Insurance in the Cognitive Era

Innovation, Disruption, and Reinvention

Mark Carter, Manager, Business Innovation, IBM Global Insurance Industry | June 2017 | Punta Cana
“You are terrified of your own children, since they are natives in a world where you will always be immigrants.”

A Declaration of the Independence of Cyberspace, John Perry Barlow
Davos, Switzerland, February 8, 1996
Insurance data will grow 94%, 84% of which is unstructured.

By 2020, Internet of Things spending will rise to $3 trillion and nearly 30 billion devices.

“The ‘Uber syndrome’ – where a competitor with a completely different business model enters your industry and flattens you.”

Source/Picture: IBM Institute for Business Value
“We know expectations are rising but what, exactly, will customers expect? We don’t know that yet. And those expectations aren’t set by us or by our competitors; they’re set outside our industry by Apple or Amazon. That’s who we’re competing against, really.

Scott C. Campbell, Executive Vice President and CMO Multiple Line American National Insurance Company, United States
Trust

Insurance industry: 43%
Own insurance company: 37%

Switched insurance provider in the past two years: 31.3%

We surveyed 22,000 consumers in 24 countries on their insurance relationships, value preferences and switching behavior.

Source: IBM Institute for Business Value, “Capturing hearts, minds and market share”
The Case for Change

**Globalization**
Emerging global players compete everywhere
New market entry becomes critical
Global skills sourcing

**Commoditization**
Aggregators reduce pricing power
Regulators expose commissions
Fierce expense competition

**Diversification**
Customers demand customization
Products to market-of-one
Cross-LOB value becomes important

**Disintermediation**
Others own more information
Others interact more frequently
Others offer advice and influence
2017 Geographic Insurance Technology Trends

North America
• Cognitive (Risk Selection, Personalization)
• Cost Take Out
• Platforms: Claims Handling, Policy Servicing, Distribution Support, Geo/LOB expansion, Home, Wellness, Commercial Safety

Europe
• Cognitive
• Platforms (Claims Handling, Policy Servicing, Distribution Support)
• Regulatory/GDPR
• Integrated Health Care Management – (Elder Care)

Latin America
• Mobile (UBI)
• Cognitive (Claims)
• Cyber Security
• Legacy Transformation

Middle East and Africa
• Cyber Security
• Distribution / Product
• Mobile

Australia/New Zealand
• Growing Mobile App Penetration and Sophistication
• Social Media and E-commerce
• Digital to Curate and Refine Data

Asia Pacific
• Mobile (UBI)
• Cognitive (Contact Center, Claims)
• Digitalization (UW, ITaaS)
• Core Systems Transformation

Japan
• Core Systems - Cost Reduction
• Blockchain
• Integrated Health Care Management – (Elder Care)
• Platforms: Policy Servicing Wellness

China
• Integrated Health Care Management – (Elder Care)
• Cognitive
• Blockchain
• Target Operating Model
Three Big Technology Shifts
We now can sense far more data about location, condition, and underlying risk

Example Technologies…
- RFID (Radio Frequency IDentification)
- GPS (Global Positioning)
- Smartphones
- Home automation and metering
- Wearables and personal fitness: cars, bikes, feet…
- Smart pills, appliances, toys

Resulting Disruption:
Instrumented players disintermediate risk
Shifts in risk fundamentals
Radical shifts in monitoring
INTERCONNECTED

People, systems, and objects communicate and interact in new ways

Example Technologies…

- Mobility
- Ubiquitous computing
- Social networking / microblogging
- Affinity communities
- Reputational markets

Resulting Disruption:

Aggregators disrupt pricing and structure
Advice source shift
Financial transaction restructuring
New forms of risk pooling
What's Going On?

INTELLIGENCE

Systems can understand context, predict change, and optimize for future events

Example Technologies...

- Deep QA / Watson
- Big Data
- Microforecasting
- Stream Processing
- Identity Analytics
- Semantic Analysis

Resulting Disruption:

Augmented / Replaced Agents
Customer Knowledge Interlopers
Regulator-led brain surgery
Effects on Industries
(Including Insurance)
Tech Adoption Rates Are Radically Increasing
Traditional value chains are evolving to embrace ecosystems

Value chains have fragmented

Industries have converged

Ecosystems are emerging
The insurance industry illustrates the shift to ecosystems.
The changing insurance world
Ankle-Biters become Giants
How Apple is killing standalone platforms

Apple: vastly stronger network effects

Source: © 2011 Parker & Van Alstyne
A cautionary tale…
Disruption in the Insurance Ecosystem

**Aggregator**

Entrants offering comparison of legacy insurance carrier products

- Goji
- netQuote
- INSWEB
- CoverHound
- Google

**New Entrants**

Entrants offering new policy business models via crowd pooled risk profiling

- BOUGHT BY MANY
- friendsurance
- GUEVARA
- inshared

**Telematics Services**

Entrants offering auto policies based solely on PAYD model and entrants supporting telematics

- InDrive
- Metromile

**Services**

Entrants offering servicing and support analytics

- snapsheet
- QuanTemplate
- aptricity
- Analyze Re
- Ytora

**Other Industries**

Insurance offerings through partnerships with companies outside of the insurance industry

- Ameriprise
- Costco
- Costco
- Walmart
- autoinsurance.com

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Industry response: Options Insurance choosing

Either build own ecosystem or risk being left out

<table>
<thead>
<tr>
<th>New Standalone</th>
<th>Partner</th>
<th>Lobby Regulators</th>
<th>Operational Barriers</th>
<th>Better Proposition</th>
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<td>Build a new standalone business with similar business and operating models as new entrants</td>
<td>Partner with new entrants on front and/or back office services</td>
<td>Lobby regulators to level the playing field – regulate new entrants or deregulate industry</td>
<td>Leverage existing capabilities to limit growth of new entrants</td>
<td>Leverage capabilities (e.g., customer insight, existing channels, risk competence) to build better value proposition</td>
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- **New Standalone**
  - Direct Line Group

- **Partner**
  - Walmart

- **Lobby Regulators**
  - U.S.

- **Operational Barriers**
  - China

- **Better Proposition**
  - GEICO
  - Progressive
CASE: eCall4All - IBM and Bosch Complete The IoT Value Chain Platform

Scope of Transformation:
- Industry Integration: Easily push and pull data from leading industry solutions, both IBM’s and its multiple partners
- Built on Open Standards and Device neutral: IBM complements its sensor, gateway, network, or processor partners
- IoT specific security: Security microservices built specifically for IoT based solutions

Business:
- The IBM & Bosch partnership eCall4All was designed to use telematics to reduce deaths via vehicle accidents as well as reduced & Casualty claims (Personal & Commercial), Life, Health, & Reinsurance
- The eCall4All global service is designed for aftermarket, retrofit solution to add services from the respective insurance company to the policy holder

Objective:
- First point of contact in emergency
- Faster response to mitigate Bodily Injury and Property Damage claims arising from an accident
- Use preferred suppliers to fix damages
- Differentiate between accidents with or without body injury and property damage
- Easy entrance to high value digitalization
- Entry for future value added services
- Reduced reinsurance rates

Policyholder – Peace of Mind
- Immediate access to emergency services
- Flexibility training to improve behaviors in emergency situations
- Automated crash response with direct contact to the insurer & claims handling
- Advanced severe weather conditions or crisis warnings and roadside assistance

Why is IBM’s Partnership Compelling
- Enterprise-ready components to connect, secure, provide data insight, assemble, and manage IoT applications
- IBM Watson IoT Platform is holistic, modular and covers end-to-end IoT Operating model and The Weather Company assets
- Global data centers – with 40+ data centers across the globe

Improving the claims process
- Accident Reporting: Guarantees that issues are reported the second they happen, not just within the “accident reporting window”
- Liability Analysis: Provides claim managers the opportunity to obtain incident information while it’s still fresh on the driver’s mind
- Reduce Fraud: Auto insurance is the greatest component of overall insurance fraud. The cost of fraudulent claims is approximately $30 billion annually
- Set the Full Story: It’s easier for preserving evidence and potential paperwork while all involved parties are still on the scene

IoT Specific Security:
- Security microservices built specifically for IoT

Questions Answered:
- Response time to mitigate Bodily Injury and Property Damage claims
- Differentiate between accidents with or without body injury and property damage
- Easy entrance to high value digitalization
- Entry for future value added services
- Reduced reinsurance rates

INSTRUMENTATION

Device plugs into vehicle's 12v outlet
Device connects to smartphone via Bluetooth
Driver downloads eCall app from Google Play Store
App Store

When device detects a collision, crash data and user information is sent to the smartphone app via Bluetooth

Emergency services or roadside assistance can be dispatched based on severity

Bosch Service Solutions
- 6,000+ associates
- 27 dedicated service centers
- 16 countries on one network
- 30 languages native
Technology Reactions
Fundamentals of Analytics

Volume, Velocity, Variety, Veracity

Big Data

Data Scale

Exa
Peta
Tera
Giga
Mega
Kilo

Data at Rest

Mixed (Un)structured

Complex Analytics

Traditional Data and Analysis

Data in Motion

Hidden Data Relationships

10,000x Larger

10,000x faster

10,000x Larger

10,000x faster

Decision Frequency

Occasional  Frequent  Real-time
Fundamentals of Data

Source: IBM Global Technology Outlook - 2012
Fundamentals of Cognitive Computer Intelligence

Exponential Growth of Computing

- All Human Brains
- One Human Brain
- One Mouse Brain
- Insect Brain

Calculations per Second per $1000

- 1950: 10
- 1975: 10^10
- 2000: 10^11
- 2025: 10^15
- 2050: 10^26
- 2100: 10^30

Computer Intelligence

- Tabulating
- Programmable
- Cognitive

Time

Mass Produced

Personalized Protection

Mass Customized
### T-Shaped Industry Model

**Customer Integration**
- Omnichannel
- Personalization
- Point-of-risk interactions

**Analytics Hub**
- Single Source of Truth
- Workflow, Process, Data, Content Management

**Partner Integration**
- Insurance-linked services
- Cross-enterprise integration

#### Insurance Systems of Record
- Geo, functional, LOB coverage
- Cloud service for lower risk, capital investment
- Configurable product integration

#### Security
- Secure, compliant local data

#### Hybrid Cloud
- Hybrid, dynamic infrastructure
- PaaS and ITaaS

- Frequent customer engagement at points of relationship
- Stronger agent support via realtime mobile analytics and customer view
Cloud Data: Systems of Systems

Shift Business Model Within Industry
Making / Selling to “As a Service”

IoT Framework: Reinvent Business Models Across Industry Boundaries
Cross-Connected Industry Value

Design
Change ↓ Analytics & Learning

Manufacture
Change ↓ Analytics & Learning

Operate

Connected Vehicle

Retail Referral

Entertainment & Media

Connected Navigation

Digital Marketing

Travel Concierge

Auto Consumer Profiling

Safety & Security

Driver Risk Management

Insurance-as-a-Service

Smarter Cities

Commercial Fleet Management

Vehicle Care

Remote Access

Analytics & Learning

Design

Operate

Manufacture

Change ↓ Analytics & Learning

Change ↓ Analytics & Learning

Change ↓ Analytics & Learning
Changes In One Industry Have Domino Effects

- Fully automated self-driving vehicles as "second class road citizens"
- Taxi and livery drivers, dispatch services
- Package delivery services
- Post offices and mail delivery (see Japan Post for evolution)
- Mass transit and auto sales. Why have buses? Point to point transit
- Insurance. Auto insurance underpins the non-life insurance industry
- Retail. Amazon's advantages multiply on last mile delivery
- Eldercare. Elders will no longer be shut in
- Nightlife. Boom in the bar and restaurant trade. No more DUI's.
Small Things … Large Changes

“**The Quantified Student**”

Apps to track university students on voluntary basis
- time
- location
- noise level
- phone activity (were they using phone or other apps)

Inferences
- partying time
- studying time
- sleep time
- physical activity

**Findings**
- Students who study more get better grades
- Students who buckle down at end of semester get better grades
- Students who study in louder environments get better grades
Insurance Strategy – Three Lines, Six Letters

(IT Spend)

Cloud Analytics
Mobile Social
Security Watson

(SoR vs. SoE/SoI)

Analytics Mobile Social ...
Watson

Cloud Security
Changing business models in the Insurance industry

**Instrumentation**
“Insurers as risk mitigators”

- Pay claims and benefits after loss
- Management of property systems and provision of services / utilities
- New sensors to track the temperature, wind speed, humidity, and mechanical vibrations
- Development of systems that can detect imminent collisions and take evasive action

... proactively prevent losses

**Interconnectedness**
“Insurance as a Service”

- Sell a policy at fixed term and premium
- Jointly developing products with customers based on their risk profile
- Fraud detection using social collaboration between insurance companies
- Augmented customer understanding via data capture during sales process

... proactively cover at point of risk

**Intelligence**
“Experienced risk planners”

- “Insurance is sold, not bought”
- Model future risk development for customers based on experience of similar risk profile
- Better understand, explain and cover risks related to Industry 4.0 dynamics
- Real time predictive operational analytics to empower better customer service, marketing, and infrastructure

... add value to insured through strong advice
Insurance Technology Initiatives
2017 Insurance Technology Trends

Digital Front Office
- IT as a Service
- Cognitive Claims
- Cognitive Underwriters

Core Systems Modernization
- Core Systems on Cloud
- Enterprise Content Management
- Micro Services

Ecosystem Disruption
- On-demand Platforms (Home, Auto, Agri)
- Non Differentiated Core Processes Delivered Through External Utilities
- Wearables, Shared Economy Platforms, UBI

Customer & Risk Insight
- Business Analytics
- Social Selling
- Predicative Analytics

Distribution
- Blockchain
- Customer Next Best Action
- Incentive Compensation Management

Customer and Risk Engagement
- Mobile
- Virtual Digital Agent
- Cognitive Contact Center

Flexible Portfolio in Product Development
- Internet of Things
- Weather and Insurance
- Cognitive Product Optimization

Risk & Compliance
- DOL and GDPR (New regulations)
- Compliance Reporting
- Cognitive Legal

Radically Transformed Back Office
- Radical Cost Take Out
- Cognitive and Robotics Process Automation
- Financial Performance Management

Secure Operations
- Cyber Security
- Safer Planet
- Cognitive Security

Claims and Fraud Management
- Claims Counter Fraud
- Promotory

Culture
- Talent Analytics
- Cognitive Builds = e.g. Water Hacks
- Learning and Knowledge

IBM Global Industries – Insurance
Blockchain will also have a potentially pervasive automation impact

**Bicycle Manufacturer**
- Registers new bikes
- Transfers ownership

**Owner**
- De-registers bike (wreck, disposed)
- Report bike stolen
- Transfers ownership

**Insurer**
- Validates stolen claim
- Update claim status
- Pays out insurance

**Bicycle shop**
- Registers Lock with bike
- Transfers ownership

**LoRa Lock**
- Registers open / close status
- Registers location
- IoT & GPS enabled

**Police**
- Register ‘notice’ of owner of lost / stolen bike
- Registers bikes that are found
Analytics and Cognitive Computing
Cognitive systems understand like humans do, whether that’s through natural language or the written word; vocal or visual.

They reason. They can understand information but also the underlying ideas. Difference between math and Geometry.

They never stop learning. As a technology, this means the system actually gets more valuable with time. They develop “expertise”.

Develop insights and recommendations to deepen customer intimacy or improve business operations.

Find information, answers, concepts, and insights based on an understanding of natural language.

Create compelling user experiences that are intuitive, functional, and easy to use.
Inside the Watson ecosystem

We bring the experience together using functions modeled on human cognition
Watson Digital Virtual Agent
Providing the expertise and assurance at scale

Engage in conversations about complex industry-specific topics by providing on-demand access to advisor experience

 Deliver a highly personalized, guided or un-guided, customer experience through a preferred channel of interaction and customized visualizations for every client
Cognitive Contact Center
Empower agents to better respond to requests and improve call conversion rates

Self-Service Q&A

Real-time aggregation of relevant customer answers and documents to answer every question

Personalize customer experience with personality profile

Improve agent productivity by analyzing extracted and mined call logs to identify patterns, quality issues, similar phrases, topics and trends
A variety of new technologies are set to spur a fundamental transformation of the insurance industry.

Swarm economy is highly disruptive for insurers’ classical business and distribution models.
“Every morning in Africa, a gazelle wakes up.

It knows it must run faster than the fastest lion or it will be killed.

Every morning a lion wakes up.
It knows it must outrun the slowest gazelle or it will starve to death.

It doesn’t matter whether you are a lion or a gazelle.

When the sun comes up, you better start running.”

Thomas Friedman – The World is Flat