Insurance:
Leading Through Disruption
I.I.I. Mission Statement

Improving public understanding of insurance...

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

Sustainable Business Model

2010

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

Policyholder Surplus:
$700.9B → 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\(^6\) ↑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

\[
\begin{align*}
\text{P/C incurred claims (L + LAE)} & = 386.4 \text{ billion} \\
\text{Life/Annuity benefits} & = 554.7 \\
\text{Health Insurance benefits} & = 560.9 \\
\hline
\text{Total} & = 1.502 \text{ trillion}
\end{align*}
\]

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: $748
- Mortgages & Real Estate: $698
- Other: $468

Categories of bonds ($billions)

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

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

Consolidation/M&A
Insurance-related Deals Involving U.S. Firms\(^2\)
- 2015: 564 DEALS, $101B VALUE
- 2016: 500 -11% DEALS, 20B -80% VALUE

Insurance deals involving U.S. insurance companies (2017)\(^3\)
- 25 pending or completed M&As

\(^1\)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*

Including M&FG, 2008=105.1, 2009=100.7, 2010=102.4, 2011=108.1; 2012=103.2; 2013= 96.1; 2014= 97.0.
Sources: A.M. Best; ISO, a Verisk Analytics company; I.I.I.
P/C Insurer Portfolio Yields, 2003-2016

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.

Sources: NAIC data, sourced from S&P Global Market Intelligence; Insurance Information Institute.
Sources of P/C Insurer Profits, 2007-2016

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*

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

- Includes 30 quakes M4.0-4.7
- Includes 15 quakes M4.0-4.4
- Includes 20 quakes M4.0-5.1; 1 quake M5.8
- Includes 3 quakes M4.0-4.8; 1 quake M5.6

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

Speed Still Kills

Expensive auto parts

Why rates go up

Faster driving

Legalized marijuana

Driving While High

Safety Devices Can Be Expensive

Expensive

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

- 61% Enabling the value chain
- 30% Disintermediating incumbents from customers
- 9% Disrupting the value chain

Only nine percent of InsurTechs aim to oust incumbents

Future profits as a % of today’s profits

Digitizing the business, auto insurance example

- Short-term gain:
  - Today’s profits: 120-200
  - 2025 profits: 220-300

- Long-term decline:
  - 2035 profits: 155-195

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>
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<tbody>
<tr>
<td><strong>Insurance Marketplace</strong></td>
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<tr>
<td>CoverHound</td>
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<tr>
<td>policybazaar.com</td>
<td>policygenius</td>
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<td>turtlemint</td>
<td>HealthSherpa</td>
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<tr>
<td>Coverfox</td>
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<td>EMBROKER</td>
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<td></td>
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<td></td>
<td>FOUNDER SHIELD</td>
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<td><strong>Peer to Peer</strong></td>
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<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>Slice</td>
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<td><strong>Telematics</strong></td>
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<tr>
<td>TrueMotion</td>
<td>castlight</td>
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<tr>
<td>Metromile</td>
<td>Grand Rounds</td>
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<td>Zendrive</td>
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Source: Aon.
...With Broad Incumbent Support

<table>
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<tr>
<th>Company</th>
<th>Funding</th>
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<tr>
<td>Metromile</td>
<td>$205M</td>
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<td>intact</td>
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<tr>
<td>Intact Insurance</td>
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<td>China Pacific</td>
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<td>Insurance</td>
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<tr>
<td>CoverHound</td>
<td>$57M</td>
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<td>Chubb</td>
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<tr>
<td>American Family</td>
<td></td>
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<tr>
<td>Ventures</td>
<td></td>
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<tr>
<td>ONE, Inc.</td>
<td>$37M</td>
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<td>MassMutual</td>
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<td>Ventures</td>
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<td>Transamerica</td>
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<td>AXA Strategic</td>
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<td>Ventures</td>
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<td>Slice</td>
<td>$4M</td>
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<td>Munich RE</td>
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Note: Total funding.  
Source: Aon.
Successful Digital Transformation → Holistic Approach
THANK YOU

Q&A
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>Category</th>
<th>Increase</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>
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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.

Sources: Seasonally Adjusted Employed from Bureau of Labor Statistics; Rolling four-quarter average frequency from Fast Track Monitoring System; Insurance Information Institute.
Severity: Driving Fatalities Are Rising

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

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.
Vehicles in Crashes Per 100 Registered Vehicles (Government Data)

(Property Damage Only (PDO) claims involving passenger vehicles and large trucks, respectively. Large trucks: GVW > 10,000 lbs. Sources: Federal Highway Administration, National Highway Traffic Safety Administration, Insurance Information Institute.)

Commercial Auto Claim Frequency Began Growing Before Personal Auto.
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 Expand the Funds Available to Grow the Economy

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

SpaceX Explains September Explosion, Says It’ll Try Again Sunday

Barely three months after one of its rockets blew up on the launchpad — destroying a $200 million Facebook satellite with it — SpaceX said Monday that it plans to try again this weekend.

- Insurance enables individuals and organizations to take new risks.
- 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

Sources: Art: Cover of Contingencies magazine, May-June 2017 issue; headline: http://www.nbcnews.com/science/space/spacex-explains-september-explosion-says-it-ll-try-again-sunday-n702421
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