Behavioral Analytics in Insurance

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Data Science & Analytics, IAI

Speaker profile

Mr. Shailesh Dhuri

Founder: Decimal Point Analytics

- Founded Decimal Point Analytics to transform investment and financial businesses

- Passionate about integrated technology transforming businesses

- More than 25 years of experience in Entrepreneurship and Fund Management

- Associated with companies such as UTI, Credit Agricole Indosuez, Ceat Financial Services

- Started India's first money market mutual fund

- Part of a team to start India's first Private sector commercial bank

- Instrumental in starting India's first private sector primary dealership in India in 1994

- Part of a team to install first chip and pin ATM in the entire world

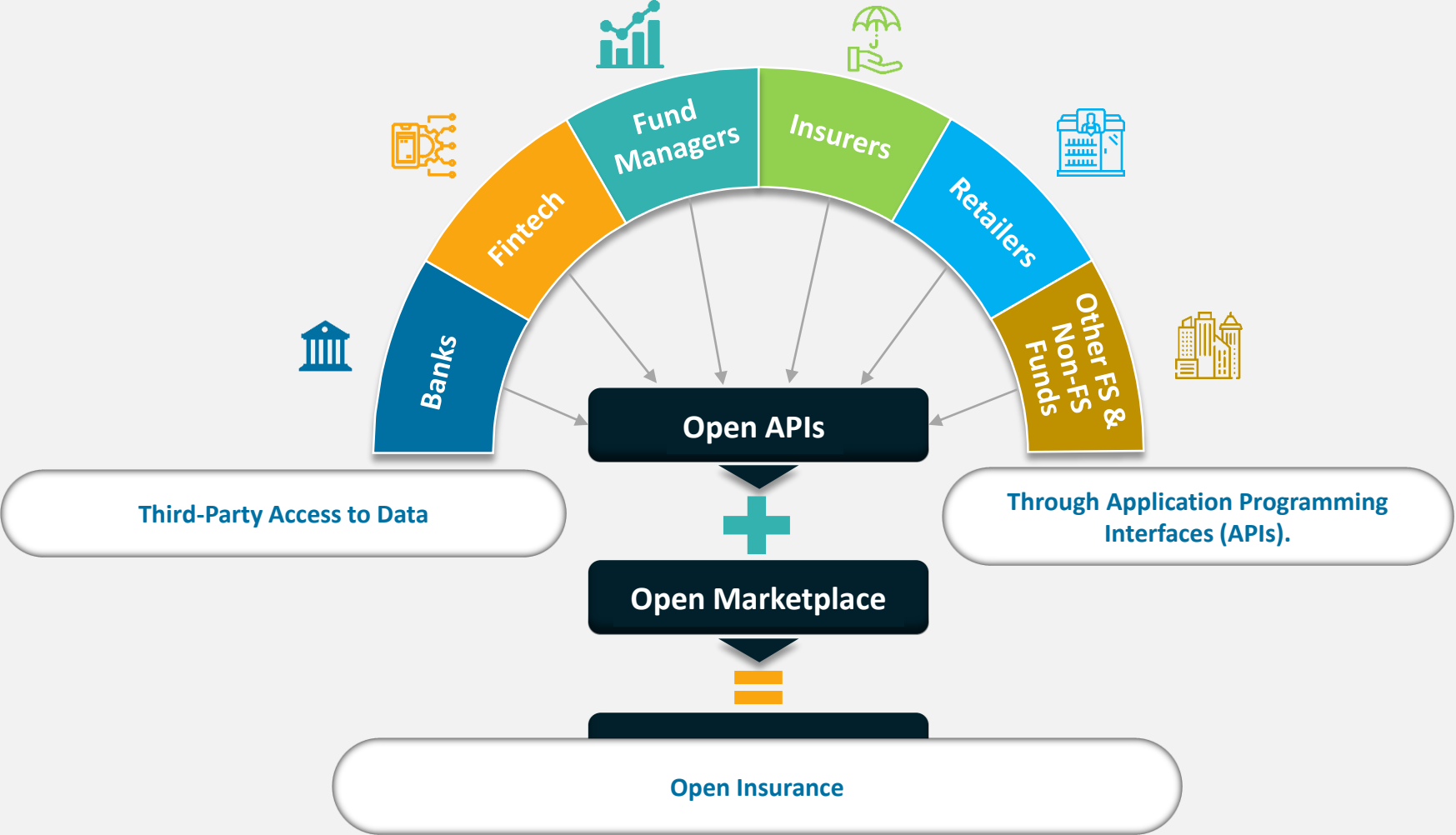- MBA (IIM), PRM, FRM, CFA (India), CWA, B.com. Mumbai (India)

Open Insurance

What is Open Insurance?

Banks · Fintech · Fund Managers · Insurers · Retailers · Other FS & Non-FS Funds

Open APIs

Third-Party Access to Data

Through Application Programming Interfaces (APIs).

Open Marketplace

Open Insurance

Open Insurance will Bring Revolution In The Industry

Closed Ecosystem

Customers

Proprietary Apps

Private API

BANK
$$$

Insurance Domain
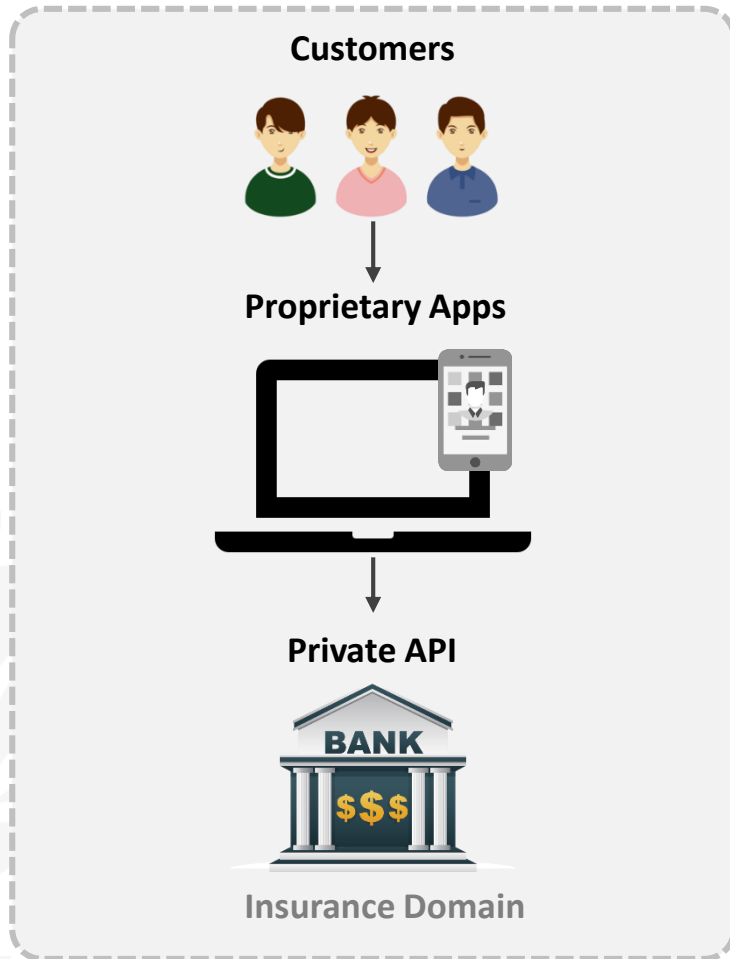
Open Insurance Integration in Open Ecosystems

Allows to Gather New Data Attributes and Discriminators

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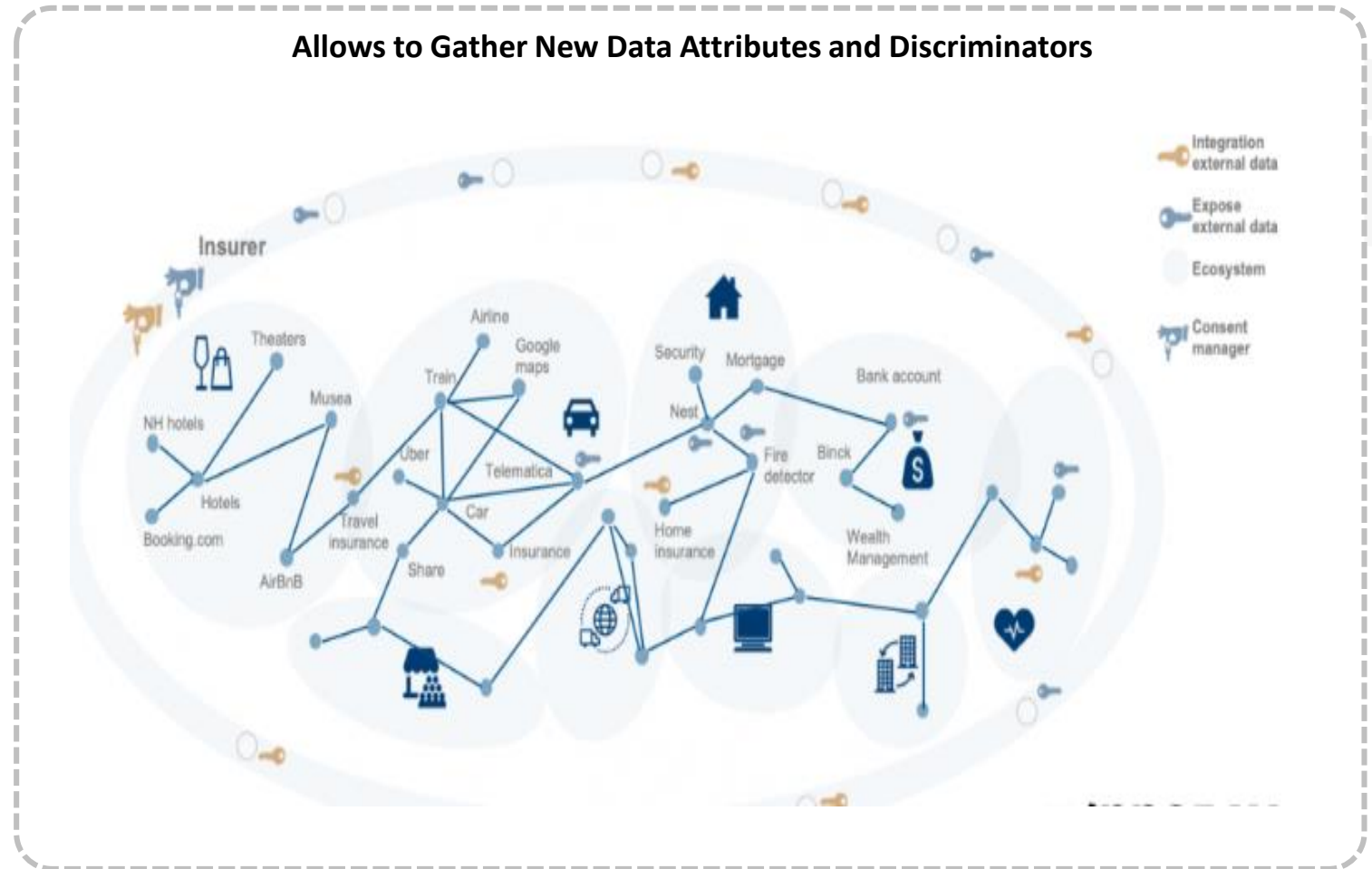
Collaboration will Be The New Way Of Doing Businesses

Model Type	Attributes
Public/Open APIs used by external partners and developers who build innovative apps and products	Innovation through engaging developer community **Extended Market Reach**
Partner/B2B APIs used by business partners, including suppliers, providers, resellers, and others for tighter partner integration.	**Reduced Partner Costs API Monetization Enhanced Security**
Internal APIs are used by developers within enterprise	**Cost Reduction Operational Efficiency Enhanced Security**

Public

Partner

Internal

Different Types of Insurance will Available Under this Ecosystem

Car Dealer Apps
Sell car insurances

Real Estate Apps
Sell home insurances

Travel Apps
Sell vacation/travel insurances

Luxury Good Dealer Apps
Sell policies to insure specific object or allow to review home insurance

IT Protection Websites Like Firewalls, Virus-Scanners
sell cyber-security insurances

E-Commerce Apps
sell insurances for delayed or no delivery (insure the company selling product or customer receiving the product)

Customers will have Full Control of Data

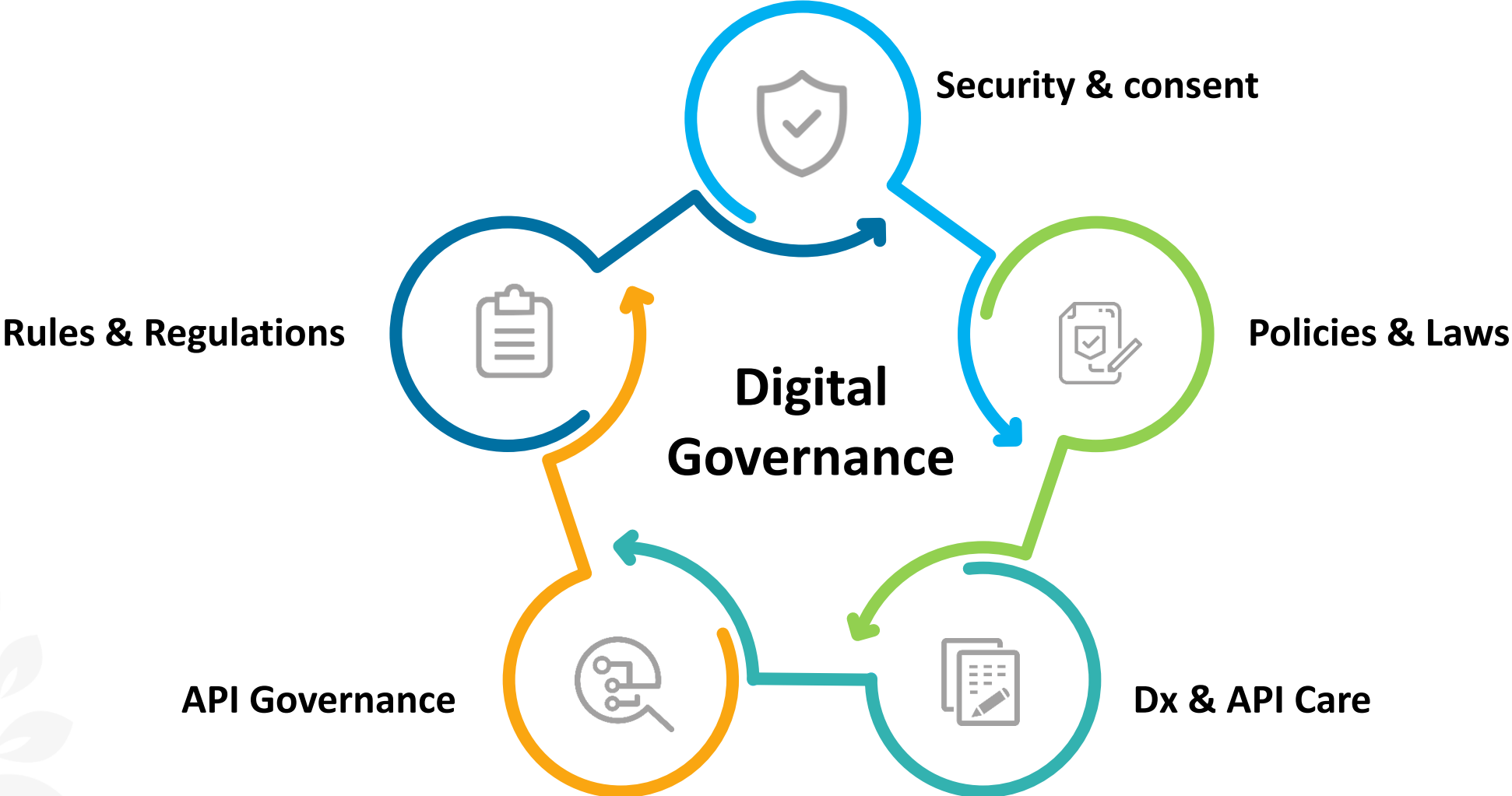# The Digital Self

Open Insurance

Open Investment

Open Banking

Open Healthcare

The Digital Governance

Digital Governance

- Security & consent
- Policies & Laws
- Dx & API Care
- API Governance
- Rules & Regulations

The Personal Data Protection Act (DPA) has Given Rights to the Customer

Decoding the Data Protection Bill

What it Means for Consumers

DATA can be processed or shared by any entity only after consent.

THE customer can allow third party to use specific data present in the ecosystem.

All data to be categorized under three heads general, sensitive and critical.

The Government & Regulatory Role

GOVT will have the power to obtain any user's non-personal data from companies.

THE bill mandates that all financial and critical data has to be stored in India.

SENSITIVE data has to be stored in India but can be processed outside with consent.

What Companies need to do

SOCIAL media firms to formulate a voluntary verification process for users.

SHARING data without consent will entail a fine of 15 crore or 4% of global turnover.

DATA breach or inaction will entail a fine of 5 crore or 2% of global turnover.

How DPA is Different from GDPR

Issue	DPA	GDPR
Child Consent	A child can consent to data processing at age of 13	A child can consent to data processing at age of 16
Automated Decision Making	DPA allows whenever there are legitimate grounds and safeguards are in place to protect individual rights and freedoms	GDPR states that data subjects have a right not to be subject to automated decision making or profiling
Data subject Rights	These rights can be ignored if compliance with these rights would seriously impact an organization's ability	GDPR ensures that all data subjects have rights in relation to the processing of their personal data
Privacy vs Freedom of Expression	DPA provides an exemption from certain requirements of personal data protection for publication in the public interest	GDPR gives Member States scope to balance the right to privacy with the right to freedom of expression and information
Scope	Applies to the processing of personal data within the territory of India and body of persons incorporated under Indian law	Applies to any organization holding and processing EU citizen personal data, even it is not based in the EU

Opportunities and Threats for the Insurance Industry

Opportunities

Threats

Opportunities	Threats
Stimulate Innovation in Product Development	Data Privacy Breaches
New Revenue Streams	Low Entry Barrier for New Players
Better Customer Engagement	Limited Differentiation
Economies of Scale	High Competition
Sustainable Service Model	
Potential Operating Efficiencies	

The Potential Benefit of Open Insurance is Insurance Portability

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Data Portability at the Core of Insurance Portability

Why Data Portability is a Must for Insurance Portability ?

To ensure that customers could keep their benefits even with the new Insurance company

To protect their private data

To avoid repetitive procedures- The policyholder must again submit all the required documents

To reduce portability time- Porting a policy takes the same time as issuance of a new policy
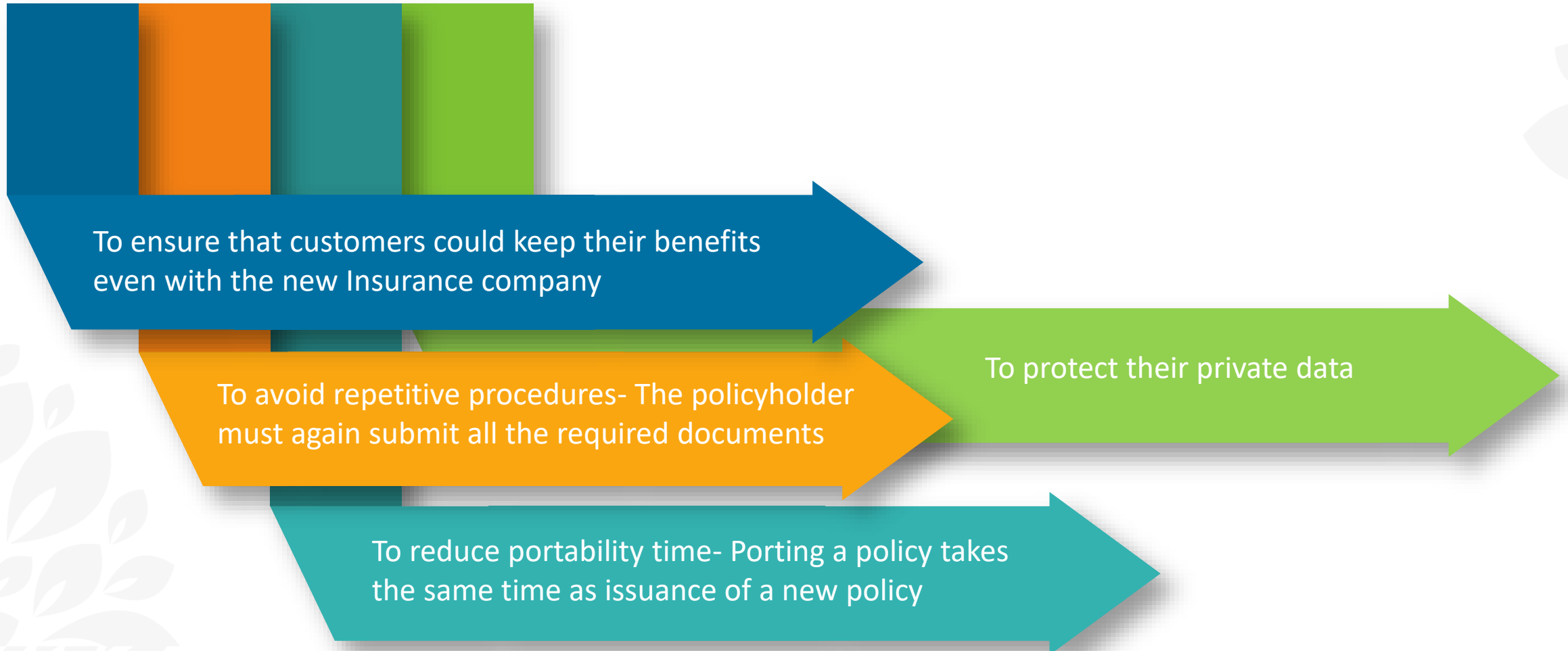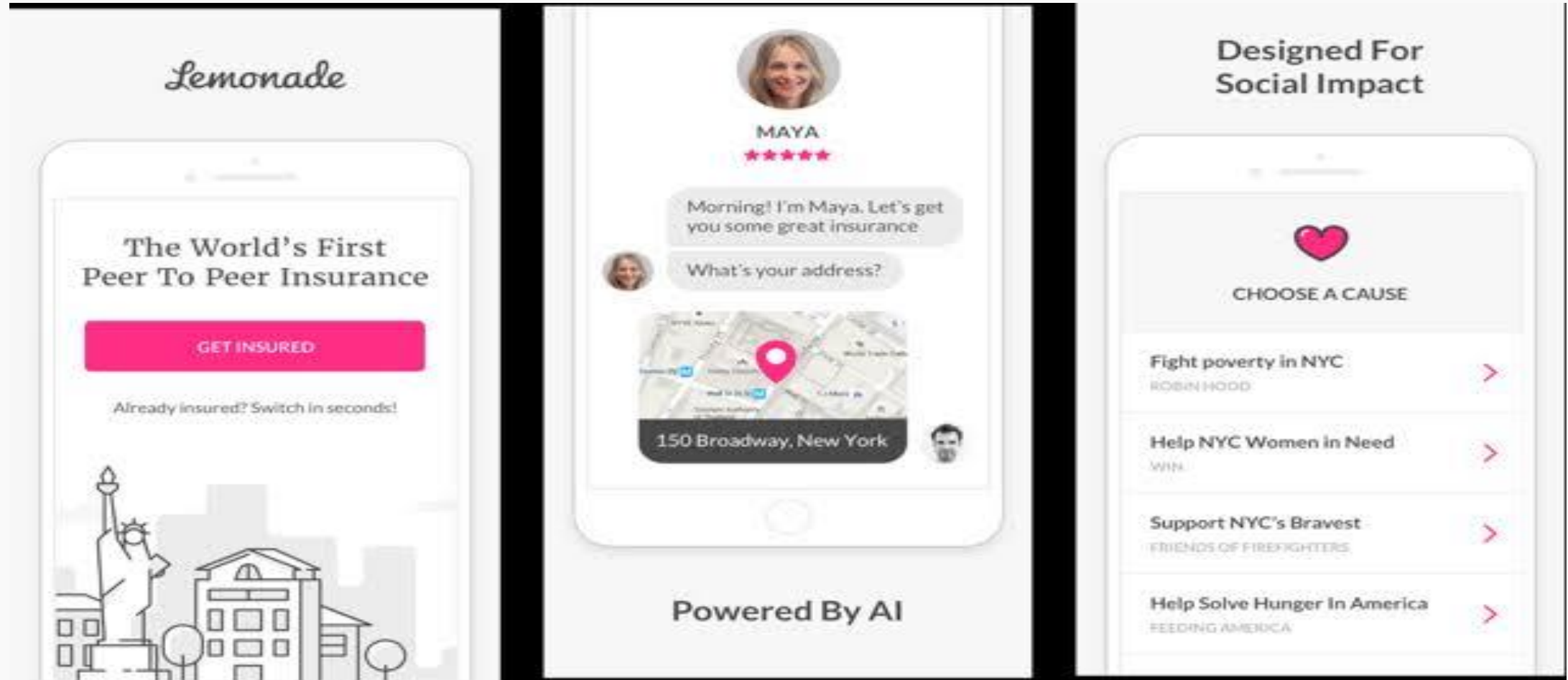
Peer–to–Peer (P2P) Insurance

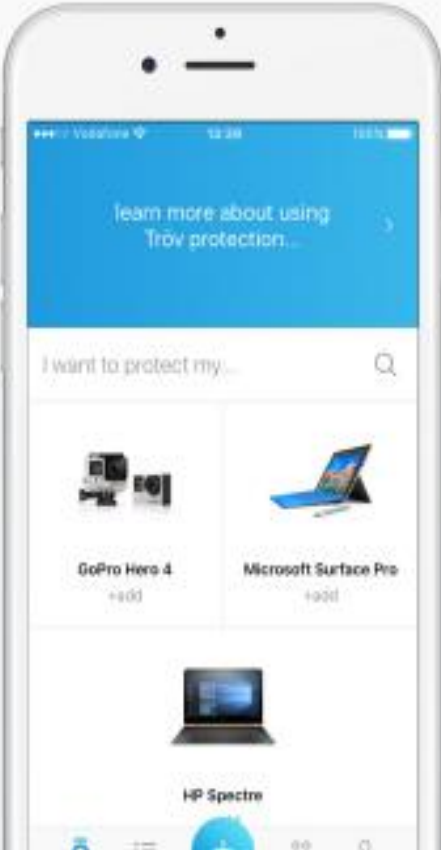# Peer to Peer Insurance Model
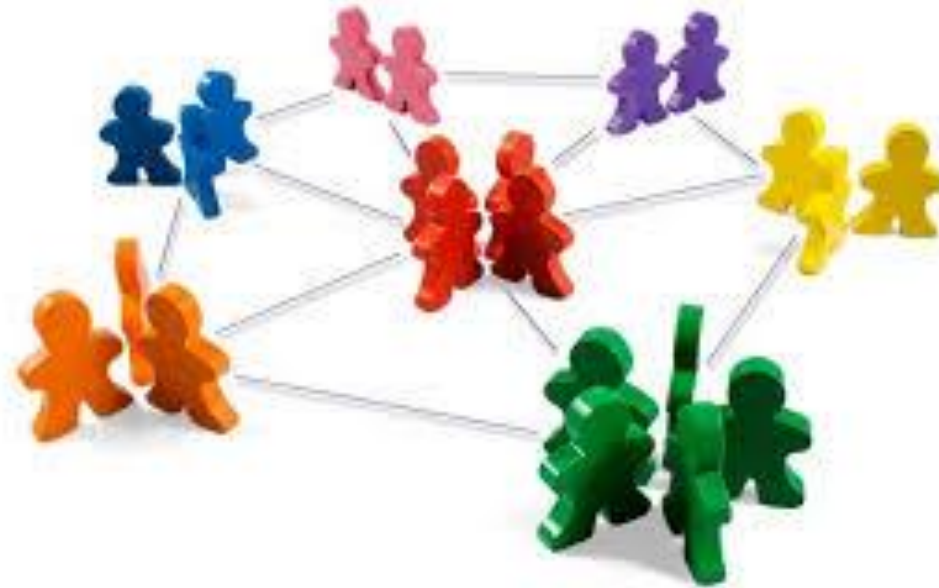
Peer-to-Peer (P2P) Insurance is a Risk Sharing Network where a Group of Individuals Pool their Premiums Together to Insure Against a Risk.

Lemonade: P2P App Gives An Insurance Quote in Less Than Three Minutes

TROV: On–Demand Insurance for the things You Love

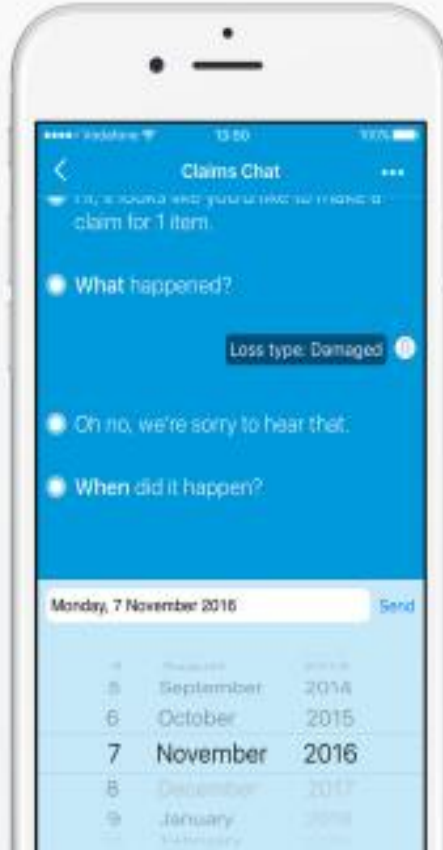**Easily Collect Details About Your Things**

Choose the Price that's Right for You

Swipe to Protect Just What's Important to You

Claims are as Easy as Sending a Few Text Messages

Data is at the Core of New Disrupting Innovations

Data science to transform and accelerate core insurance functions

4

5

Regulators have put regulations for data governance

Common data platform brings new dimensions

2

3

External data is transformative for the insurance industry. E.g. sensors, wearable devices

1

Value of data has increased with the use of AI & ML
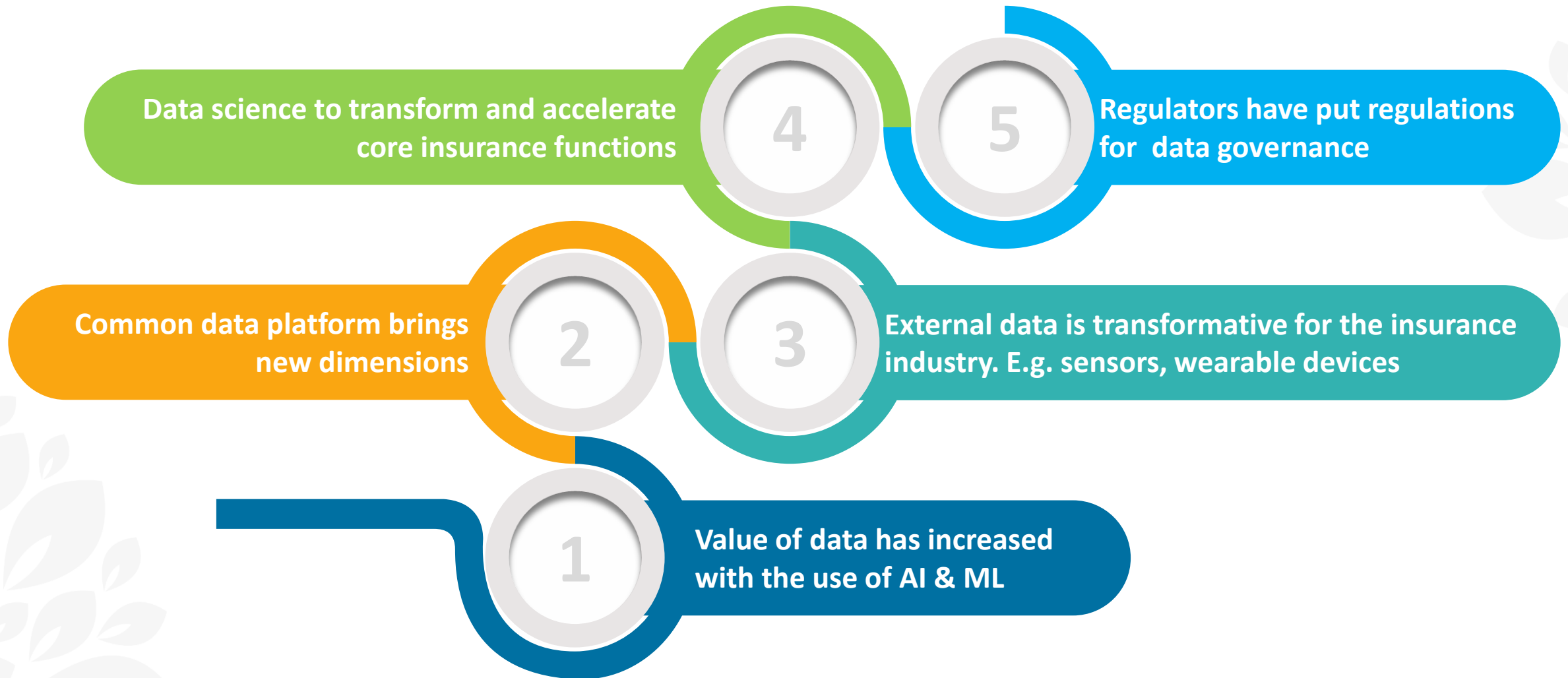
21st Global Conference of Actuaries
Actuaries : Striving for excellence, creating sustainable future
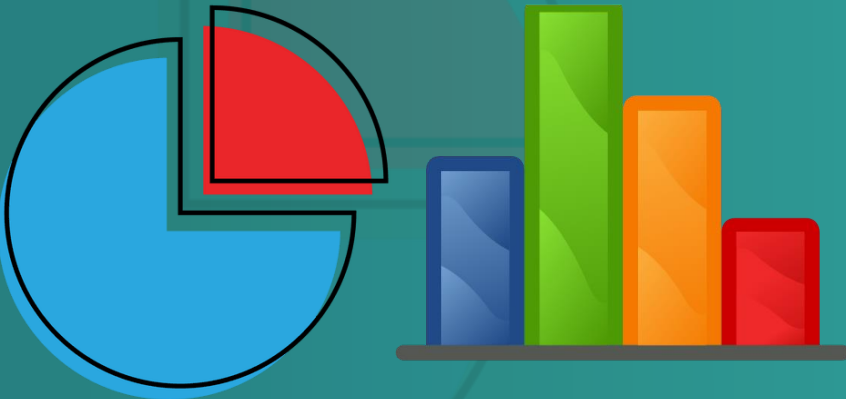17th - 19th February 2020 | Mumbai, India

Big Data Explosion will Transform The Role Of Actuaries

Actuaries were the First to Handle Big Data to Underwrite the Premium

Use math, Statistics, & Financial Theory to Collect & Analyze Data

Expansion of their techniques is machine learning which can consider large variables for better decision

Estimate the cost or risk of certain events

Determine the probability of certain events occurring

But Premium Rationality is Often Questionable

Applicant A

- 35 Years Old
- Goes to Gym Everyday
- Yearly Routine Health Check
- Un...
- No Ailments
- Healthy and Fit
- No Adverse Disclosure

Premium Rs 1,000

Applicant B

- 35 Years Old
- No Physical Activity
- Back Pain On and Off
- Diagnosed with Hypertension
- Recommended Blood Test
- No Adverse Disclosure

Premium Rs 1,000

Result

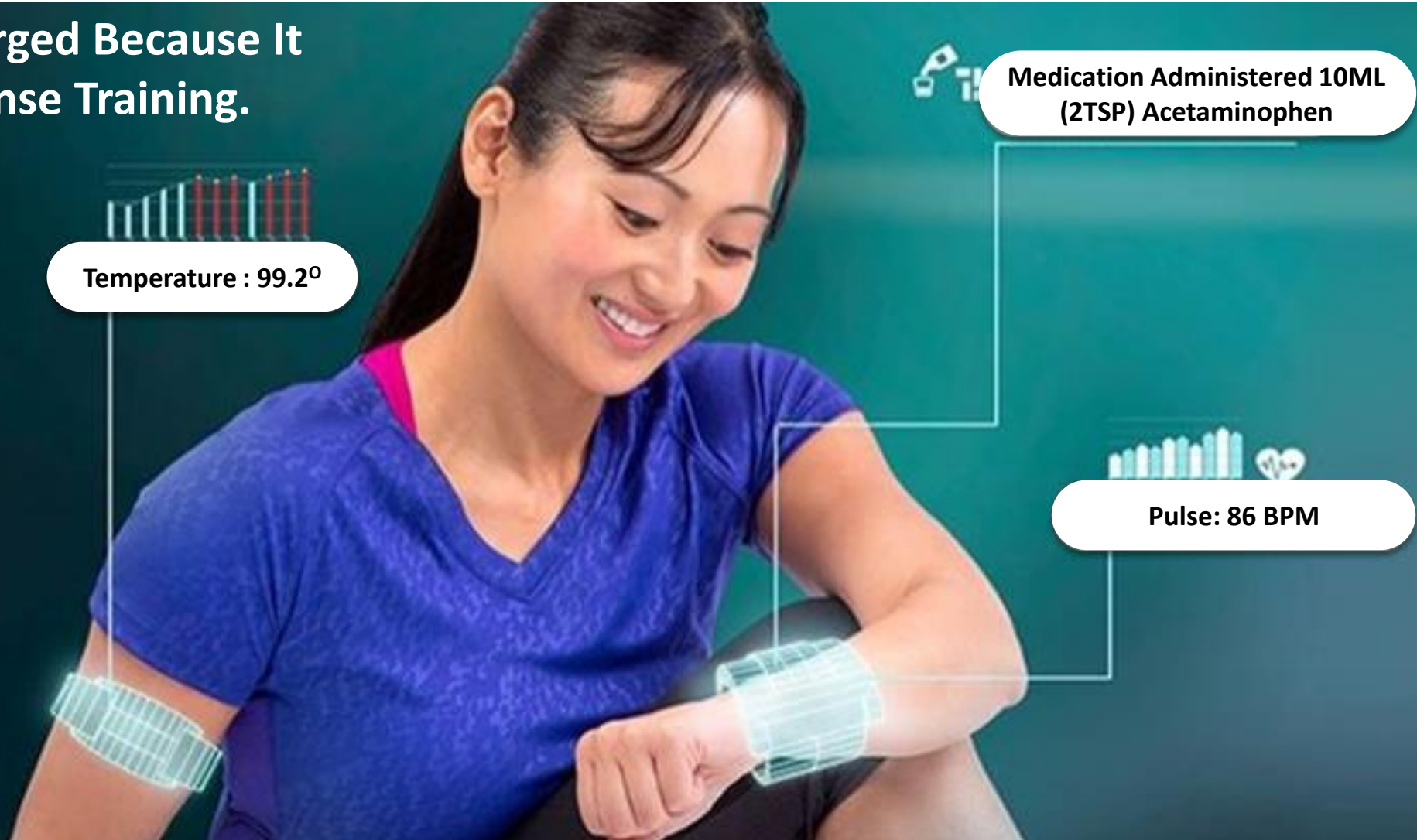| No Rationality on Premium | No Cross-Selling Opportunities | No Tailored Product |

For Instance High Intensity Athletes are Overpaying for Life Insurance

Heart Becomes Enlarged Because It Has Adapted To Intense Training.

Medication Administered 10ML (2TSP) Acetaminophen

Temperature : 99.2°

Health IQ

Rewarding individuals living healthier lifestyles

Pulse: 86 BPM

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Change is Coming Across the Value Chain

Standard processes automated with robots complementing the traditional workforce

Focused on creation and communication of business insights and higher-value analytical tasks
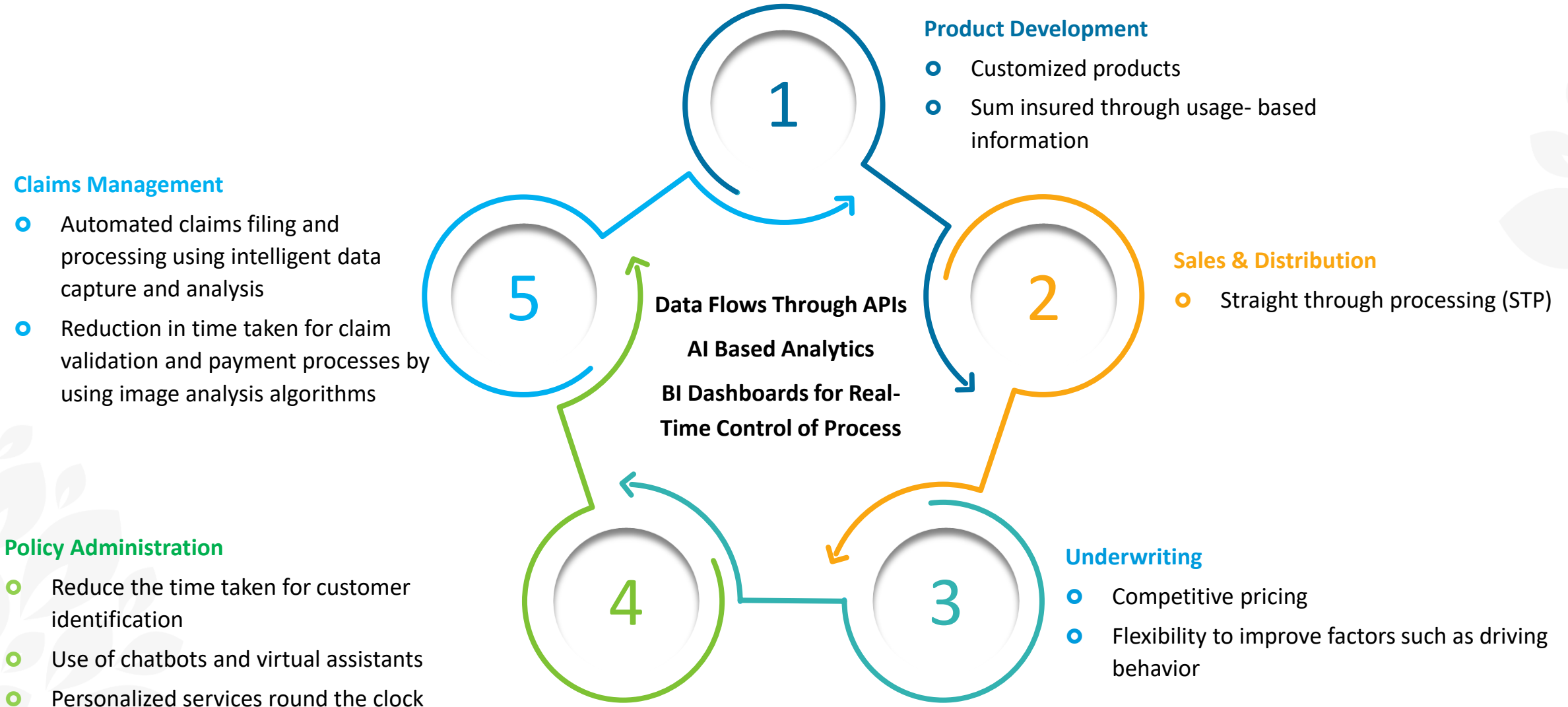
Highly connected teams across actuarial, finance, risk claims and underwriting teams
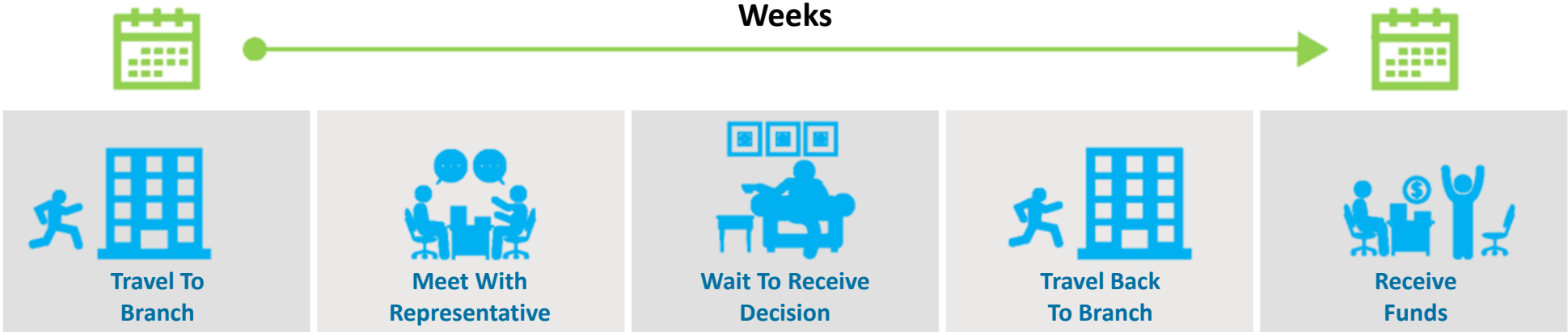
Information interpreters and data and analytics champions supporting new products and offerings

Insight into the Expected Changes in the Value Chain

Product Development
- Customized products
- Sum insured through usage- based information

Claims Management
- Automated claims filing and processing using intelligent data capture and analysis
- Reduction in time taken for claim validation and payment processes by using image analysis algorithms

Sales & Distribution
- Straight through processing (STP)

Data Flows Through APIs

AI Based Analytics

BI Dashboards for Real-Time Control of Process

Policy Administration
- Reduce the time taken for customer identification
- Use of chatbots and virtual assistants
- Personalized services round the clock

Underwriting
- Competitive pricing
- Flexibility to improve factors such as driving behavior

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From Evolving Customer Journey

The Customer Journey

Weeks

| Travel To Branch | Meet With Representative | Wait To Receive Decision | Travel Back To Branch | Receive Funds |

Traditional VS Digital

Minutes

Apply Via Mobile Phone

Get Approved And Receive Funds Instantly
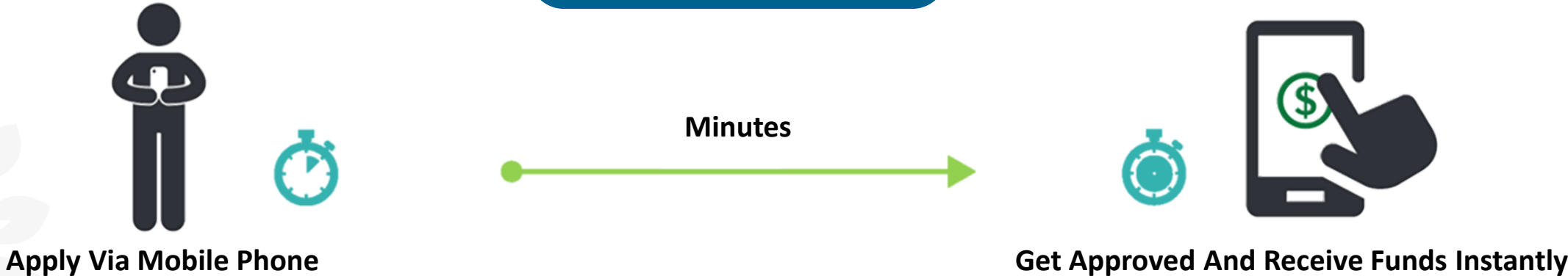
To Changing Customer Characteristics and Preferences

Characteristics

- Tech Savvy
- Difficult to Satisfy
- Socially Active
- Seek Inter-connectivity
- Seek Comprehensive Coverage

Preferences

- Digital Touchpoints, Ease of Use and Faster Service
- Personalization of Services
- Ease of Accessing and Sharing Data
- Seamless and Omnichannel Access
- End-to-End Risk Solutions

Transform the Business Decision Making

Customer Data	Analytics	Insight	Decision	Improved Performance

It all starts with customer data, no matter the format or provenance (internal/external-see social media)...

...You can then apply machine learning algorithms to analyse even complex data relationships...

...and gather meaningful insights about our customers' behaviours, attitudes and needs....

...this helps to make informed and better decisions...

...and achieve a competitive advantage

And Create a Unique Value Proposition

Insurance Companies

- High Acquisition Rate
- High Renewal Rate
- Better Pricing
- Cross Selling Opportunities
- Better Profitability
- Seamless Claims Management
- Low Fraud Rates

Customers

- Personalized Product
- Dynamic Premium
- Faster Solution
- frictionless Purchase Journey
- Customer Experience
- Customer Satisfaction

Society

- Better Risk sharing mechanisms
- Low interlinked Risk
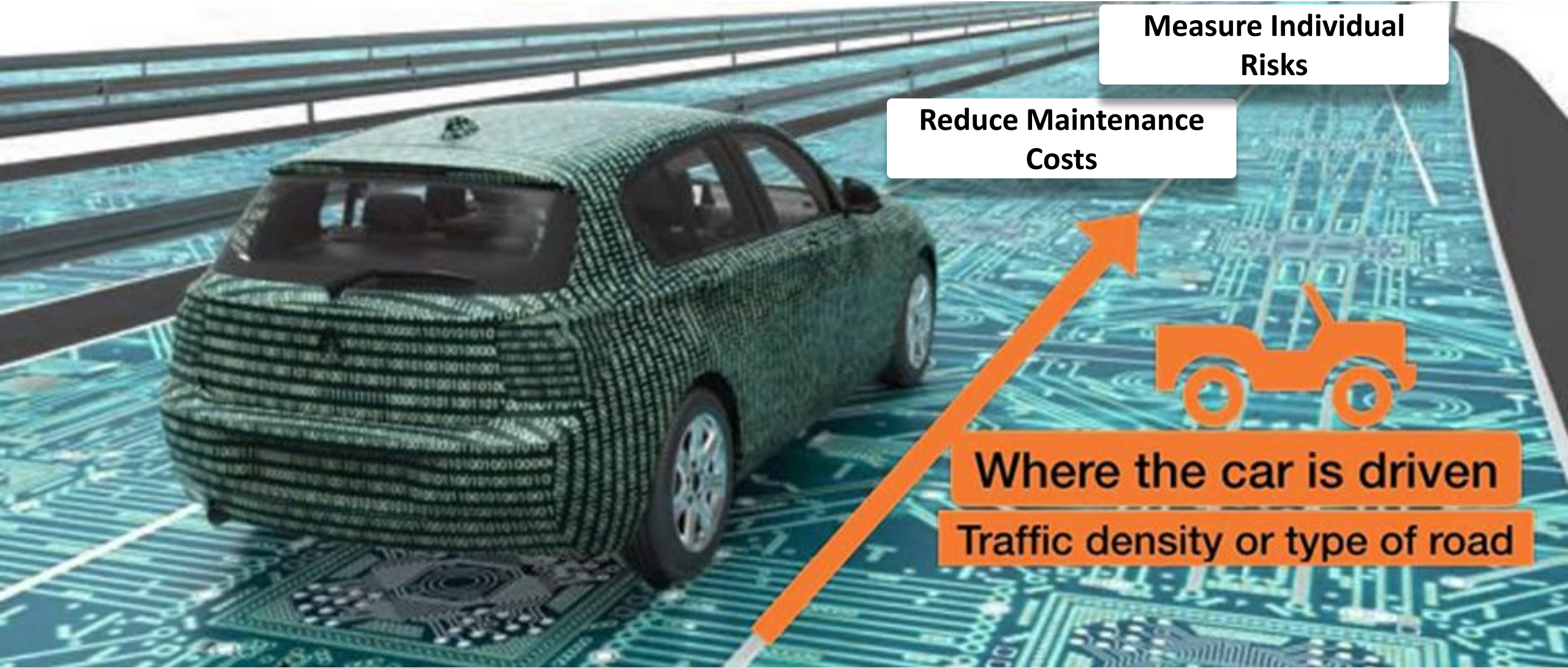- Better Resource Allocation

Digital Data Is Coming from Web-Connected Devices

Wearables Helps to Monitor Health Risks Associated with Profile

Auto Tracker Is Revolutionizing Auto Insurance

Measure Individual Risks
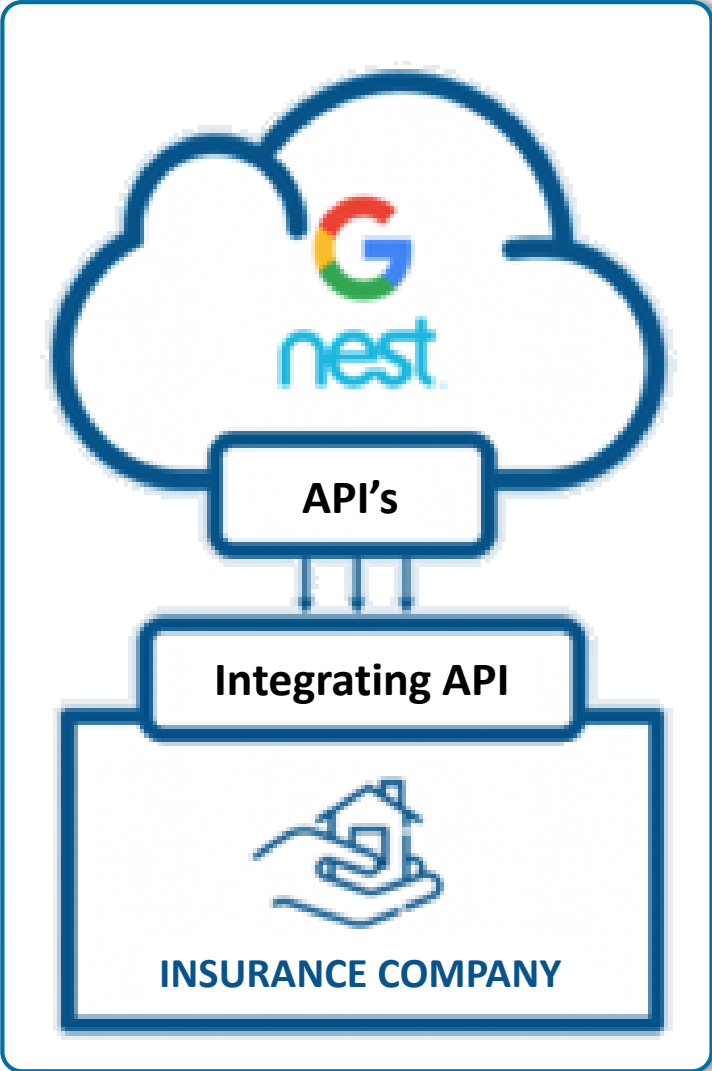
Reduce Maintenance Costs

Where the car is driven

Traffic density or type of road

Smart Homes with Sensor Tells the True Picture

Google Nest API Allows Insurer to See Whether Fire Alarm Is Working

FAStag will Give Insights Into the Driving Pattern

Driver In And Exit Timing

Speed

Car Using Frequency

KM Travelled On Highway

Driver Recharge History

Driver Spending Pattern

Vehicle Registration Number

Car Insurance Due Date

Transformation will Occur in the Insurance Industry

Dynamic Premium and Personalized Product will be Offered to Every Customer

Credit Score

Previous Policy Claims

Premium History

Age

Income

location

Dynamic Premium

Machine Learning

AI

Predictive Analytics

Personalized Product

Health Monitoring

Driving Style

lifestyle

Purchasing pattern

Social Media Activity

Brand interaction
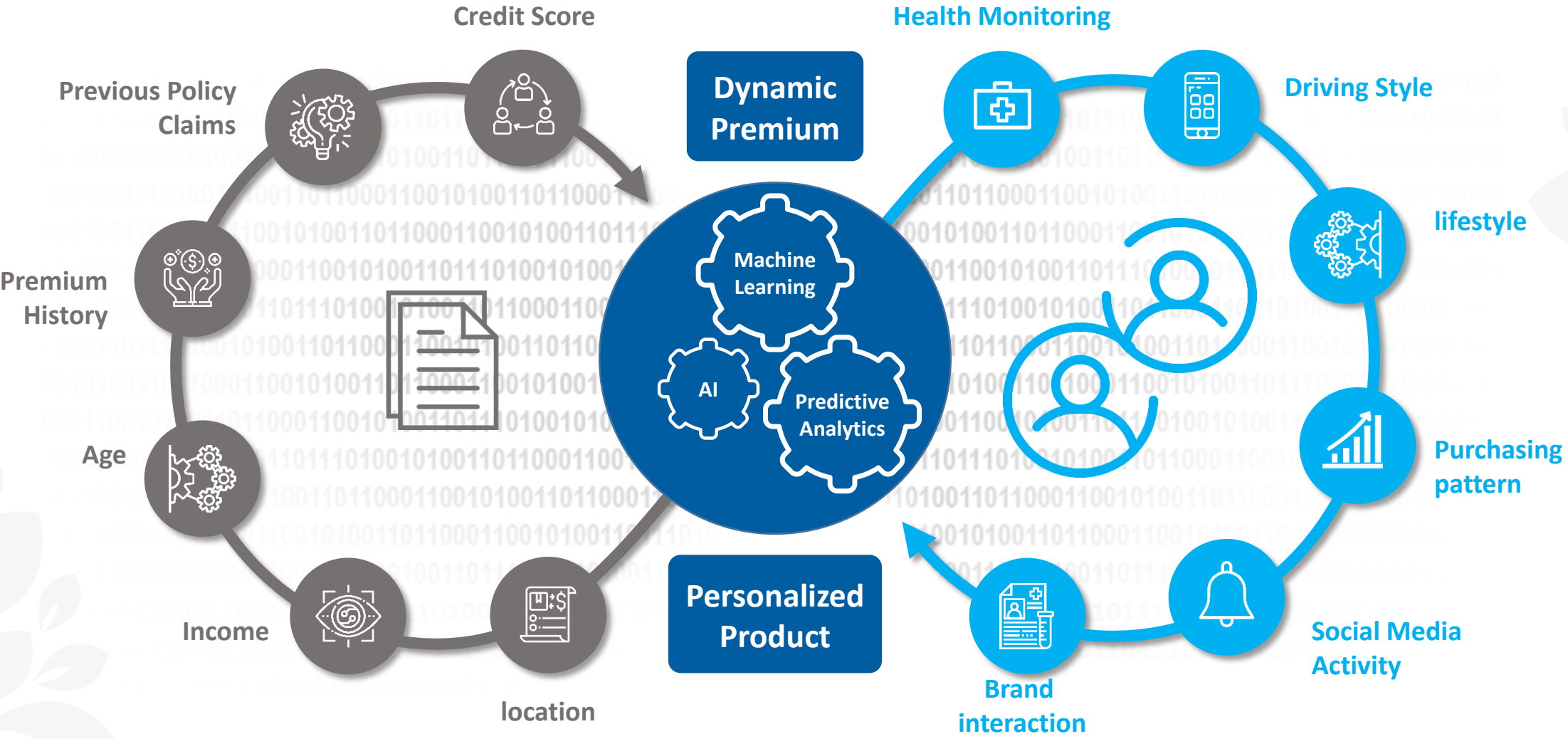
Unique Pre–Approved Deals will be Offered
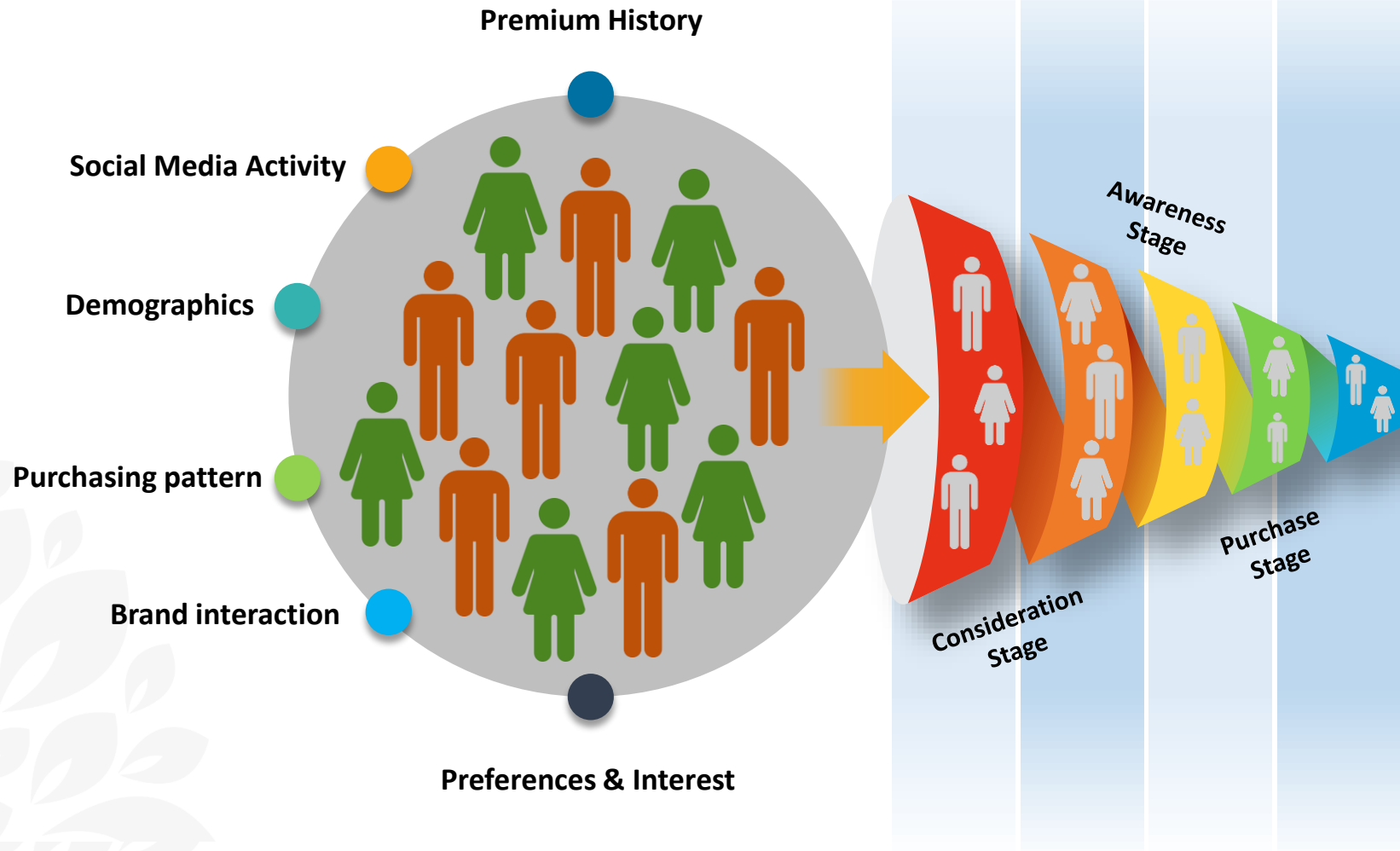
Premium History

Social Media Activity

Demographics

Purchasing pattern

Brand interaction

Preferences & Interest

Consideration Stage

Awareness Stage

Purchase Stage

Product

A

B

C

D

Persistency and Renewal Rates will Improve

Help Forum
14.5MB

Web Chat
4.8M

Web Support Article
1M

Customer Care Call
15.2M

Mobile App Chat
4.7M
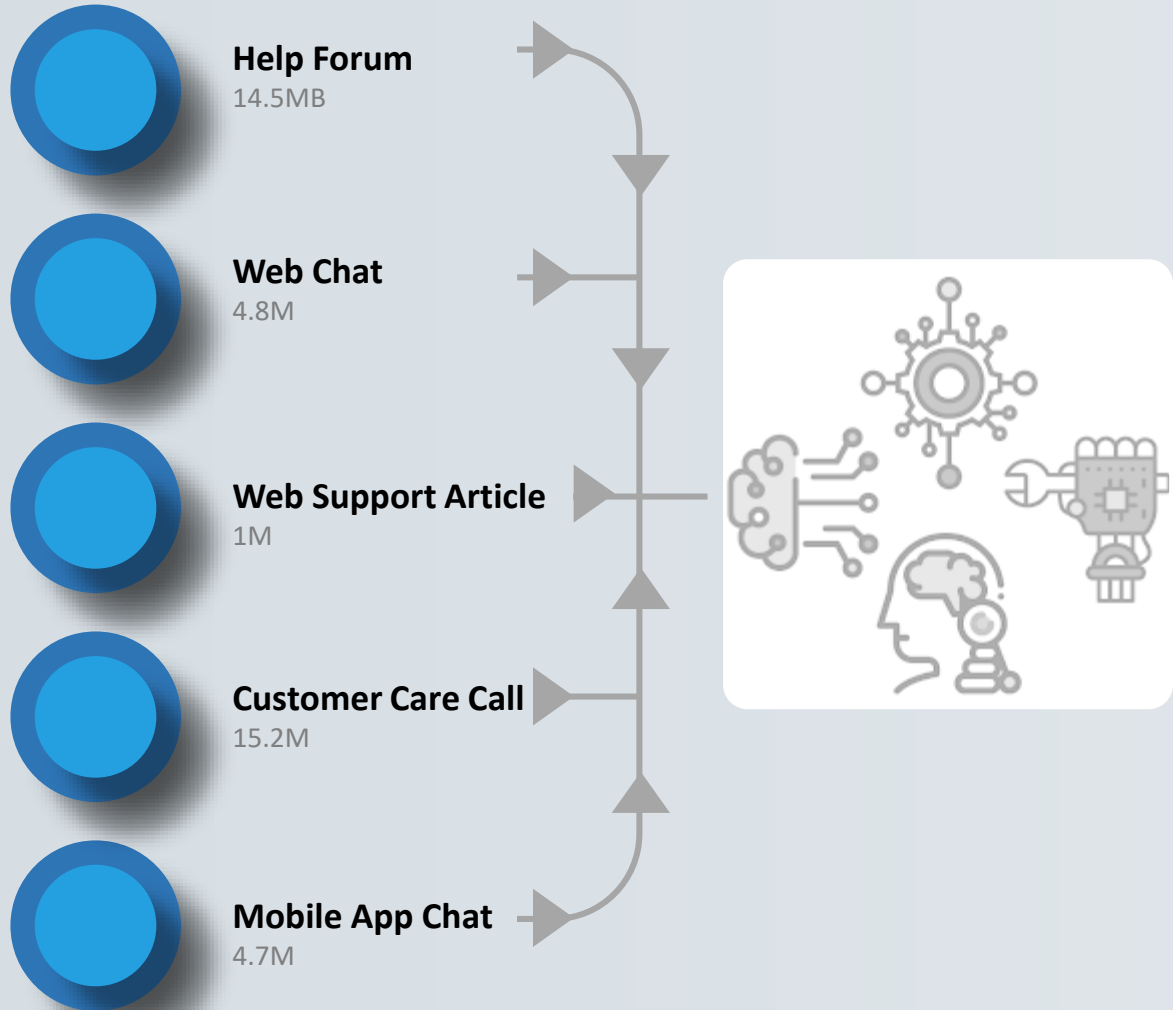
Identification of High Claims in Future can be Possible

IOT Data

Social Media Activity

Lifestyle

Identifies High Risk Profiles

Decision Tree Technique

Detect Abnormal Behavior Patterns

Random Forest Technique

Risk Prioritized Alerts in Real Time
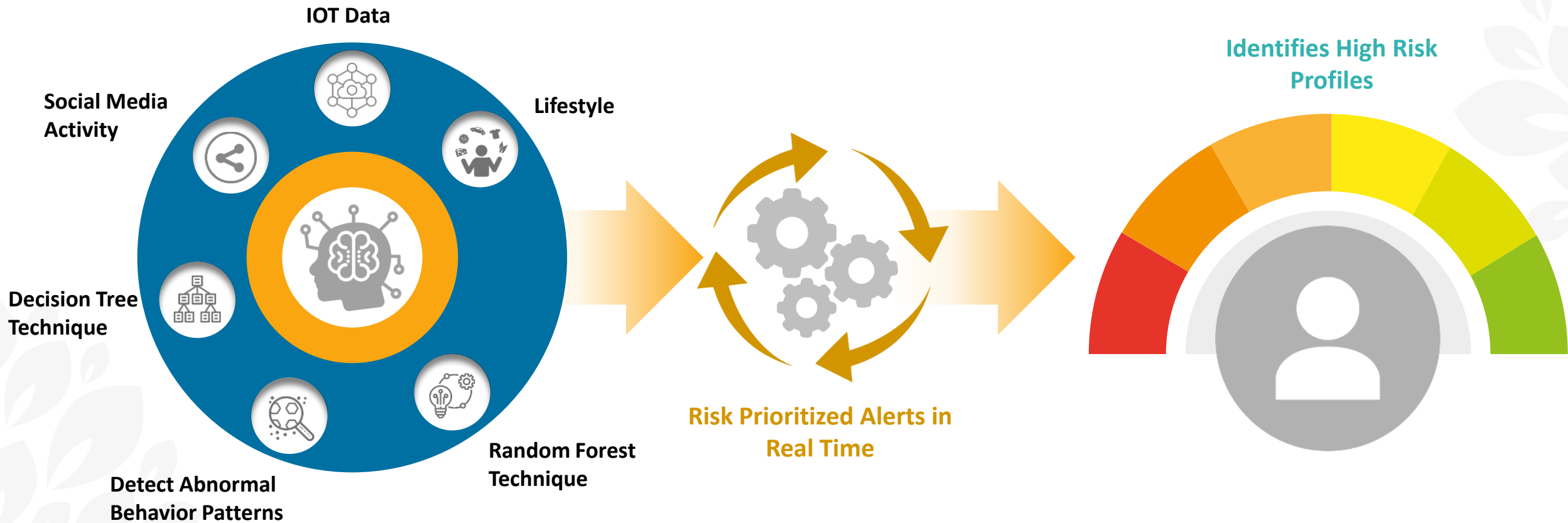
Textual Analytics will Enable to Identify Probable Fraudulent Behaviour

Applicant A

Hi, How may help you?

Can I file for claims on from the next day I purchase a policy.

: Answer

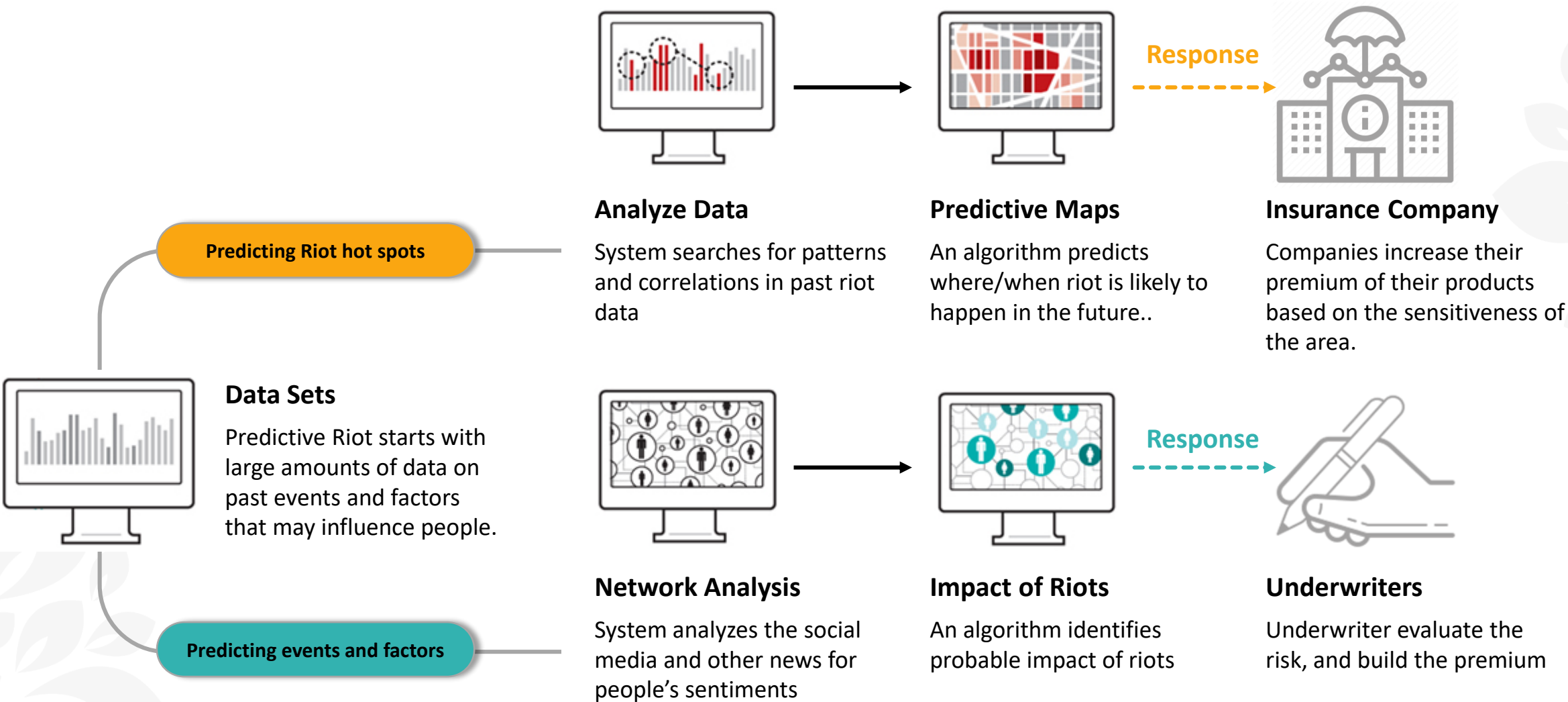How many times in a year can I file for claims

: Answer

What proportion of money of the total claim I can get

: Answer

Chatbot

Textual Analytics to Predict Where/When Riot is Likely to Happen in the Future

Predicting Riot hot spots

Predicting events and factors

Data Sets

Predictive Riot starts with large amounts of data on past events and factors that may influence people.

Analyze Data

System searches for patterns and correlations in past riot data

Predictive Maps

An algorithm predicts where/when riot is likely to happen in the future..

Response

Insurance Company

Companies increase their premium of their products based on the sensitiveness of the area.

Network Analysis

System analyzes the social media and other news for people's sentiments

Impact of Riots

An algorithm identifies probable impact of riots

Response

Underwriters

Underwriter evaluate the risk, and build the premium

Using Social Media to Fight Insurance Fraud

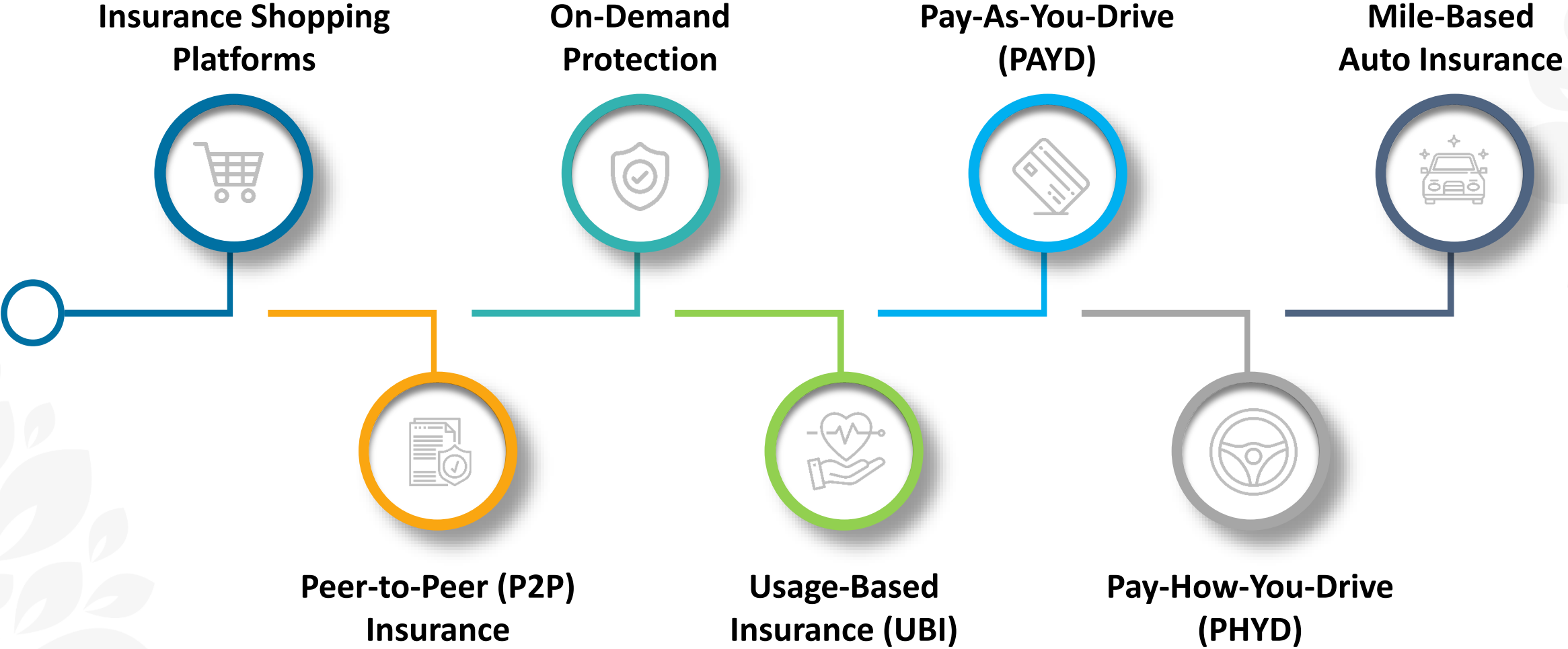# Increasing Drone Usage For Fast Claim Inspection and Settlement

Mining
3.4%

Telecommunications
5.0%

Insurance
5.3%

Infrastructure
35.5%

Emerging Business Models

Insurance Shopping Platforms

On-Demand Protection

Pay-As-You-Drive (PAYD)

Mile-Based Auto Insurance

Peer-to-Peer (P2P) Insurance

Usage-Based Insurance (UBI)

Pay-How-You-Drive (PHYD)