Insurance:
Leading Through Disruption

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Improving public understanding of insurance...

...what it does and how it works
Insurance & Economic Leadership
Insurance & Economic Leadership

Sustainable Business Model

2010
- Bank Failures: 157
- Insurance Impairments\(^1\): 8

Policyholder Surplus:
$700.9B \rightarrow \text{End 2016}

Strong Jobs Pool/Provider

2.8M Employed
Need to Fill 400K+ by 2022\(^2\)

Economic Growth Promoter/Facilitator

$507.7B
2.7% US GDP\(^3\)

- Premium Taxes Paid\(^4\): $19.2B
- Bond Investment\(^5\): $489B
- Charity/Volunteerism\(^6\): \(\uparrow 15\%

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The Insurance Industry’s Contribution to GDP Now Nearly Equals Banks’

Sources: US Bureau of Economic Analysis; Insurance Information Institute.
Insurance Industry Snapshot: By the Numbers

2.8 million
People in the U.S. employed, in a wide variety of careers, from human resource administrators to public relations managers to financial analysts.

$5.8 trillion
Assets under management at year-end 2016, including $1.5 trillion for the property/casualty sector and $3.7 trillion for the life sector.

$508 billion
Contributed to the U.S. gross domestic product in 2016, roughly 2.7% of the whole.

$40.0 billion

Source: A Firm Foundation, Insurance Information Institute.
The Yearly Cash Flow to Rebuild Lives and Property is Substantial

Insurers annually pay over a trillion dollars in claims to rebuild lives, property, and businesses.

In 2016 alone, the industry paid

- $386.4 billion P/C incurred claims (L + LAE)
- 554.7 Life/Annuity benefits
- 560.9 Health Insurance benefits

= $1.502 trillion

This is equivalent to $125 billion per month.
Insurers Are Major Investors, 2015

Total invested assets: $5.8 trillion

Categories of investments ($billions)

- Bonds: $3,904
- Stock: $698
- Mortgages & Real Estate: $468
- Other: $748

Categories of bonds ($billions)

- Corporates: $2,117
- Munis: $549
- Mortgage & Asset-Backed: $548
- US Gov’t: $252
- Other: $868

22% of corporate bonds outstanding
15% of municipal bonds outstanding

Sources: NAIC (the Center for Insurance Policy and Research, June 6, 2016) via SNL Financial; Insurance Information Institute.
As Economies Grow Wealthier, Insurance Market Penetration (Premium as % of GDP) Also Grows

Some wealthy countries have penetration rates of 10% and higher

Source: A.M. Best.
Insurance Market Report
State of Insurance

Top Issues

- Autonomous Vehicles
- P2P insurance
- Cybersecurity
- Sharing Economy
- Workers Comp Regulation
- Politics
- Overcapitalization (Reinsurance)

Catastrophe Costs

P/C Payouts / Property Losses\(^1\)

- 2015: $15.4B
- 2016: $21.6B

U.S. Insured Cat Losses

- 2016 Loss Up Modestly Compared With 10-Year Average $19.1B
- 2016 Loss: $21.6B
- 2015 Loss: $15.4B

Consolidation/M&A

Insurance-related Deals Involving U.S. Firms\(^2\)

- 2015: 564 Deals, Value $101B
- 2016: 500 Deals, Value $20B

Deals and Value:

- Autonomous Vehicles (JAPAN)
- Cybersecurity (BERMUDA)

M&A or completed M&As involving U.S. insurance companies (2017)\(^3\)

- 25

\(^1\)PCS; \(^2\)Conning Research; \(^3\)S&P Financial.
The Economy Drives P/C Insurance Industry Premiums

Direct Premium Growth (All P/C Lines) vs. Nominal GDP

Direct written premiums track nominal GDP—not quarter by quarter but overall fairly well.

Sources: S&P Global Market Intelligence; U.S. Commerce Dept., Bureau of Economic Analysis; Insurance Information Institute.
Commercial lines is prone to much more cyclical volatility than personal lines.

Note: Data include state funds beginning in 1998.
Sources: A.M. Best; Insurance Information Institute.
P/C Insurance Industry Combined Ratio, 2000-2017*

Sources: A.M. Best; ISO, a Verisk Analytics company; I.I.I.
Even as prevailing rates rise in the next few years, portfolio yields are unlikely to rise quickly, since low yields of recent years are “baked in” to future returns.
Insurer gains from investments vary from year to year (they plunged in 2008-09) but in the last decade, excluding the effect of the Great Recession, ranged between $55 billion and $65 billion each year. In contrast, net underwriting gains have not exceeded $21 billion in any year and were actual losses in five of the 10 years.

Sources: NAIC data, sourced from S&P Global Market Intelligence; Insurance Information Institute.
P/C Insurance Industry ROE by Presidential Party Affiliation

1950-2016*

BLUE = Democratic President   RED = Republican President

Catastrophe Change
Natural Catastrophe Losses Totaled $175 Billion, Up From $103 Billion in 2015

World Natural Catastrophes, 2016

The Frequency of Extreme Weather Events Is Rising
Number of World Natural Catastrophes, 1980-2016

(Number of relevant events by peril)

Induced Earthquakes

Oklahoma Earthquakes Magnitude 3.0 and Greater

Earthquake insurance take-up rates increased by over 300 percent from 2006 to 2015 in Oklahoma.

Cyber Attacks – No. 2 Global Risk

CAT claims are normally a small part of total claims in the first quarter, but that wasn’t true in 2017. Moreover, although it’s a small sample, the trend seems to be rising.

*Net of reinsurance and including Loss Adjustment Expenses
Sources: ISO PCS; Insurance Information Institute calculations.
Road Safety

Better Economy = More Drivers = More Accidents

Economic well-being

Distracted driving

18 Percent of Injury Crashes

Safety Devices Can Be Expensive

Expensive auto parts

Why rates go up

Legalized marijuana

Driving While High

Faster driving

Speed Still Kills

Source: Insurance Information Institute research.
Insurance and the Fourth Industrial Revolution
Insurance Disruption
Technology / Digitalization

- **Fundamental Changes**
  - Future of Auto
  - Future of Reduced Risk Pools

- **Opportunities**
  - Automation / Efficiencies
  - New Product Lines (Cyber)
  - Emerging Technologies

- **Challenges**
  - Consumer Trust – Demonstrate the Societal Value
  - Big Data vs. Individual Privacy

- **New Market Entrants “Uber of Insurance”?**
  - Lemonade
    - Offered in CA, IL, NJ, NY

- **Regulatory Opportunities/Threats**
  - Barrier to Entry
  - US vs. Other Less Regulated Regions
  - Trust Pull-back – the Sandbox Approach
InsurTech Disruption: Threat or Opportunity?

Automation efficiencies can have powerful impact on industry

Focus of InsurTech in the insurance value chain

- Only nine percent of InsurTechs aim to oust incumbents
- 30% Disintermediating incumbents from customers
- 61% Enabling the value chain

Future profits as a % of today’s profits

- Digitizing the business, auto insurance example

<table>
<thead>
<tr>
<th>Today's profits</th>
<th>2025 profits</th>
<th>2035 profits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term gain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
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<tr>
<td>120-200</td>
<td>220-300</td>
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<tr>
<td>-20 to -60</td>
<td>-60 to -100</td>
<td>15-55</td>
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<td>155-195</td>
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<tr>
<td>Long-term decline</td>
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<tr>
<td>15-55</td>
<td>155-195</td>
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</table>

1Insurtechs are insurance businesses, usually startups, that use technologically innovative apps, processes, or business models; 2016 data based on some 500 commercially well-known cases. 2Assumes a 3 to 5 percentage point improvement in loss ratio, a 2 to 4 percentage point improvement in operating expenses, and a 6 to 8 percentage point improvement in direct sales conversions. 3Includes growth in investment income as well premiums. Investment income modeled as a flat percentage of premium in each year. 4Includes impact of semi- and fully autonomous vehicles. 5Assumes a 25 percent reduction in premiums as a result of telematics and sensors and a 50 percent risk transfer to commercial product liability.

InsurTech Startups Have Broad Range…BUT…

<table>
<thead>
<tr>
<th>Risk</th>
<th>Health</th>
</tr>
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<tbody>
<tr>
<td><strong>Insurance Marketplace</strong></td>
<td></td>
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<tr>
<td>CoverHound</td>
<td>turtlemint</td>
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<tr>
<td>policybazaar.com</td>
<td>Coverfox</td>
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<tr>
<td>GetInsured</td>
<td>policygenius</td>
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<tr>
<td>HealthSherpa</td>
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<td><strong>Digital Brokers</strong></td>
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<td>insureon</td>
<td>EMBROKER</td>
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<td>coverwallet</td>
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<tr>
<td>FOUNDRERSHIELD</td>
<td></td>
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<td><strong>Peer to Peer</strong></td>
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<td>friendsurance</td>
<td>Lemonade</td>
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<td>GUEVARA</td>
<td>YYY PEERCover</td>
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<td><strong>Micro-duration Coverage</strong></td>
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<td>trov</td>
<td>Slice</td>
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<td><strong>Telematics</strong></td>
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<td>TrueMotion</td>
<td>metromile</td>
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<td>Zendrive</td>
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<td><strong>Health Navigators</strong></td>
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<td>Welltok</td>
<td>TELADOC</td>
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<td>Accolade</td>
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<td>omada</td>
<td>TRUVENT HEALTH ANALYTICS</td>
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<tr>
<td>KYRON</td>
<td>castlight</td>
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<td>GRAND ROUNDS</td>
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Source: Aon.
...With Broad Incumbent Support

<table>
<thead>
<tr>
<th>Company</th>
<th>Funding</th>
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<tbody>
<tr>
<td>Metromile</td>
<td>$205M</td>
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<tr>
<td>intact</td>
<td></td>
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<tr>
<td>China Pacific Insurance</td>
<td></td>
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<tr>
<td>CoverHound</td>
<td>$57M</td>
</tr>
<tr>
<td>AIG</td>
<td></td>
</tr>
<tr>
<td>American Family Ventures</td>
<td></td>
</tr>
<tr>
<td>ONE, Inc.</td>
<td>$37M</td>
</tr>
<tr>
<td>MassMutual Ventures</td>
<td></td>
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<tr>
<td>AXA Strategic Ventures</td>
<td></td>
</tr>
<tr>
<td>policygenius</td>
<td>$21M</td>
</tr>
<tr>
<td>MassMutual Ventures</td>
<td></td>
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<tr>
<td>Transamerica</td>
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<tr>
<td>AXA Strategic Ventures</td>
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<tr>
<td>Slice</td>
<td>$4M</td>
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<td>XL CATLIN</td>
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<tr>
<td>Munich RE</td>
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</tbody>
</table>

Note: Total funding.
Source: Aon.
Successful Digital Transformation → Holistic Approach
THANK YOU
APPENDIX
Rising Auto Costs

A force to be reckoned with…
Loss ratios have been rising for a decade.
2015 return on net worth is likely close to zero or negative.

Source: National Association of Insurance Commissioners data, sourced from S&P Global Market Intelligence; Insurance Information Institute.
State Issues

Auto Insurance

Increase in Loss Costs, 2015:Q1–2017:Q1

<table>
<thead>
<tr>
<th>Loss Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodily Injury</td>
<td>15.3%</td>
</tr>
<tr>
<td>Property Damage</td>
<td>15.0%</td>
</tr>
<tr>
<td>Personal Injury Protection</td>
<td>14.1%</td>
</tr>
<tr>
<td>Collision</td>
<td>13.2%</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

From 2015 to 2017, the cost of accidents has risen dramatically. By contrast, consumer prices overall rose 3.9 percent during 2014 and 2015.

Source: Fast Track Monitoring System.

When people are out of work, they drive less. When they get jobs, they drive to work, helping drive claim frequency higher.

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Sources: Seasonally Adjusted Employed from Bureau of Labor Statistics; Rolling four-quarter average frequency from Fast Track Monitoring System; Insurance Information Institute.
Driving has been getting safer for decades, but recent trend is discouraging—38,300 deaths in 2015.

Sources: National Safety Council, Insurance Information Institute.
Fixing a Bumper

...On an Entry-Level Luxury Car (~$35K)

2014 Cost vs. 2016 Cost

![Graph showing cost comparison between 2014 and 2016 for parts and labor.]

What Has Changed?

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grille: Distance Sensor</td>
<td>$0</td>
<td>$2,818</td>
</tr>
<tr>
<td>Headlamp Assembly</td>
<td>394</td>
<td>918</td>
</tr>
<tr>
<td>Mechanical Labor</td>
<td>0</td>
<td>108</td>
</tr>
</tbody>
</table>

Fewer Accidents, Higher Costs

- Parts: 130% Higher
- Labor: 18% Higher
- Total cost: $1,705 higher

2016 vehicle has LED headlights and adaptive cruise control.
Source: Liberty Mutual Insurance.
Commercial auto rates fell less in soft cycle and have risen more than overall property/casualty market.

Sources: MarketScout, Insurance Information Institute.
Vehicles in Crashes Per 100 Registered Vehicles (Government Data)

(\% Change From Year Earlier)

Commercial Auto Claim Frequency Began Growing Before Personal Auto.

Property Damage Only (PDO) claims involving passenger vehicles and large trucks, respectively. Large trucks: GVW > 10,000 lbs.

Insurance As An Economic Growth Driver
Major Construction Projects Don’t Start Without Insurance

An example: Boston’s “Big Dig.” At $14 billion, the project was...

- Larger than the original Panama Canal
- More expensive than the “Chunnel” connecting France and England
- Among the carriers who were winning bidders were AIG, Lexington, Zurich-American and Kemper Environmental.
- Workforce included 150 general contractors, 600 construction companies
- Worst fear: that a building within 50 feet of the excavation would collapse

As financial intermediaries, insurers convert short-term funds into longer-term investments.

In 2015, the industry converted $71 billion in premium income that was not needed for immediate claims payments into new long-term investments (bonds, mortgages, common and preferred stock, and owned real estate).
Insurance Contributes to Growth by Speeding Recovery

- Insurers are “financial first responders”
  - Insurance claims administration and payment is the most efficient way to achieve rapid recovery
  - Insurers perform this function more quickly and reliably than government or other aid organizations
  - This effect benefits not just those directly affected but also the wider community
  - After SuperStorm Sandy, 93% of claims were closed within 6 months
Insurance Is an Instrument of Social Policy

Mandated auto liability insurance

Workers compensation insurance

Since 1959 (when IIHS was founded), over half a million deaths in auto crashes avoided

In just the last dozen years, Workers Comp insurers have continued to help reduce injury and illness rates in the workplace.

Insurance supports new ventures.

In the case of the Falcon 9 launches, insurance is needed for potential damages to:
- The launch pad
- Nearby government property
- Nongovernment property
- The rocket and [$200 million] satellite

For the Economy, Insurance Is Growing in Importance

- This is because economic activity is increasingly interdependent
  - This translates to an increase in the need for, and the cost of, activities that ensure the functioning of production and consumption (e.g., transportation, information)
  - With modern technology, the vulnerability of these systems and interdependencies increases