Implementing AI for Life and Health Insurers

A Case Study on digital intervention

July 2018

Building a better working world

Agenda

Section

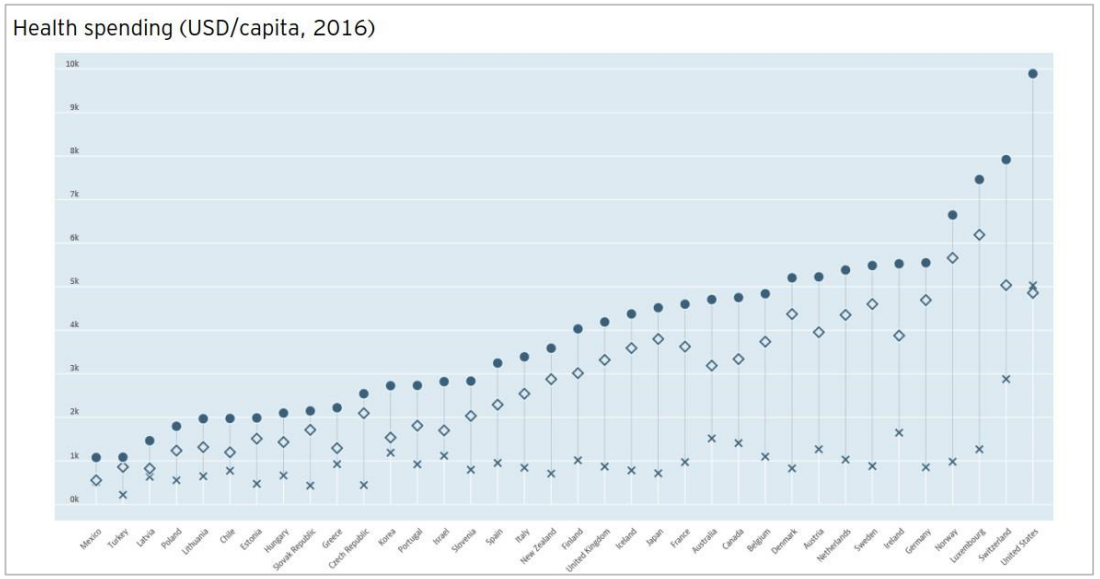
1. Problem
2. Opportunity
3. Proposition
4. Potential Solutions

Do you know…

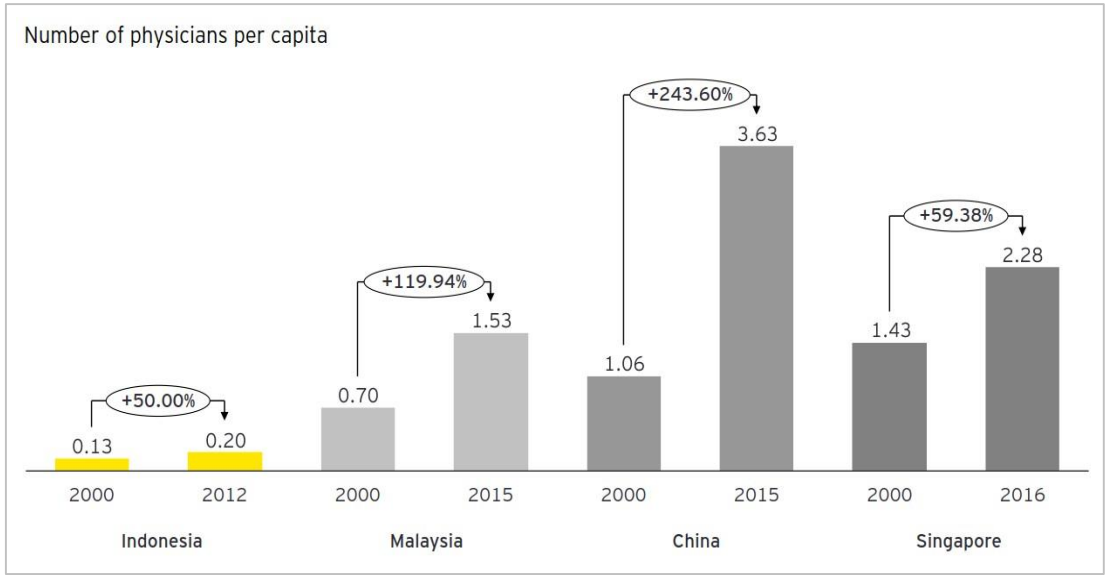
An increasingly health-conscious population and increasing life expectancy is changing health insurance risk factors:

- Healthier lifestyles (e.g. less smoking, less alcohol consumption), but growing obesity rates and emerging environmental health risks;
- Growing chronic disease prevalence as a result of longer life expectancy

Health expenditure has been growing in the past decade: up 15.3% annually from 1996 to 2016



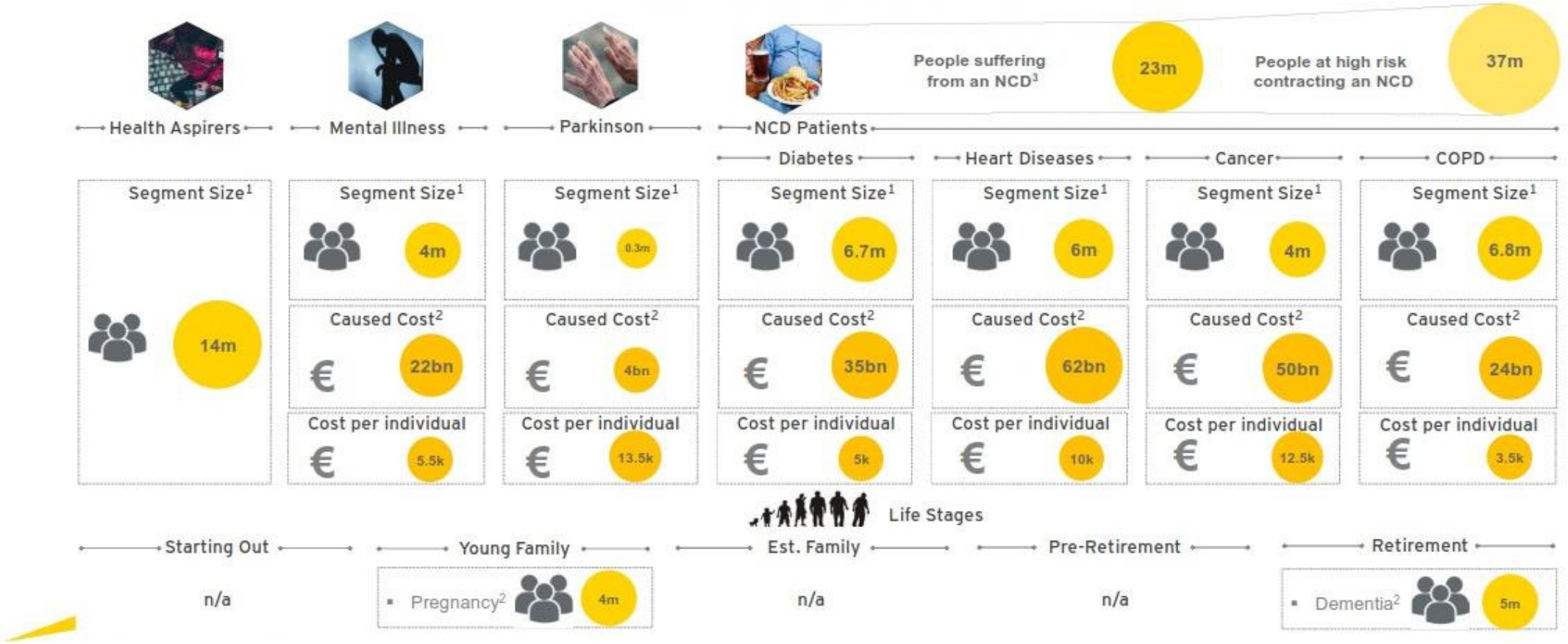
Access to healthcare has significantly improved, but still lags behind standards in certain countries



Source: OECD, Word Blank, EY Analysis

Which markets and segments to focus on?

EY is gathering insights across many key markets - moreover, our actuaries are working to quantify the flow through risk-prevention opportunity and link to key insurance profitability ratios



Various Solutions in the Market

Vitality – science-backed health rewards program

The **science-backed wellness program**, AIA Vitality, offers comprehensive rewards to its members to incentivize healthy behaviors.

Members accumulate AIA Vitality Points to enjoy various rewards and premium discounts. The whole program is backed by a mobile app which acts as an innovative customer engagement tool that gives AIA more direct control of the customer relationship.

MOVE – customer rewards program around wearables

Pay-as-you-live (PAYL) involves the insured providing ongoing data to the insurer about their lifestyle through existing and new data sources (e.g. wearable technology) and the insurer encouraging customers to live a healthier lifestyle.

Xtra – AI driven wellness and coaching app

Xtra by AXA is an **AI driven personal wellness and coaching app** that is offered to AXA health insurance members in Hong Kong. It is imbued with an “intelligent” personal assistant-bot that helps monitor daily activity, manage weight and even provide some healthy dish recipes.

This effort from AXA demonstrates the increasingly automated nature of consumer engagement within the insurance industry.

Various Solutions in the Market

Good Doctor - online healthcare platform

Ping An has built a **data-enabled healthcare ecosystem**, which covers over 30 provinces in China with in-house and external physicians.

The Good Doctor mobile app provides 24-hour one-on-one consultation with specialists and doctors.

PING AN

ONEdna - genetic health test

DNA testing is being added to policies to enhance customer value proposition. Moving forward, it can enable personalized product development.

ONEdna is an exclusive DNA screening test service launched by Prenetics in partnership with HSBC. The results may give insights into health risk, diet & nutrition, drug response and inherited cancer screen.

HSBC

AIA Wedoctor - healthcare tie-up

AIA has established a long-term strategic partnership with WeDoctor, China's leading **technology-enabled healthcare solutions** platform.

AIA's customers will gain preferred access to WeDoctor's healthcare services including appointment, online consultation, offline clinics and network across China. WeDoctor's registered customers will be able to access AIA's market-leading protection solutions, helping to reduce the protection gap.

AIA

微医集团
WE DOCTOR GROUP

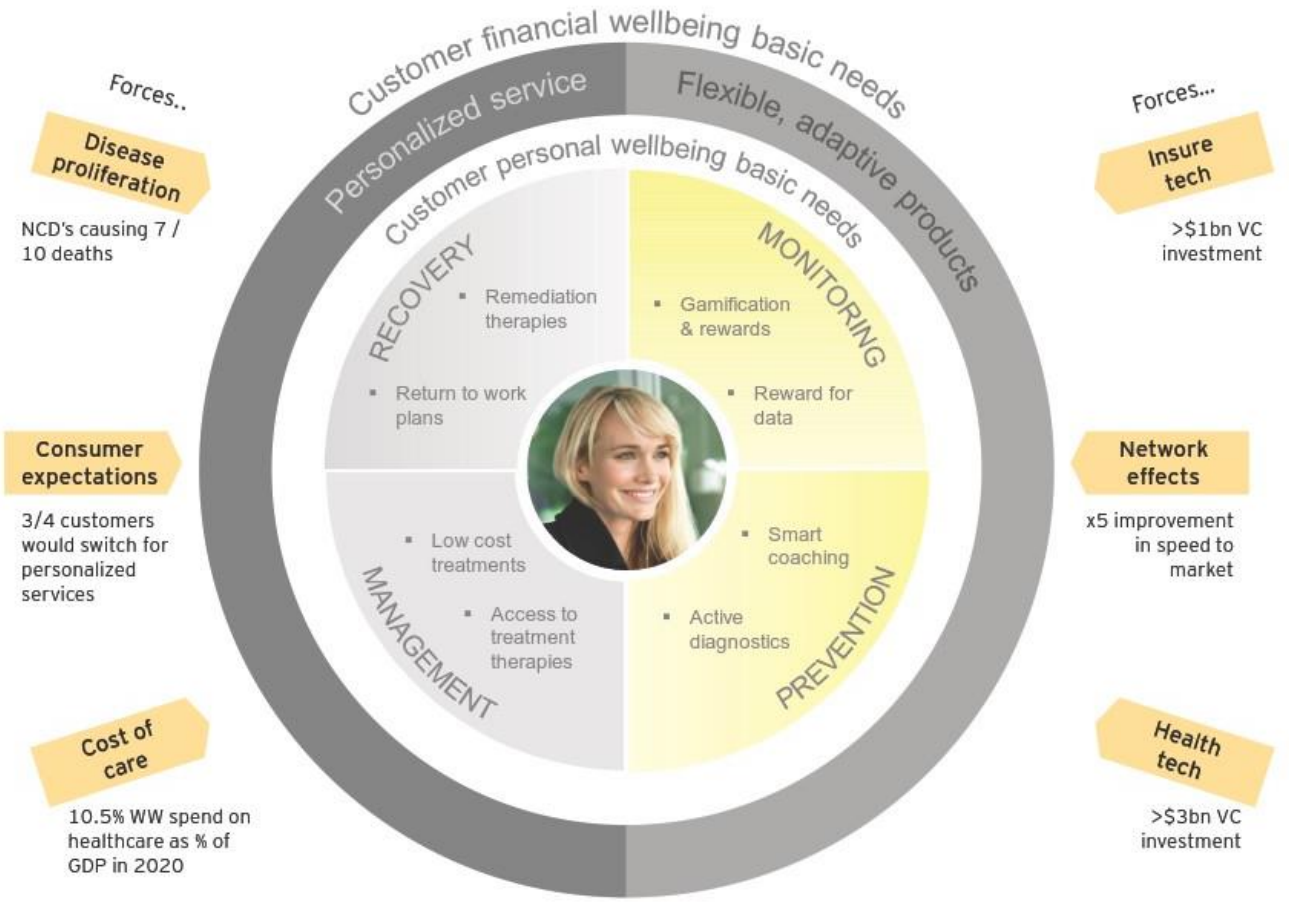
EY

The Problem – Consumers want a solution tailored to their needs

Health & Wellbeing

The problem

When it comes to **health & wellbeing**, there is an absence of **purposeful solutions** that truly **engage** users, drive the **right behaviors**, deliver consequential **health outcomes**



Can **purposeful solutions** and early **intervention deliver** bottom line **benefit to a Life or Health insurer**?

The Problem – Insurers need to stop acting like insurers

Insurers face unprecedented market pressure, as well as internal tension that is constraining innovation – by addressing these imperatives pragmatically the insurer can be better positioned to break through these constraints, deliver quick value and scale new solutions to market

DON'T WAIT

GET AGILE

LEVERAGE NETWORK EFFECT

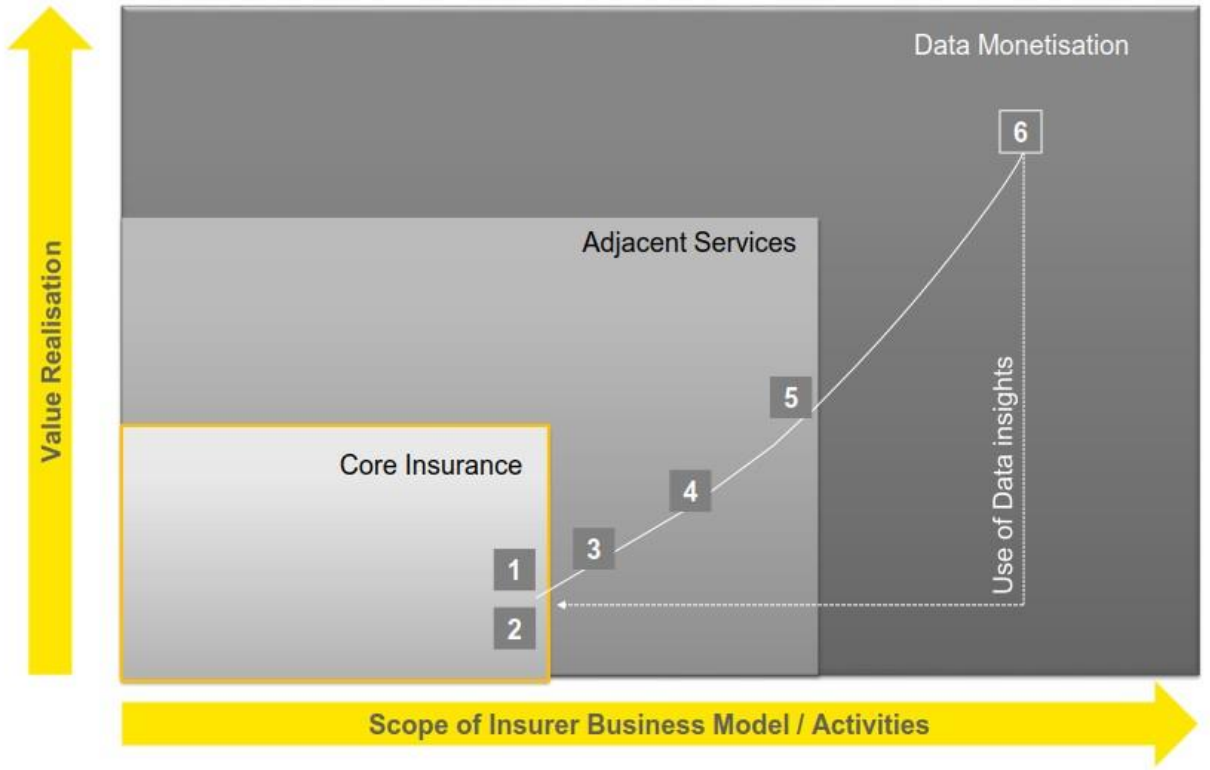
GATHER REAL WORLD EVIDENCE

CONSULT REGULATORS

The Opportunity – Getting this right will lead to long-term value

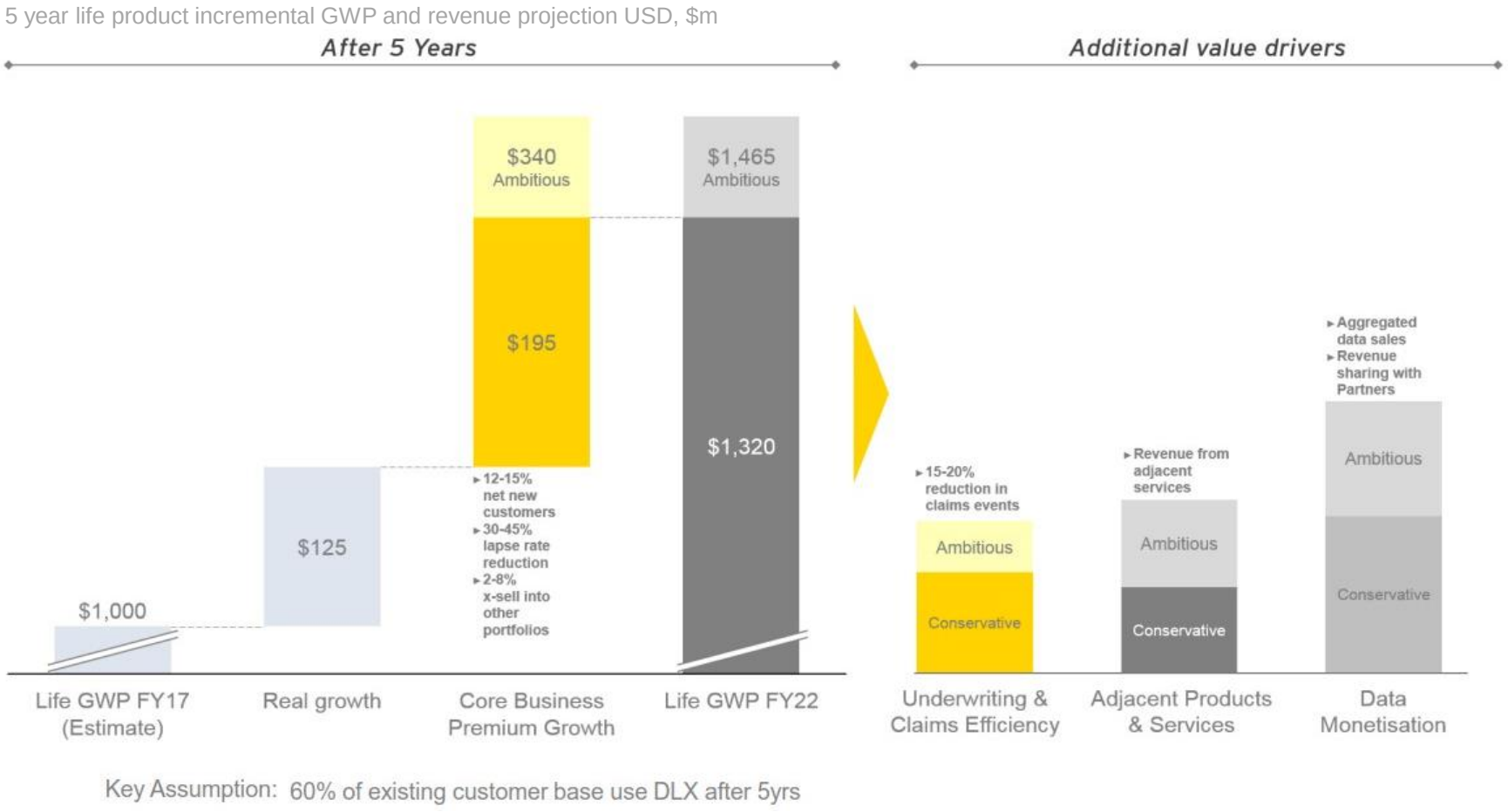
A digital platform business model provides primary focus on core insurance business revenue uplift but provides options to access alternative new revenues streams later.

1. Premium Growth
2. Distribution cost
3. Underwriting & Claims Efficiency
4. Adjacent Products / Services
5. Data Monetization



The Opportunity – Projected value creation from a US insurer

1. **Significant profitability increase** from retention improvement
2. **Distribution cost** potential reduction from new direct sales/service channel option. E.g. 10-20%
3. **Underwriting and claim efficiency** due to additional data and improved health outcome
4. **Long term data monetization** benefits due to extensive data can be generated through platform



The Opportunity – But its not just about the insurer

A focused approach that segments consumers by their needs and behaviours is required to be successful

HEALTH ASPIRERS

Always eager to become healthier and more active.
Keen to monitor their health status and ways to continually improve.

REWARD JUNKIES

Always looking for opportunities to save money, get special deals and rewards.
Exercise regularly and motivated to earn points for it.

ENTERTAINMENT SEEKER

Always seeking for entertainment and ways to have fun. Glued to their smartphones…

ENDANGERED SPECIES

They know there are some lifestyle changes they need to make. This might be self-realized or in response to disease diagnosis or recovery.

The Proposition

DIGITAL LIFE EXPERIENCE

- Next-generation, digital insurance solution
- Behavioural engagement to drive improved health & wellbeing
- A platform for effective customer lifecycle management

CONSUMER ENGAGEMENT

- Loyalty & engagement driven by fun, important and lasting rewards
- Gamified experience & immersive interface
- Ecosystem partner gateway for solutions, services & rewards

=

PORTFOLIO PERFORMANCE

- Acquisition (differentiation)
- Retention (engagement)
- Profitability (health outcomes)

An example solution – DLX

TRACK YOUR ACTIVITIES

Track your daily activities and increase your health score

ACHIEVE GOALS

Set goals, achieve results and view upcoming milestones

GET REWARDED

Use coins to redeem attractive rewards from our reward partners

BE PART OF A COMMUNITY

See how your friends are doing and compare your health score

CHALLENGE YOUR FRIENDS

Challenge yourself or challenge your friends to earn coins

MANAGE YOUR RISK

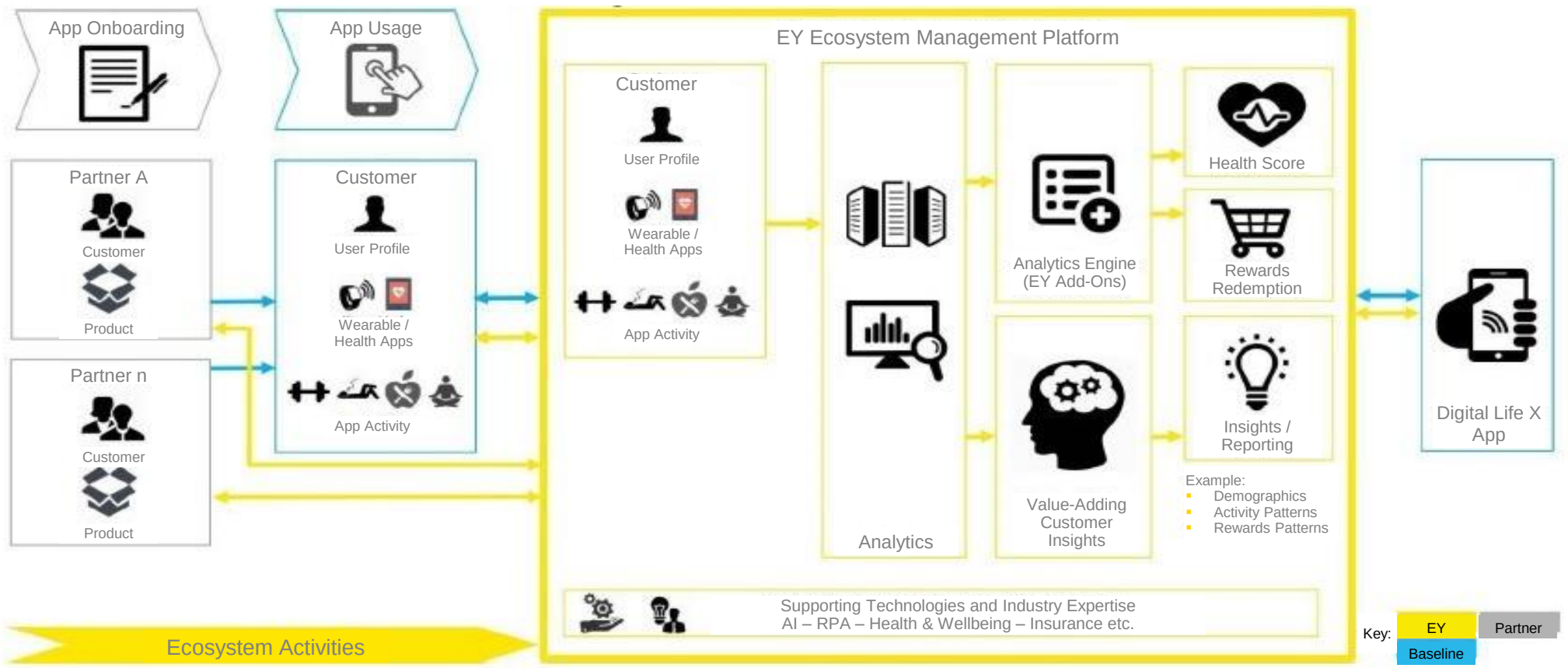
Get assistance from your insurer when you need help

What does DLX do?

The platform is designed to act as a turn-key solution for rapid market deployment with clear pathways integration into insurers systems to scale

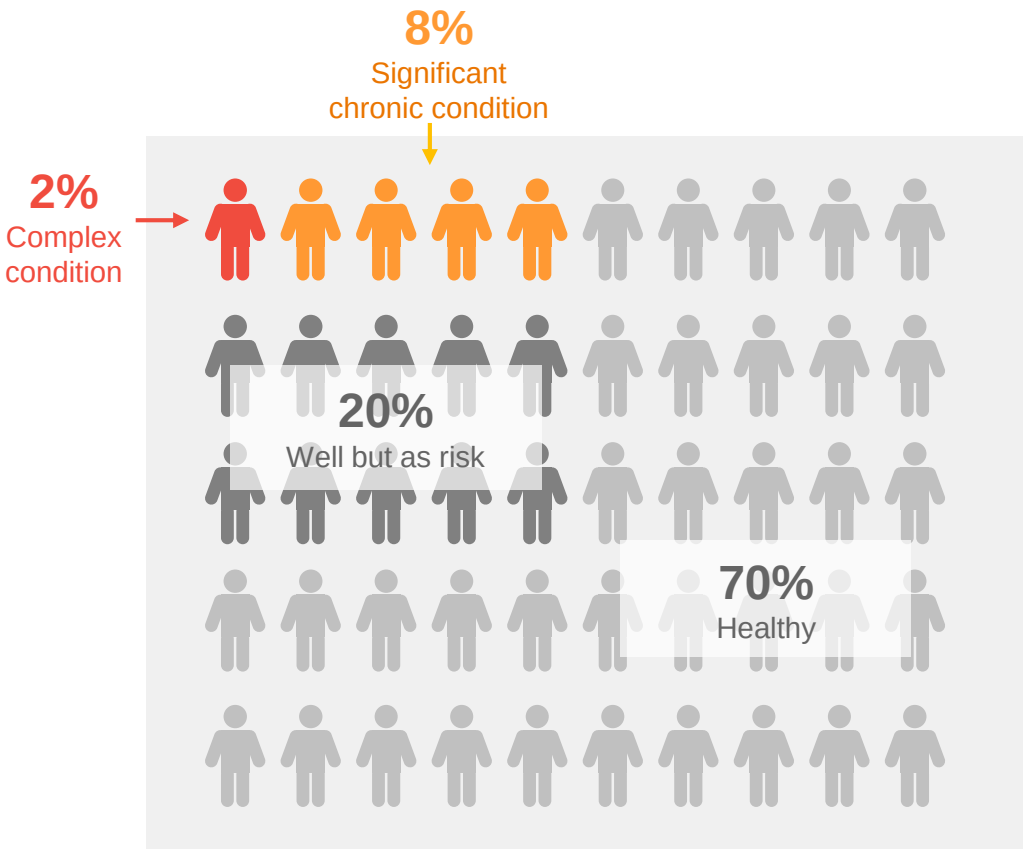
How does it work?

An ecosystem management platform to identify customer events and value-adding interventions (i.e. the next-generation of ‘next best offer’ services)



Analytics is the key driver behind the opportunity

Major areas of interest …



Complex condition
21% of claims

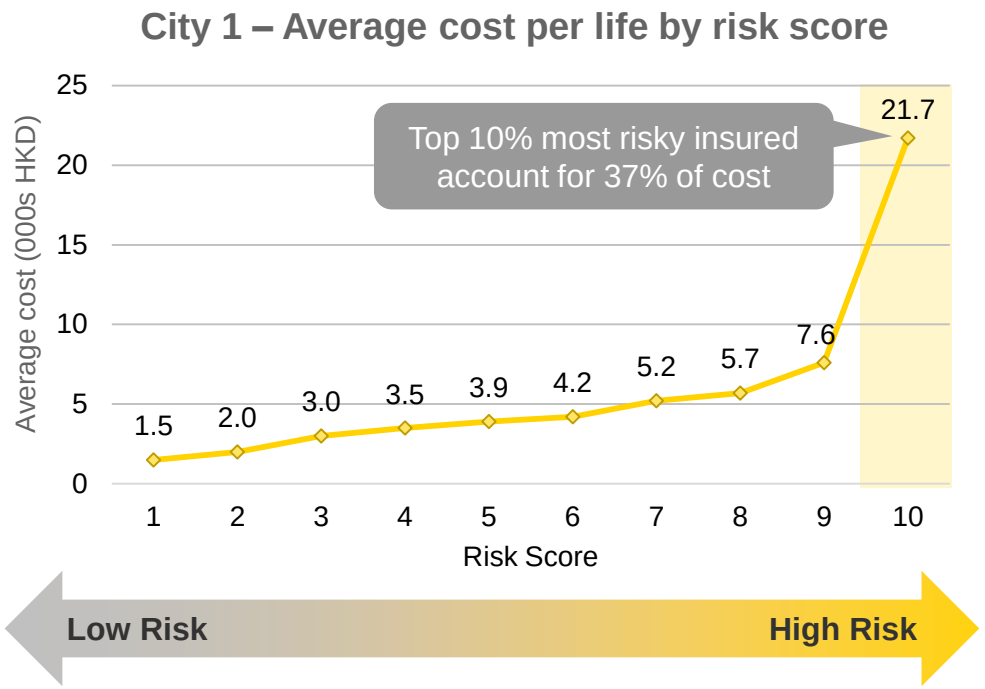
Significant chronic condition
27% of claims

Healthy & Well but at risk
52% of claims

1. **PREDICT** who will be in each segment
2. Help reduce the cost of the most expensive patients:
   By reducing errors, more effective diagnoses, precision medicine
3. Help manage the chronic and ongoing patients:
   Better regular advice, improved pathways and monitoring
4. Keep the healthy healthy:
   Low cost mechanisms to provide better healthcare advice in a non-clinical setting;
   Personalized advice on wellness (incentive design)

Example of modelling approach

Annual risk cost prediction



Expected Claim Cost Model

Traditional		
Age	41	39
Gender	Female	Female
Yr 1 Claim Cost	RMB 2994	RMB 2908
Clinical		
2016 Diagnostic Label	Diabetes	Diabetes and Level 1 Hypertension
Insulin Treatments	15	0
Months with Insulin	10 / 12	0 / 12
Model		
Yr 2 Claim Cost	RMB 2708 (-10%)	RMB 6080 (+110%)
Yr 2 Predictions	RMB 3173 (+5%)	RMB 6264 (+115%)

Simplify the method of individual health risk prediction

Mobile Data + Healthy Survey

1 User Information

- ❑ Age
- ❑ Gender
- ❑ Waist
- ❑ Weight
- ❑ Height

2 Wearable Data

- ❑ Physical Activity
- ❑ Step

3 Health Risk Assessment (HRA)

- ❑ Smoking
- ❑ Alcohol intake
- ❑ Stress
- ❑ Hypertension

Individual risk scores combine into overall risk score

	Convert to score out of 100
Arthritis & Back Pain	56 / 100
Cardiovascular Disease	55 / 100
Lung Disease	30 / 100
Type II Diabetes	50 / 100
Mental Health	59 / 100

Overall Risk Score **57.7**

High Risk: 0

Low Risk: 100

Iterative development of our Health Score calculation

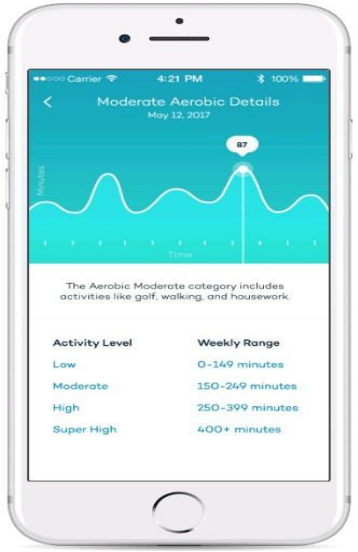
Jun 2017 – Nov 201

MVP / v1.0

Physical Activity

Data Type
- Aerobic exercise occurrence and duration
- Muscle training occurrence and duration

Calculation Method (‘Calculate score based on…’)
- Intensity of exercise
- Frequency of exercise
- Weekly/Monthly exercise duration and consistency



Nov 2017 Onwards

v1.1

Sleep

Data Type
- Sleep time, duration
- Movement during sleep

Calculation Method
- Efficiency %
- REM cycle
- Daily/weekly/monthly trend and consistency

Heart Rate

Data Type
- Maximum heart rate
- Resting heart rate

Calculation Method
- MHR/RHR compared to BMI/age
- Duration in target HR zone per day/week/month for training

Work

Data Type
- Type of work
- Total hours
- Hours sitting
- Environmental condition

Calculation Method

v1.2

Nutrition

Data Type
- Food/drink type and quantity
- Alcohol intake
- Tobacco use

Calculation Method
- Calorie count
- Nutrition count (protein, carbs, fat, etc.) compared to DV
- Comparison to amount of physical activity/calories burned

Physique

Data Type
- Age
- Weight
- Height
- Body fat % using bioelectrical impedance
- Water composition %
- Familial diseases
- BVI Pro (3D app measuring abdominal fat)

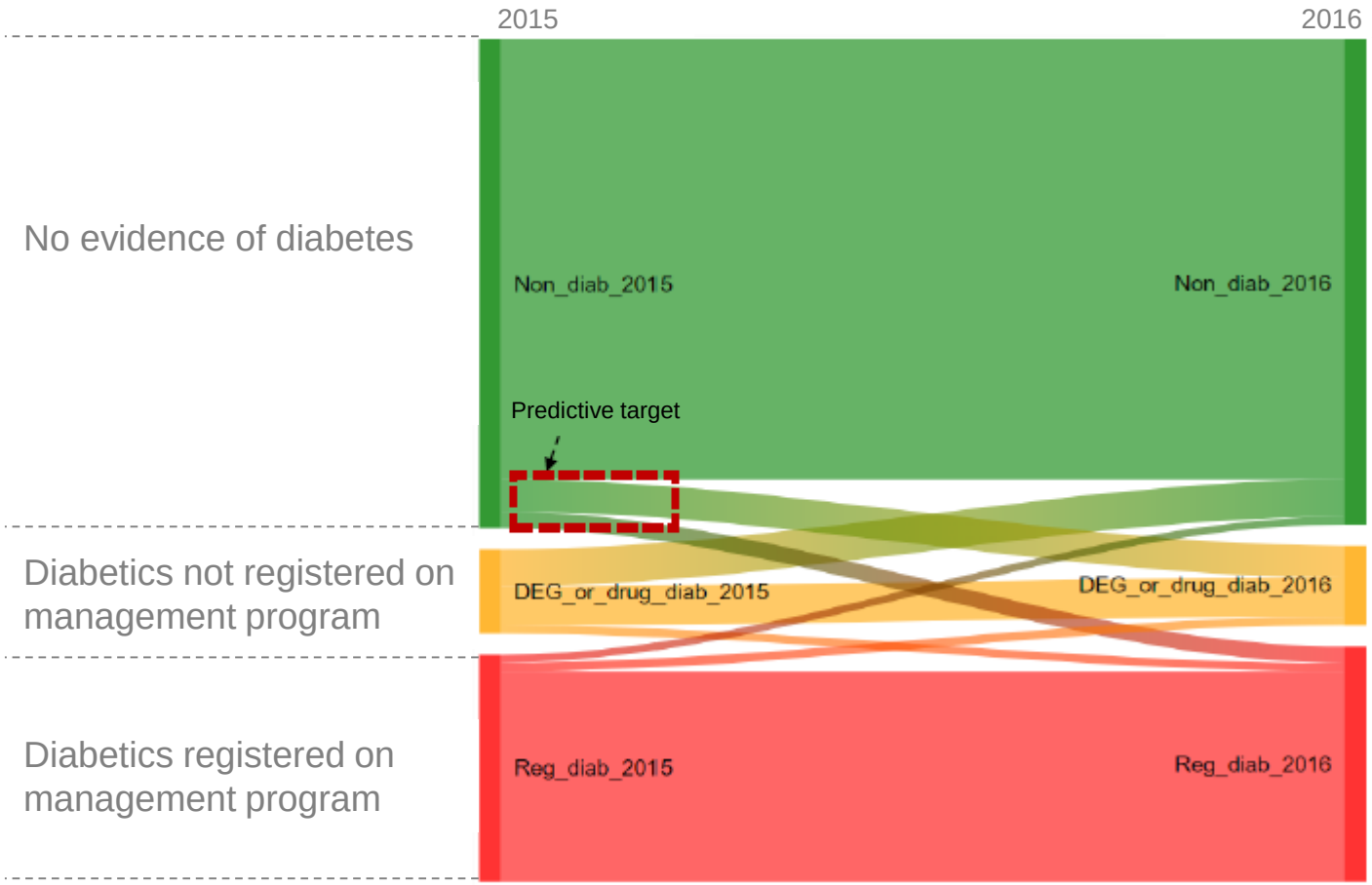
Calculation Method
- Trend over time for all data points
- BVI trend over time

Mindfulness / Mental Health

Data Type
- Categorical

Calculation Method
- AHP

Identify patient population for targeted intervention

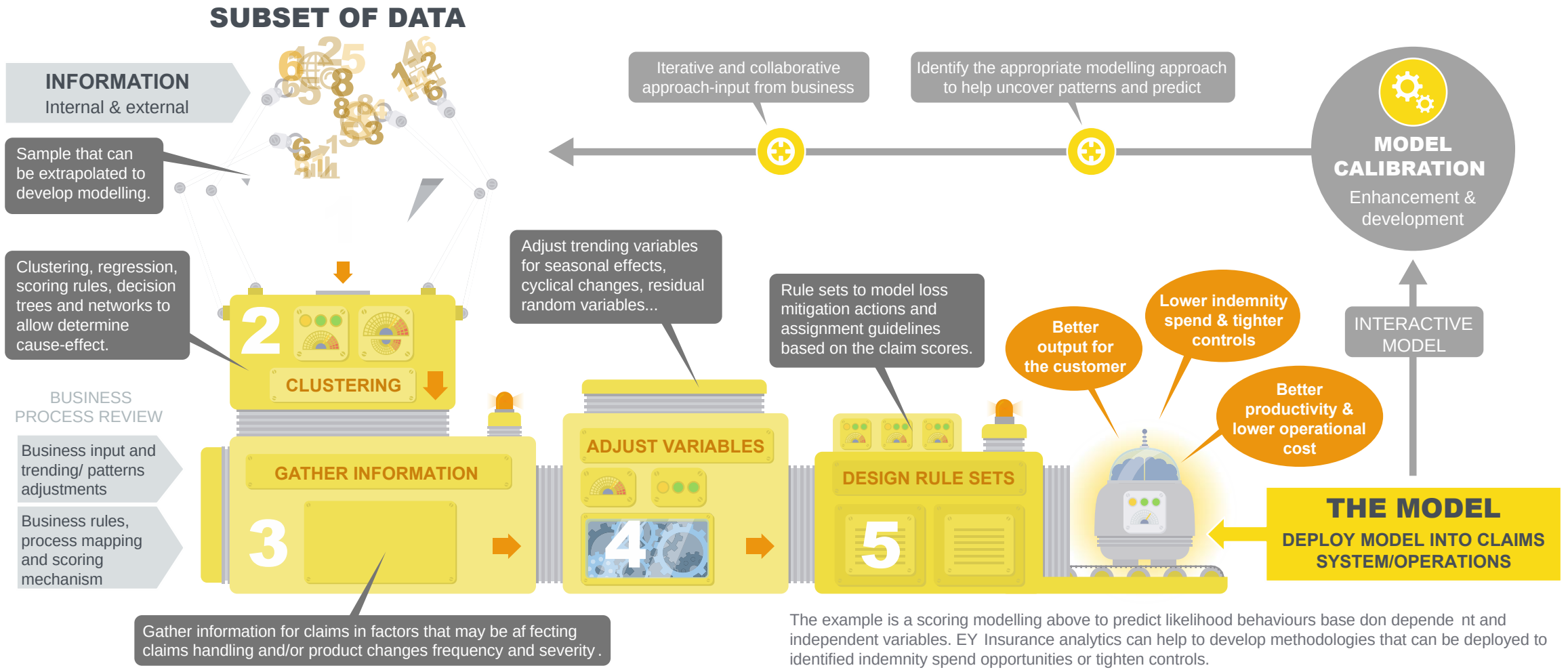


Predictively identify the patient population

Targeted intervention to restrain claim cost inflation

Ensures intervention resources not wasted

How to predict “next best action” for improvement



The example is a scoring modelling above to predict likelihood behaviours base don depende nt and independent variables. EY Insurance analytics can help to develop methodologies that can be deployed to identified indemnity spend opportunities or tighten controls.

Thank you

for your attention

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