

# 9<sup>th</sup> Webinar on Data Science and Analytics

**Topic: Data Science and Digitization Fuelling Healthy Living  
and Business outcomes for Health Insurance Companies**

23rd October 2021, Saturday  
03:00 PM to 05:00 PM (India Time)

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# Agenda

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**Trends in Healthcare and Health Insurance - Key Drivers for Growth**

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**Data leveraged in the Ecosystem**

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**Application of Predictive modeling**

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**Evolving Digital Ecosystem, Data and New Digital Tools - Mission Critical**

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**New Emerging Health Insurance Models**

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**Case Studies**

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# Increase in scope of healthcare services, and an inset of high digital enablement



## Trends in healthcare

- 1 Insurance share in hospital revenues increased from 27% to ~40% since 2 years
- 2 Focus on preventive and post hospitalization care
- 3 Increasing acceptance of home and virtual care due to the pandemic
- 4 NDHM led digitization of patient health records
- 5 Micro-segmentation based on lab tests, diseases, etc to design packages, patient CRM
- 6 High focus on “specialty” lines (mother-child, cancer, transplants) & “value” segment
- 7 Emergence of new models like Pristyn which focuses on aggregation of capacity & reducing patient discharge time

## What it means for industry participants

Need for evolved coverages (OPD, specialty lines, home & virtual care, etc)

High opportunity in VAS incl. wellness and disease & care management

Availability of digital data for analytics led product innovations, improved underwriting & claims

Demand for digital, integrated eco-system for sales, servicing and claims

# Indian Health insurance market



## Key growth drivers for Health Insurance

A

**Increased Awareness** and growing perceptions of insurance needs

B

**High out of pocket expenditure** of more than 65%

C

**Increase in preventive healthcare** due to rise in lifestyle based ailments coupled with rising income levels

D

**Technology usage with** Insurers launching mobile apps & internet based services

E

**Government reforms** across product and distribution along with tax incentives of ~15-25K and launch of health insurance schemes at lower cost

## Impact of COVID-19 observed across industry players

### Pricing and product trends



- ▶ 10-15% increase in ATS for retail and group policies due to increase in protection coverage
- ▶ Increase in GHI premiums due to increased uptake of group health covers by employers
- ▶ Health insurers are governed by a standardized cost structure for COVID-19 treatment
- ▶ COVID specific product issued by all insurers as mandated by IRDAI
- ▶ Design of product to increase coverage of health insurance
- ▶ Rising awareness amongst population due to COVID pandemic

### Rising health claims



- ▶ Health claims due to COVID-19 have tripled to ~INR 562Cr in less than a month as on July '20
- ▶ Average claim amount increased from INR 1.56 lakh in June to INR 1.64 lakh in July
- ▶ Lower pay-outs by insurers since average settlement reduced from INR 90k to INR 80k in the same period

# Structured as well as unstructured data being leveraged for predictive analytics



Structured data



Semi-structured data

(e.g. home monitoring, wearables)



Unstructured data

(e.g. transcribed patient notes, videos, images)



Analysis of all data using modern day technologies for meaningful insights



Data on hospital admissions, hospital discharges and condition-specific health indicators for predicting spike/fall in admissions



Forecast of condition-specific health care needs. Google's DeepMind ML algorithms in partnership with University College London Hospital detect differences between healthy and cancerous tissues

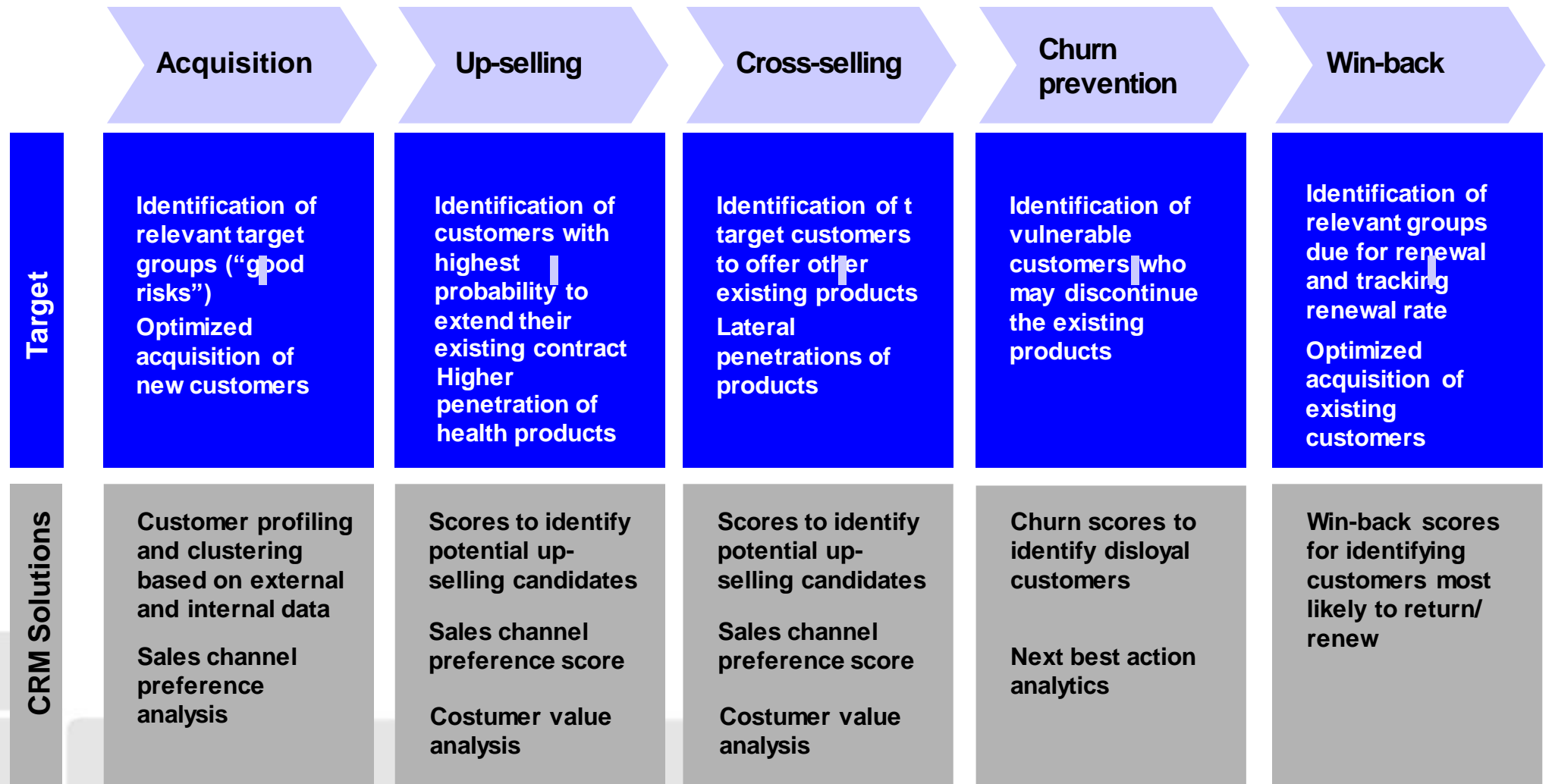


Use of IoT to keep track of patients after discharge. Trigr Health can collect and measure users' screen engagement, texting habits, phone logs, sleeping patterns and location



Parkland Health & Hospital System used predictive analysis to identify patients at high risk of readmission (decline in readmissions among congestive heart failure patients saved the hospital an estimated \$500,000)

# In health insurance too, data analytics provides business insights across the customer lifecycle, thereby enhancing the CRM capabilities



# Churn prevention - optimized by constructing score groups based on internal and external data information

Churn-index is derived from score groups

## Internal Data

- Insurance product
- Rate
- Gender

## External Data

- Socio-Demographic
- Income status
- Family status

## Score groups

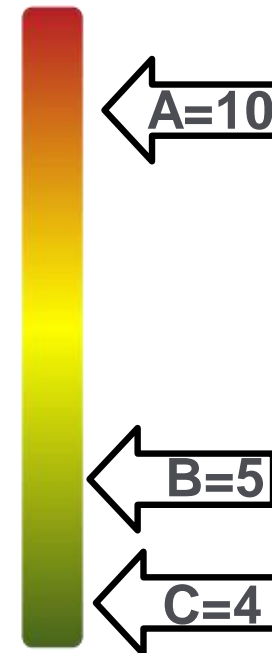
- B**
- Male
  - Single
  - Income > 3000
  - Product ABC

- C**
- Married
  - 2 children
  - Age 30-50
  - Client since 10 years

- A**
- Laborer
  - Married
  - No Children

PM

## Churn index



- Churn index reflects the probability that the customer will stop doing business with the company
- Pool A indicates a higher churn score, which matches with the input parameters
- Pool B and C depict lower churn score, which means the chances of lapse is low.
- Analysing internal and external data will allow the insurer to analyse churn index and avoid higher churn rates

# PM-based pricing yields a stronger differentiation of the risk structure to optimize premium calculation

## PM-based pricing

Existing portfolio



e.g. based on age, gender, profession, marital status and region

e.g. only based on age and gender

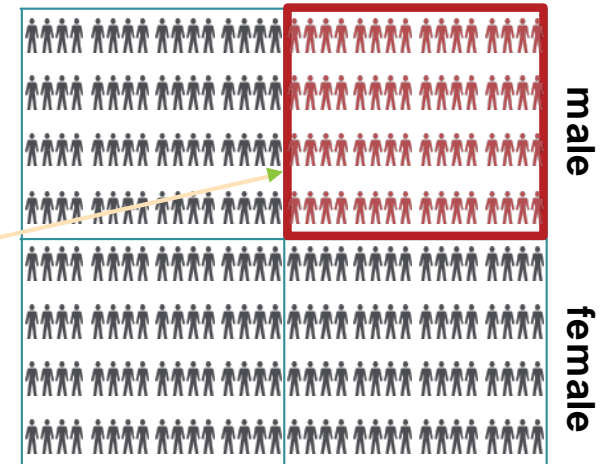
New applicant

- 55 years
- Male
- Teacher
- Married

High degree of individual risk adjustment attracts good risk and increases lapse of bad risk.

## Classical pricing

young old



Low degree of individual risk adjustment attracts bad risk and increases lapse of good risk.



## Poll Question



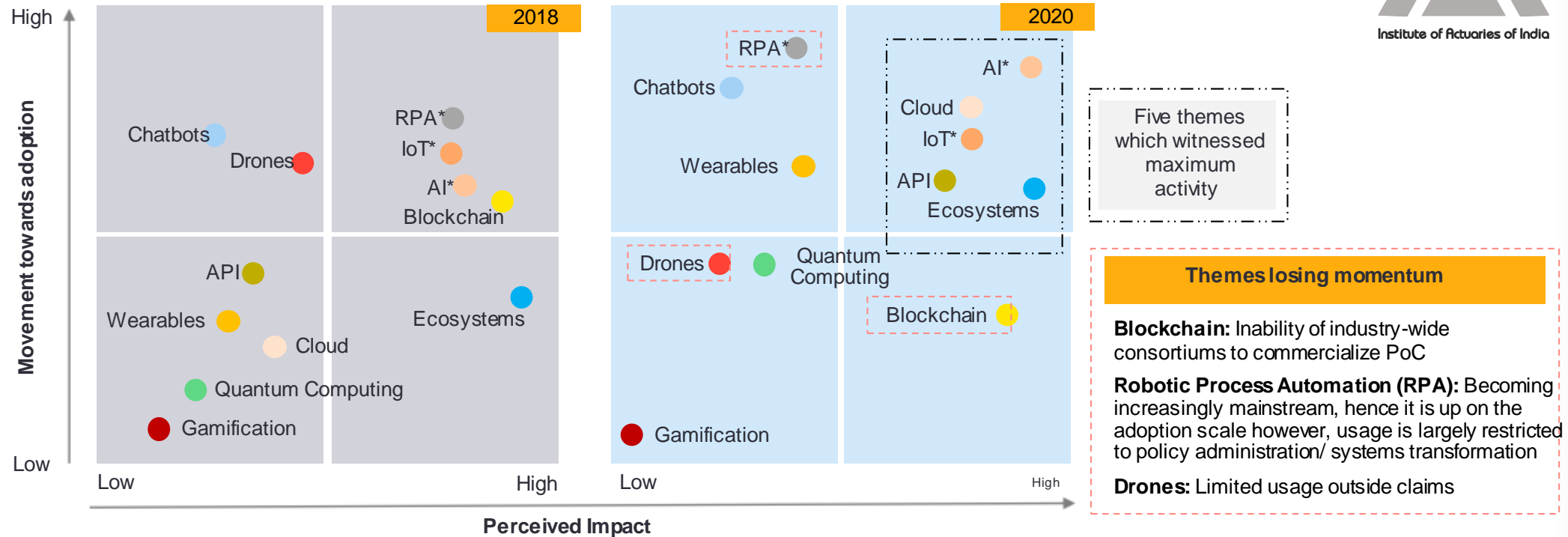
**House agrees that Churn index could drive outcomes?**

Yes

No

# Artificial intelligence, internet of things, and ecosystems continue to witness strong traction

## Innovations Priority Matrix – 2018 vs. 2020



Five themes which witnessed maximum activity

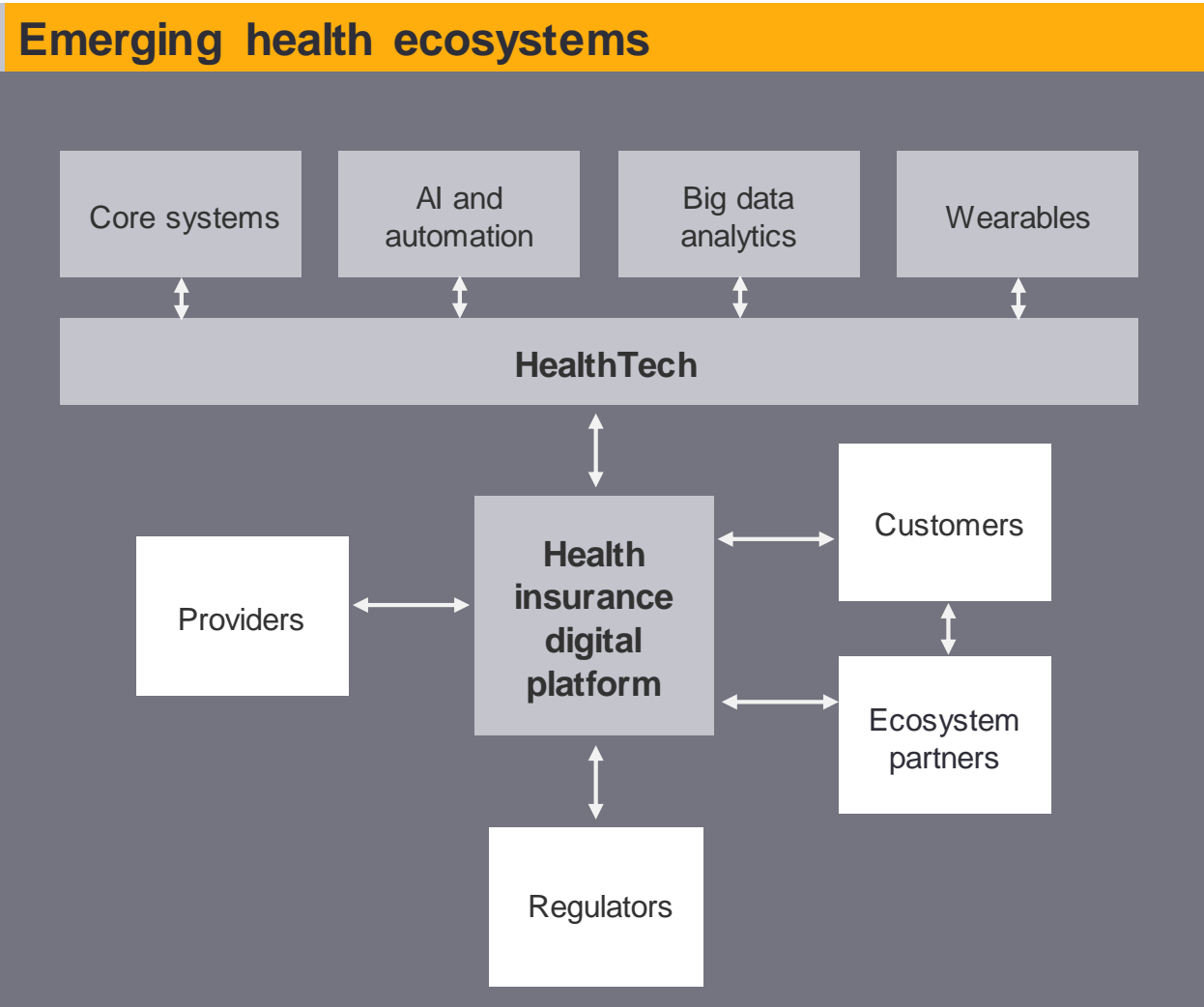
### Themes losing momentum

- Blockchain:** Inability of industry-wide consortiums to commercialize PoC
- Robotic Process Automation (RPA):** Becoming increasingly mainstream, hence it is up on the adoption scale however, usage is largely restricted to policy administration/ systems transformation
- Drones:** Limited usage outside claims

## What drove activity in 2020

Artificial intelligence (AI)	Internet of things (IoT)	API	Ecosystems	Cloud
<ul style="list-style-type: none"> <li>▶ Aerial imagery and hyperlocal weather analytics</li> <li>▶ Fraud analytics, particularly focused on claims</li> <li>▶ AI-augmented underwriting</li> </ul>	<ul style="list-style-type: none"> <li>▶ Behavioural underwriting, particularly in motor lines</li> <li>▶ Medical IoT for remote patient monitoring (RPM)</li> <li>▶ Sensor tech for property damage</li> </ul>	<ul style="list-style-type: none"> <li>▶ Mainstreaming of embedded (orblended) insurance</li> <li>▶ Hyper personalization of customer experiences</li> </ul>	<ul style="list-style-type: none"> <li>▶ Alliance build-ups by core system providers (Duck Creek, Guidewire etc.) as well as horizontal vendors (Microsoft, Salesforce etc.)</li> <li>▶ New business models (e.g. P2P)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Cloud-enabled offerings - B2B2C (iptiQ, Unqork, Wrisk etc.) and others (Convex, Ki, Spire)</li> <li>▶ Pandemic-related acceleration in adoption and spend</li> </ul>

# Health insurance business models are rapidly moving toward ecosystems



## Dominant themes

### Customer engagement

500m

Estimated count of wearables to be sold in 2021 (vs. 310m in 2017)

### Risk management

63%

US patients that do not adhere to prescriptions

### Digitization

US\$33.3b

Estimated size of global electronic health record market by 2023

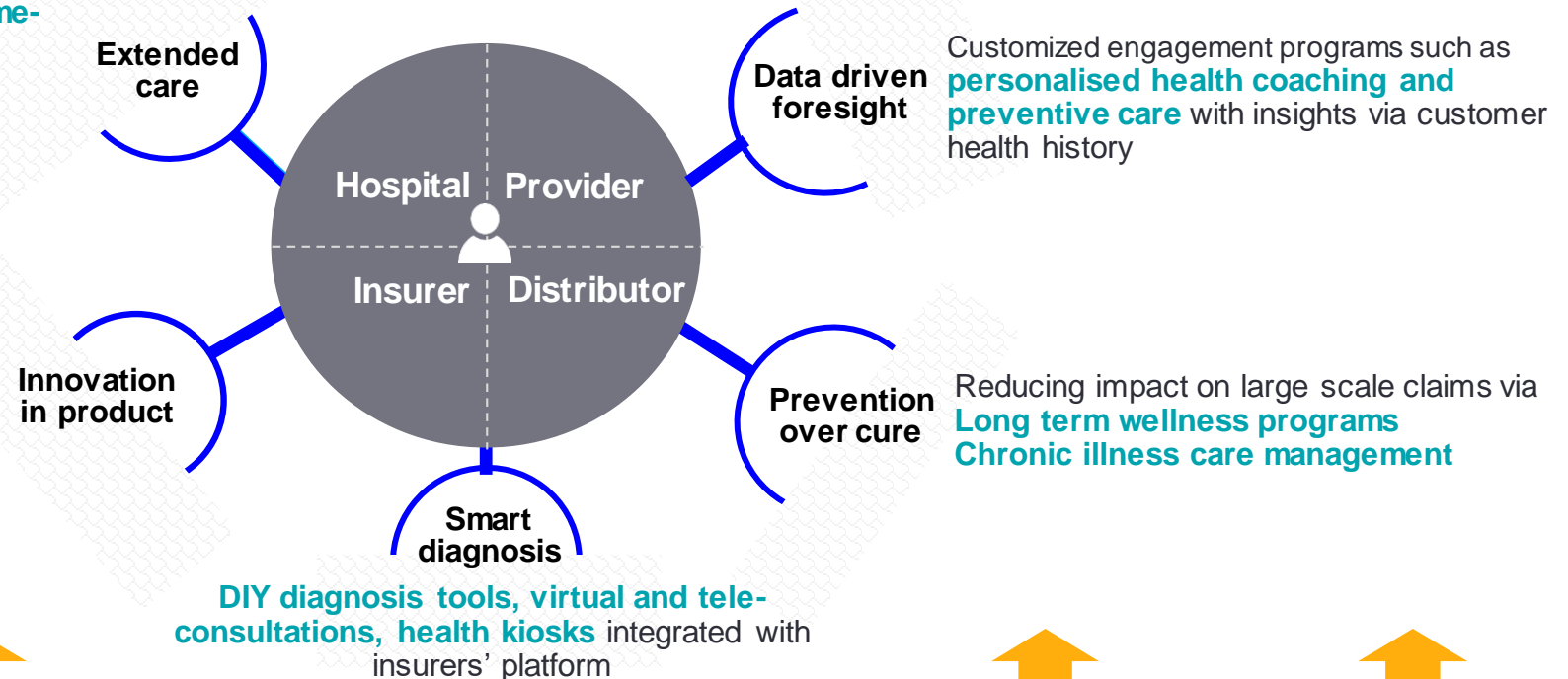
# Future of healthcare lies in wider eco-system integrations for a one-stop-shop catering to customer needs with personalized solutions



A future of care and collaboration; Insurers to pivot focus from claims settlement to being an active partner in their customers' health journeys

Increased focus on **OPD covers, home-care**, extended sick care through hassle-free fulfilment

Products with high integration of Healthcare needs:  
**OPD**  
**Wellness**  
**Pharmacy**  
**Exclusive network hospitals**



## End-to-end tech enablement

<b>24x7 integrated digital health platform</b>	<b>Digital claim journeys, integrations</b> with providers for instant pre-auth	<b>Virtual, zero-touch sales:</b> digital affinity partnerships, platforms	<b>Digitally infused operating model:</b> Cloud based and API-first approach
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## Poll Question



**House agrees for the companies to evolve their data capabilities in view of Future Healthcare eco-system?**

Yes

No

# Competition is no more with other insurers but value chain disruptors

1

Other leading tech giants including Apple, IBM, Google and Amazon have also embarked on projects that aim to derive medical insights from user data in near-real time

2

Companies are aiming to create cloud-based healthcare analytics services that improve diagnosis and treatment of disease.

3

Adoption of mobile and wearable technology by local NHS Trusts in partnership with Microsoft.

4

A pilot scheme is aiming to apply machine learning to predict epileptic seizure episodes prior to occurrence. The predictive model uses data on sleep patterns, exercise and heart rate of those with epilepsy.

# 5 ways Next-Gen insurers can be truly customer centric



## New Age Channel Approach

Provide a frictionless new age-channels that can interact with customers across any device at any time including SMS, What's app or Facebook messenger

## Personalised Approach

Offer a personalised approach, where business processes are smartly tailored to the specific characteristics of a customer

## API Technology

Use API technology to streamline connectivity between the different components across the value chain and facilitate data enrichment and usage of external data sources

## Build an Ecosystem

Build an ecosystem that allows leveraging new and innovative technologies as part of the overall architecture

## Organization Mindset

To successfully adopt data analytics in the organisation, hiring the right talent is of paramount importance

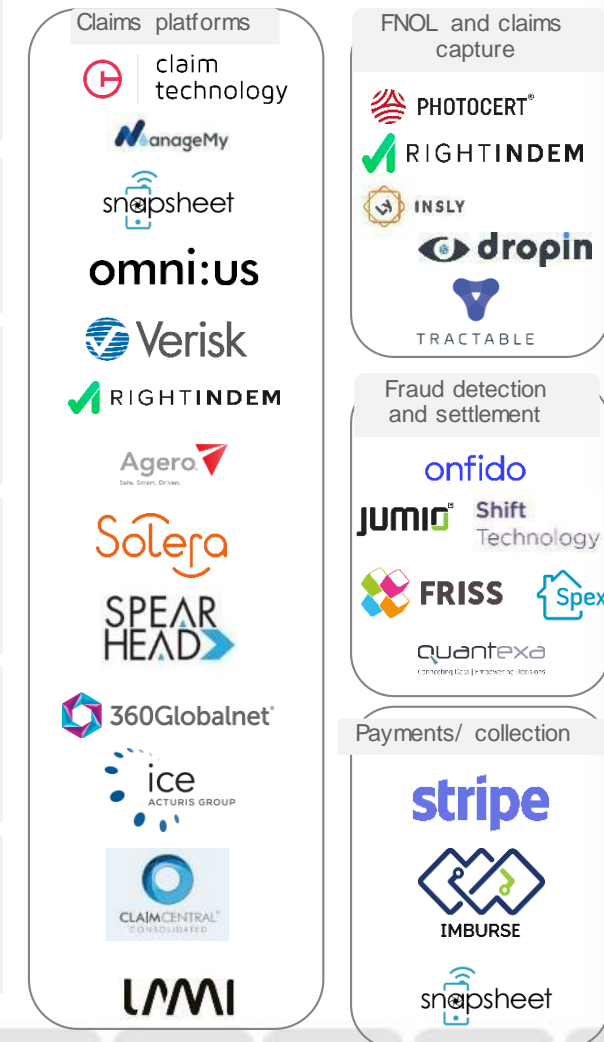
# Improving claims experience for customers as a key focus areas for InsurTechs



## Digital transformation across claims experience value chain



## InsurTechs across claims value chain





# Future Insurance models

**Mobile first preference from consumers - (Distribution)**

**More natural interaction with computers - (Digital Advisors)**

**Increase of data on people and objects - (IOT, Telematics)**

**Ability to recognise patterns in data - (Artificial Intelligence, Predictive Analytics)**

**Common and secure use of data - (Blockchain Technology)**



# Challenges to data science in insurance

## Processing vast amount of data

Constructing a dynamic infrastructure that is capable of collecting and processing vast amounts of everyday data

Recognizing challenges to Data Science in Insurance

## Selection bias

If data sources contain incomplete observations, selection bias or confounding medical interventions then this can decrease the accuracy of predictive models.

## Accuracy of connected devices

High levels of consumer engagement with and improved accuracy of connected devices are likely to be important in ensuring that data collected from these devices is reliable.

## Data privacy and confidentiality

Individuals may be concerned that their sensitive health-related data could be divulged to unwanted third parties

## Poll Question



**House is in agreement on the challenges in creating data sets in Healthcare & Health Insurance?**

Yes

No

# Case studies

# Cigna partnered with Shift Technologies to improve its fraud detection capabilities and avoid illegitimate claims



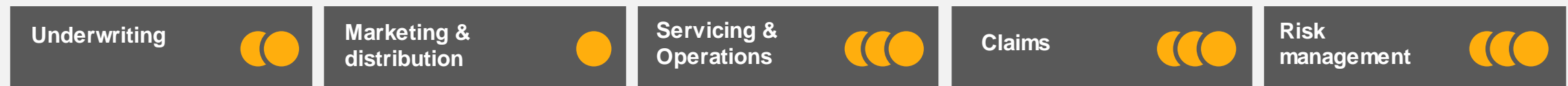
## Line of business: Life & Health

- As part of this partnership, Cigna evaluated Shift's fraud detection solution 'Force' to support its International Operations Unit
- Force's AI models tighten the level of security by identifying potential fraud by individuals and also enhance security by making correlations within the insurer's full data set
- Applying Force's AI-native technology within the claims process increases the capabilities to discover fraud, which will give Cigna the power to fight fraud proactively rather than paying for illegitimate claims

## Impact

- **Cost:** Better fraud detection and risk management capabilities will lead to cost reduction
- **Value proposition:** Peace of mind for customer through its multi-layers fraud, waste and abuse (FWA) protection systems

## Likelihood of impact on key value chain elements



## Key technologies involved

- ✗ Cloud & related architecture
- ✓ Artificial intelligence
- ✗ Internet of things
- ✗ API
- ✗ Ecosystems

Other technologies involved: Fraud analytics

Likelihood of impact on value chain elements

High



Moderate



Low



# Prudential to use Vitech's V3locity platform as a core administration platform for its entire group insurance business



## Line of business: Life & Health

- V3locity is a cloud-based administration, engagement, and analytics platform that features applications to enable full life cycle business functionality and enterprise capabilities
- Prudential will utilise V3locity to administer a range of insurance offerings including
- Accident, Critical Illness, Hospital Indemnity, Term Life, Short and Long-Term
- Disability, Universal Life, and Variable
- Universal Life among others

## Impact

- **Cost:** Leveraging cloud-native architecture to deliver solutions with enhanced security and reduce cost
- **Value proposition:** Catering to evolving customer needs and transforming end-to-end customer experience

## Likelihood of impact on key value chain elements

Underwriting



Marketing & distribution



Servicing & operations



Claims



Risk management



## Key technologies involved

✓ Cloud & related architecture

✗ Artificial intelligence

✗ Internet of things

✓ API

✓ Ecosystems

Other technologies involved: None

Likelihood of impact on value chain elements

High



Moderate



Low



# Credit Suisse launched integrated bancassurance solutions in partnership with AXA



## Line of business: Life & Health

- The objective of this partnership is to provide Credit Suisse clients with a comprehensive digital offering and addressing to their needs from a single app
- AXA will add customized insurance modules to Credit Suisse's new digital banking offering of CSX app which makes the app a promising new distribution channel for their digital insurance products
- The bancassurance solutions will be offered directly via the CSX app and all other client channels. Initially, the solutions will be made available to select client groups from first quarter of 2021 onwards

## Impact

- ▶ **Revenue:** Reaching out to more clients via new distribution channel to generate more revenues

## Likelihood of impact on key value chain elements

Underwriting



Marketing & distribution



Servicing & Operations



Claims



Risk management



## Key technologies involved

✘ Cloud & related architecture

✘ Artificial intelligence

✘ Internet of things

✓ API

✓ Ecosystems

Other technologies involved: Mobile application

Likelihood of impact on value chain elements

High



Moderate



Low



DATA



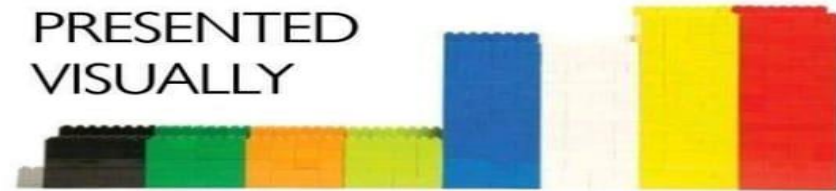
SORTED



ARRANGED



PRESENTED VISUALLY



EXPLAINED WITH A STORY



***Thank you !!***