"No" Underwriting
as we
"Know" Underwriting

pwc

Agenda

Evolution of Underwriting in Indian Insurance Industry

Upto 1980s — **1990s** — **1998 -2011** — **2010 -2017**

Paper passing | **Electronic** | **Workflow** | **Semi-automated** | **FY2017** | **?**

Paper passing
1. Customer information in physical form and hard copies of supporting docs
2. Mailing of physical docs to U/w at central location
3. Outside the system approvals

Electronic
1. Data entry of physical form and hard copies of supporting docs
2. e-mailing of scanned images to U/w at central location
3. Cross check with physical docs mailed to U/w
4. On e-mail approvals outside system and paper trail

Workflow
1. Data entry of form and scanning of docs
2. Indexed scans shared with U/w through system
3. Queuing of proposals for U/w; manual assignment
4. Approval in system and communicated via e-mail to Ops

Semi-automated
1. Entry of customer information via Tab
2. Scanning and indexing of supporting docs
3. Basic profiling by rules engine; medical cases and STP cases
4. All information shared through system to U/w
5. Approval in system

What is in store...
1. Complete automation
2. Unsupervised exception handling
3. AI/ML infused
4. Hyper personalized with no underwriting

The paradox of underwriting

1 **Information asymmetry**

The customer knows everything about herself. The underwriters do not.

2 **Belief**

Relying upon self declaration and overall trend understanding to take individual risks.

3 **Solicitation**

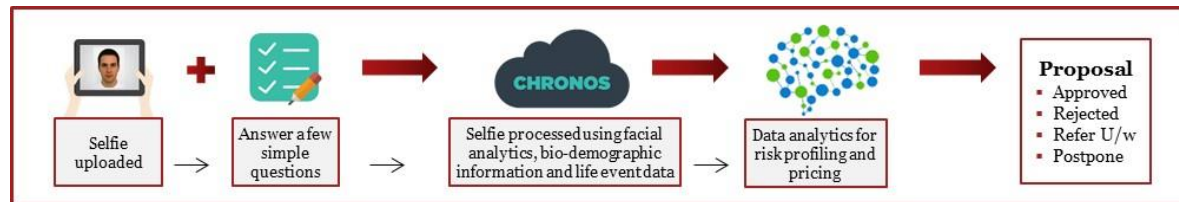Many stage process. Expecting the customer to be patient. Assuming customer does not know all available options.

4 **Telescopic vision**

Trying to predict the future risks and impact/severity with today's toolkit

No more a play of averages...Future of underwriting is Hyper Personalized and truly risk based

Sensory Analysis and Dynamic questioning in underwriting:

- **Sensory Analytics:** This underwriting technology uses digital images to determine longevity, health status and disease susceptibility
- No additional medical information required
- Physical age, gender, BMI and smokers can be identified with high degree of accuracy
- **Dynamic Questioning:** This technique uses an algorithm which poses a list of questions to the customer and alters the path of questioning and type of questions asked in real-time, based on the customer's responses
- Dynamic Questioning in collaboration with Sensory Analytics, Big Data and AI/ML based rules engine will replace conventional underwriting in the future

- Nov 2017, **AMP**, an Australian insurer, introduces facial analytics and recognition in its My AMP apps.

- **MLC life**, another Australian life insurer says, "It's effectively predictive underwriting through data analytics. The work that we've done so far does demonstrate that it is extremely accurate"

- **Haven Life** quickly makes decisions on life insurance policies up to $1 Million via an online questionnaire, state motor-vehicle records, prescription-drug histories and other data
- The company claims that combining dynamic questioning and alternate sources of data through an online process it provides online life insurance in 20 minutes

No more a play of averages...Future of underwriting is Hyper Personalized and truly risk based

Behaviour based underwriting to drive individualized risk assessment :
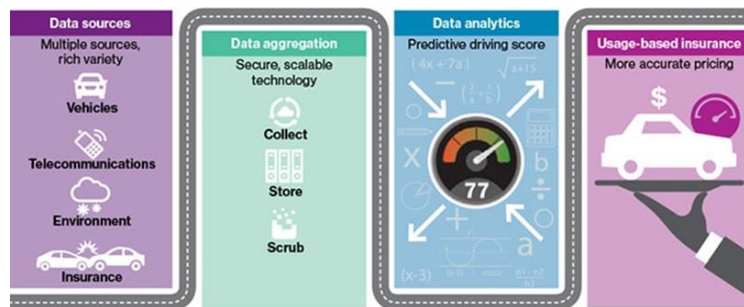
Telematics in motor insurance underwriting:

Telematics device

1. Traditional motor insurance relies on actuarial studies of aggregated historical data to produce rating factors such as driving record, personal attributes (age, gender, marital status), vehicle type, garage location, vehicle use, previous claims, liability limits, deductibles, etc.

2. Telematics device in cars records and shares data regarding driving behaviour such movement, speed, hard stops, time of travel, distance, location, etc. with the insurer

3. Data captured may be used to ascertain probability of claim and underwrite risk using intricate analytical models perfected through AI/ML

4. Safe driving shall be rewarded with discounted premium for following renewal period; this will attract good risk to insurers who differentiate basis safe driving behaviour

5. One Indian commercial vehicle manufacture is embarking on multiple digital transformation initiatives including fitting all new vehicles with telematics devices; thus laying the foundation for behaviour driven motor insurance underwriting in India

6. Asian insurer, AXA Affin General Insurance, launched its AXA FlexiDrive, Malaysia's first telematics-based motor insurance in 2017

A day-in-the-life of an NRI customer who is worried about her parents medical care in India

7

The Uber-connected NRI – An Example

35 year old NRI who grew up in India and migrated to the US to live the American dream.

She is the only daughter and is constantly worried about her aging parents.

She is a digital native and an early adopter of emerging technology

WHO SHE IS

- Female
- Age 35
- MBA
- Married, 2 kids
- Suburbanite
- $100K annual income
- School Board Member
- Digital Native

HER WORK PROFILE

- Early riser
- Prefers ambiguity
- Analytical
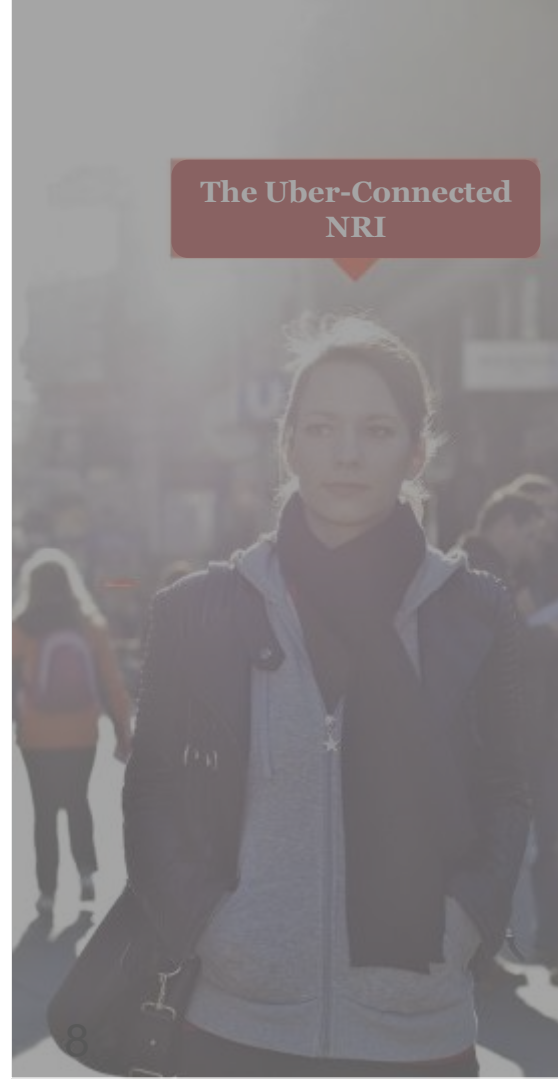- Influences via stories

HOW SHE BEHAVES

EXPLORATION

- Smart assistant
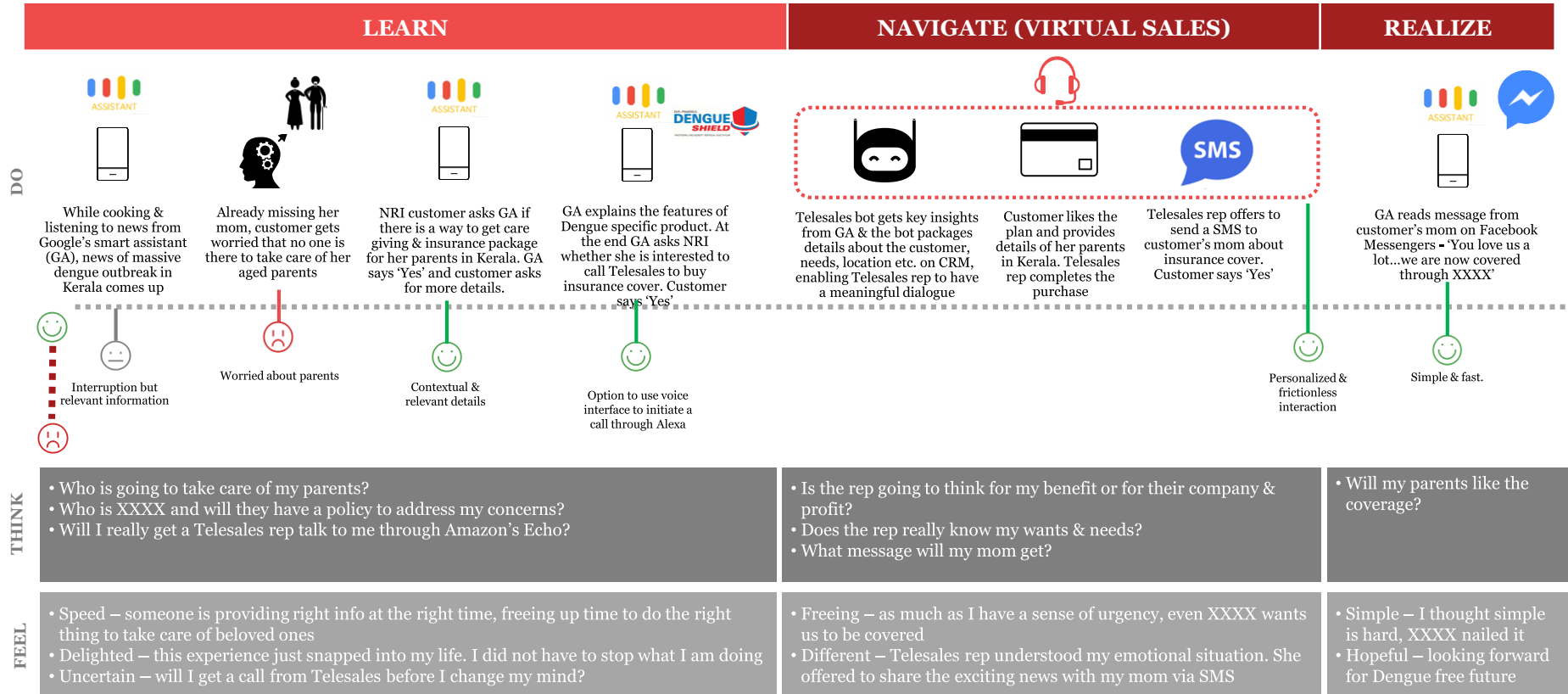- News aggregators (e.g. Flipboard)
- NRI Community at her company

DECISION MAKING

- Good balance of data and hunch
- Influenced by community

The Uber-Connected NRI

The Uber-connected NRI – Future State

	LEARN			NAVIGATE (VIRTUAL SALES)		REALIZE

DO

While cooking & listening to news from Google's smart assistant (GA), news of massive dengue outbreak in Kerala comes up

Already missing her mom, customer gets worried that no one is there to take care of her aged parents

NRI customer asks GA if there is a way to get care giving & insurance package for her parents in Kerala. GA says 'Yes' and customer asks for more details.

GA explains the features of Dengue specific product. At the end GA asks NRI whether she is interested to call Telesales to buy insurance cover. Customer says 'Yes'

Telesales bot gets key insights from GA & the bot packages details about the customer, needs, location etc. on CRM, enabling Telesales rep to have a meaningful dialogue

Customer likes the plan and provides details of her parents in Kerala. Telesales rep completes the purchase

Telesales rep offers to send a SMS to customer's mom about insurance cover. Customer says 'Yes'

GA reads message from customer's mom on Facebook Messengers – 'You love us a lot…we are now covered through XXXX'

Interruption but relevant information

Worried about parents

Contextual & relevant details

Option to use voice interface to initiate a call through Alexa

Personalized & frictionless interaction

Simple & fast.

THINK

- Who is going to take care of my parents?
- Who is XXXX and will they have a policy to address my concerns?
- Will I really get a Telesales rep talk to me through Amazon's Echo?

- Is the rep going to think for my benefit or for their company & profit?
- Does the rep really know my wants & needs?
- What message will my mom get?

- Will my parents like the coverage?

FEEL

- Speed – someone is providing right info at the right time, freeing up time to do the right thing to take care of beloved ones
- Delighted – this experience just snapped into my life. I did not have to stop what I am doing
- Uncertain – will I get a call from Telesales before I change my mind?

- Freeing – as much as I have a sense of urgency, even XXXX wants us to be covered
- Different – Telesales rep understood my emotional situation. She offered to share the exciting news with my mom via SMS

- Simple – I thought simple is hard, XXXX nailed it
- Hopeful – looking forward for Dengue free future

No more a play of averages...Future of underwriting is Hyper Personalized and truly risk based

Behaviour based underwriting to drive individualized risk assessment :

Wearables — Continuous transmission of data

Apps

### Wearables and health insurance underwriting:

1. Wearables such as Fitbit provide information on activity, pulse, heartbeat, hypertension, stamina, sleep, steps, etc.

2. Health insurance coverage will be determined using individual customers data that is up to date and triangulated from multiple sources to ensure accuracy, thus reducing insurers' exposure to risk which in turn will lower cost of insurance

3. Insurers such as Aetna, Cigna, Optima Health, Oscar Health, John Hancock, Prudential, and more are passing on the benefit of better managed risks using wearables, to their customers

oscar

- Oscar Health, a New York insurer partnered with Misfit, makers of fitness tracking wearables, to create a member program that directly links biometric data to their health insurance coverage.

- The Misfit band connects automatically to Oscar's app, which sets new daily goals for walking time. $1 per day up to $240 overall Amazon gift card.

Social media data → **Analytics models**

Social underwriting:

1. Insurers can utilize individual's social media data - activities like adventure sports, images for sensory analytics, lifestyle based info, work place & position, DoB, location, types of posts liked, etc. to generate a customer risk profile

2. Analytical models are currently being worked on to translate this information along with other big data to ascertain life and health insurance risks for individuals
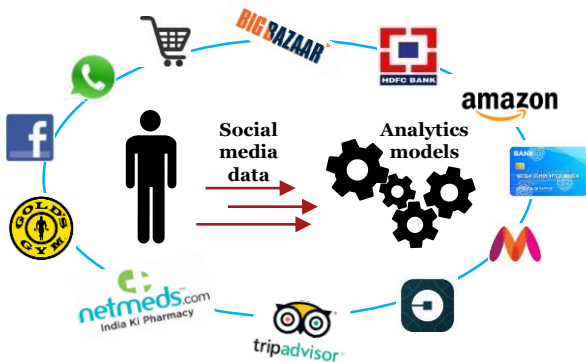
Dynamic underwriting will popularize low value short term insurance and will drive ideal behaviour amongst customers

Dynamic underwriting and pricing

lumiata

Dynamic nature of risks and real-time underwriting

- Dynamic and ever changing human behaviour poses a problem for insurers to assess and price life, health and motor insurance risks under multiyear insurance plans
  - For example, that 20-year-old new male customer who just bought his first car may be driving considerably more safely than a long-term 55-year-old man who's never had a fender bender but who just started going through a mid-life crisis and is now driving in a much riskier manner.
- Through real-time analysis, insurers can make daily adjustments to premium rates, draw out premium strategies and underwriting limits by utilizing internal data (underwriting policies, regulations) with external data (social media data, feed from auto telematics devices and wearables, news articles and press releases)
- Insurance pricing will become like the utility industry pricing model as against a package pricing since it will be driven by actual usage, rate tier based on timing of the day, location and the customer risk profile created through big data.

- Lumiata combines big data and data science with the brilliance of physicians and medical science to deliver hyper-personalized, actionable analytics
- This enables health insurers to continuously be able to predict health, risk and cost of individuals in real-time and at scale

Single event insurance

- There is work underway on innovations with respect to dynamic underwriting in India such as development of single event insurance e.g. insuring Uber rides or flight bookings (Bajaj Allianz GI is using real-time data like flight delays for business processes)
- In future, customers may be on-boarded to be covered under single event insurance through almost inconspicuous processes embedded in vendor interactions
- This will require insurers and other stakeholders to utilize deep analytical models to assess and price individual risks using dynamic and situational data

Influencing better customer behaviour

- Insurers have noted improvement in customer behaviour in terms of safer driving and healthier lifestyles due to continuous monitoring and rewards like discounts on premium offered for good behaviour by insurers

Which personae are better risks?

Concept of risk underwriting will evolve to include risk management

Underwriting and pricing of risk management products

Disease management products

- With a marked increase in chronic diseases, insurers will have to manage portfolio risks by doing more than just better underwriting the risk of treatment claim
- Going forward, insurers will offer risk management features in addition to traditional insurance covers to significantly reduce the severity of claims, thus improving the profitability of business underwritten by driving healthy lifestyles and disease management programs
- Insurers to cover disease management programs, prescribing regular check ups, intake of medicines for treatment of chronic diseases, health and fitness programs, etc. under new insurance plans thus reducing the probability of hospitalization over the policy period
- Cigna has partnered with BodyMedia to use their armband tracker for diabetes prevention and management, integrated with the customer's insurance plan

Repair management

- Similar to disease management, motor insurers could also include vehicle health management programs under the motor insurance policy including servicing, regular check up of sensors, brakes, engine, tires, headlights, etc. in order to reduce the risk of accidents and consequently total cost of replacement of parts

Breakdown recovery management

- P&C insurers may prescribe or insist on commercial insurance customers to have in place a comprehensive machine maintenance program to reduce the risk of machine breakdown or replacement; cost of machine maintenance may be covered under the given insurance plan

Technology to transform the pace of underwriting

Conventional Underwriting
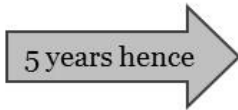
Instant Underwriting

5 years hence

Characteristics
- Lag in policy issuance due to manual intervention
- Manual decisions supported by technology
- Paper trail from onboarding to issuance

Characteristics
- Instantaneous underwriting and e-policy generated
- Completely AI/ML driven underwriting – No human intervention
- Paperless underwriting & issuance

An estimated +75% of risk selection will be through use of Big Data within a few years…

	Now*	Two years from now
Pricing, underwriting, risk selection	42%	77%
Better management decisions	19%	60%
Loss control and claim management	17%	58%
Understanding customer needs	17%	50%
Product development	19%	48%
Marketing/Distribution/Sales	15%	48%

*Survey fielded September 9 – November 2, 2015

Source: Willis Towers Watson 2015 Predictive Modeling and Big Data Survey (U.S.)

OUTSIDEIQ

Outside IQ offers Artificial Intelligence solutions via an as-a-service underwriting and claims workbench that uses big data to address complex risk-based problems

The new Risk Paradigm
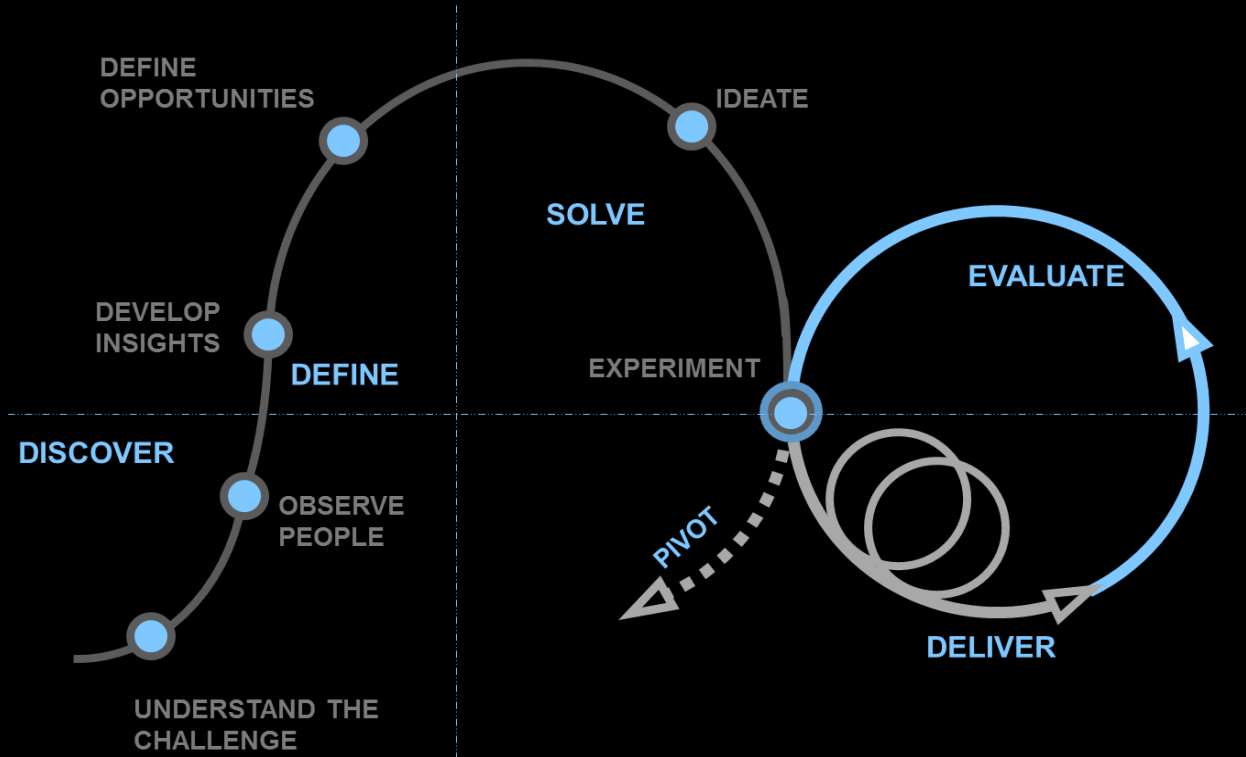
How will we underwrite new risks…

Insuring Driverless Cars

- With no one operating the vehicle in a driverless car, insurers will first have to answer the question about who will bear the cost of insurance; the manufacturers or owners
- Close to 90% of car accidents arise due to human error
- Driverless cars have the potential to remove the risk of human errors; This could cause third-party damage insurance to largely disappear
- Since driverless cars will be a safer, Forbes has estimated that premiums could be reduced by as much as 75%
- On the other hand, driverless cars will have expensive equipment and software and any cost to replace and repair parts/software after a crash could be high thus inflating premiums
- There will also be a requirement for new competencies in the underwriting function to understand and assess the risk of accident in driverless cars. If there was a crash due to the automated systems, an extensive software and hardware analysis would be necessary to determine the reasons for the crash.
- Insurance of driverless cars would mean a shift from personal lines motor insurance to product liability insurance which could introduce big aggregation risk caused by a system failure affecting multiple vehicles at once

Insuring Robots

- Similar to driverless cars, insuring Robots will also entail understanding the risk being underwritten first such as risk of breakdown, cyber security risk, programming defects etc.
- Further, there will still remain the question of who will bear the cost of insurance since some insurable risks will originate from manufacturing and some due to programming and usage by end users

Key considerations for Government, Regulator and Insurers

Insurers need to address the following questions

- How to manage multi-source, open format data and organize technology resources; Go digital
- How to synthesize driving and location data into meaningful content for consumers; develop AI/ML based analytics models for assessing risk
- How to integrate policy pre-qualification data from telematics sources with traditional rating and underwriting methods since transition from traditional to fully automated may take a while
- How to ensure data security for personalized data of customers; introduction of Cyber Security Protocols and technology such as Embedded Blockchain technology can add an additional layer of security and ensure data security concerns are addressed proactively

Government and Regulator as catalysts to change

- Government and Regulator will need to create a conducive regulatory and legal framework to competently deal with issues and litigations raised on account of the changing form of risks to be insured and underwriting methodology
- They will also need to be cautious in prescribing data security and cyber security norms for insurers and other stakeholders to prevent pilferage of personal data of customers, identity theft, misuse of technology in underwriting, and to ensure that the ultimate interest of the policyholder is protected

Let's reimagine, together!

Thank you

Joydeep K Roy

PricewaterhouseCoopers Private Limited
(CIN: U74140WB1983PTC036093)
252, Veer Savarkar Marg, Shivaji Park, Dadar,
Mumbai 400028
Mob: +91 - 9821611173
Fax: 022 - 6654 7800
www.pwc.in