</td>
<td>Negative value policies</td>
</tr>
</tbody>
</table>

Statistical projection of claims using blend of portfolio claims and own experience

Add allowance for expenses, commission and profit

Fit into required shape of renewal increases

Portfolio claims experience

Scheme's own claims experience

0% to 100% Weighting

Low Group size Duration Stability High
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Impact | Superior health insurance performance - UK

NEW BUSINESS | IMPROVED OPERATIONAL EFFICIENCY

ATTRACTION
Positive selection
Vitality customers against UK census data

SELECT & PRICE
Behaviour change
Physical activity after VARAW benefit take up for high-risk members (BMI>30)

CHANGE MEMBER BEHAVIOUR
Healthcare costs
Healthcare cost by Vitality engagement

CHANGE PROVIDER BEHAVIOUR
Selective lapses
12 month rolling lapse rates

RETAINT

Positive selection
Healthcare costs
Selective lapses

3rd Largest health insurer in UK
56% Loss ratio

Health insurance

Vitality

Expected
Most engaged

Sick
Healthy prevalence
Healthy

Activity days

2 prior
0 Months after taking benefit
6 + after

Neoplastic
Mental health
Cardiovascular
Respiratory

Least engaged
Most engaged

-45%

>2x Healthy prevalence
+169% Increase in physical activity

Superior health insurance performance - UK
These technologies have enabled significant and sustained improvements in health insurance performance.

**Impact on health insurance claims**
- Potential Risk Claims: R47.8bn
- Risk Management Savings: R5.9bn (12.2%)
- Vitality Impact: R1.6bn (3.4%)
- Actual Risk Claims: R40.3bn

15.6% effective reduction in health insurance risk claims

**Impact on operational costs**
- Reduction in Operating cost PMPM: 7%

**Impact on health insurance Loss ratio (%) over time**
- Absolute reduction in health insurance Loss Ratio: 12.9%

These technologies have enabled significant and sustained improvements in health insurance performance.
Thank you