

# THE FUTURE OF WORK IN INSURANCE

The Effect of Technology and Innovation on  
Occupational Outlooks in the Insurance Industry

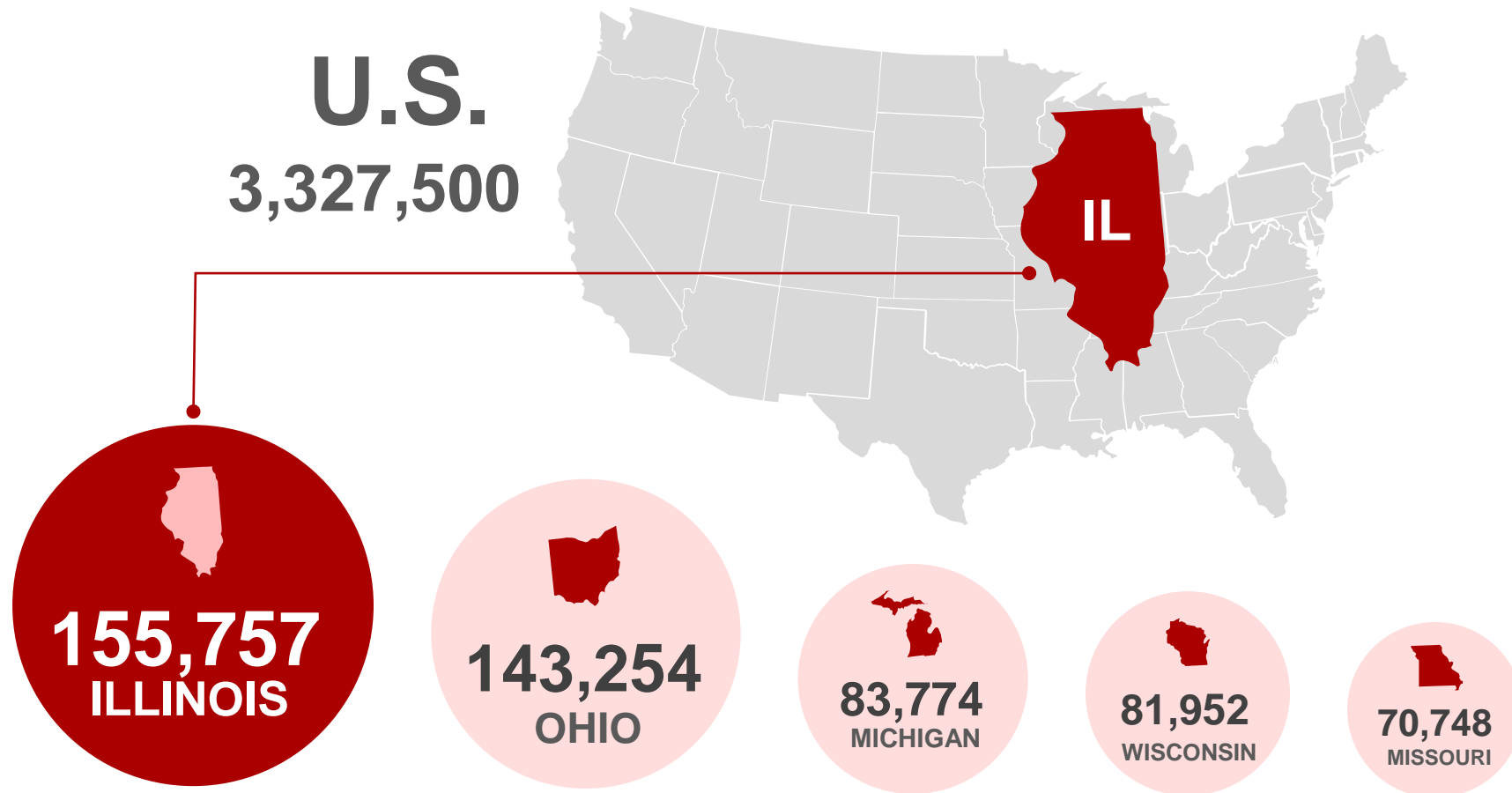


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# Total Full-Time and Part-Time Direct Employment in Insurance



Additional 16,194 people who are self-employed, and additional 150,000 in indirect jobs working with insurance as technology vendors, service contractors, professional consultants, and suppliers

# Change in Employment in Core Occupations of Insurance Industry 2007-2017

Occupation	Year 2017	Year 2012	% Change 5YR 2012-2017	Year 2007	%Change 10YR 2007-2017
ALL	2,291,980	2,056,840	11.4%	2,156,360	6.3%
Sales	416,300	370,030	12.5%	364,280	14.8%
Customer Service Reps	300,430	255,340	17.7%	248,690	20.8%
Insurance Claims Clerks	233,190	201,420	15.8%	204,750	13.9%
Claims Adjusters...	202,230	185,120	9.2%	208,940	<b>(-3.2)%</b>
Insurance Appraisers...	15,330	11,510	33.2%	10,840	41.42%
Lawyers	13,410	12,520	7.1%	11,500	16.6%
Underwriters	79,400	82,800	-4.1%	85,560	<b>(-7.2)%</b>

10 percent growth by 2026

1 percent decline by 2026



Projections to 2026 for Select Occupations Insurance Nationally Title	2016		2026		Percent change
	Employment	Percent of industry	Employment	Percent of industry	
<b>Management occupations</b>	<b>198.4</b>	<b>7.7</b>	<b>220.5</b>	<b>8.0</b>	<b>11.1</b>
Claims adjusters, appraisers, examiners, and investigators	237.4	9.2	237.9	8.7	0.2
<b>Claims adjusters, examiners, and investigators</b>	<b>221.0</b>	<b>8.6</b>	<b>220.8</b>	<b>8.0</b>	<b>-0.1</b>
Insurance appraisers, auto damage	16.4	0.6	17.1	0.6	4.1
<b>Compliance officers</b>	<b>15.3</b>	<b>0.6</b>	<b>17.0</b>	<b>0.6</b>	<b>11.4</b>
Financial specialists	184.5	7.1	186.4	6.8	1.0
<b>Accountants and auditors</b>	<b>41.0</b>	<b>1.6</b>	<b>45.6</b>	<b>1.7</b>	<b>11.1</b>
Financial analysts and advisors	<b>124.9</b>	<b>4.8</b>	<b>121.3</b>	<b>4.4</b>	<b>-2.9</b>
Financial analysts	19.8	0.8	20.9	0.8	5.8
Personal financial advisors	12.7	0.5	13.5	0.5	6.6
<b>Insurance underwriters</b>	<b>92.4</b>	<b>3.6</b>	<b>86.8</b>	<b>3.2</b>	<b>-6.0</b>
Financial examiners	5.6	0.2	5.9	0.2	5.2
<del>Computer and information analysts</del>	48.2	1.9	51.6	1.9	7.0
<b>Information security analysts</b>	<b>5.8</b>	<b>0.2</b>	<b>7.4</b>	<b>0.3</b>	<b>26.7</b>
Software developers and programmers	59.2	2.3	66.4	2.4	12.0
<b>Computer programmers</b>	<b>11.0</b>	<b>0.4</b>	<b>10.0</b>	<b>0.4</b>	<b>-9.3</b>
<b>Mathematical science occupations</b>	35.4	1.4	43.7	1.6	23.6
<b>Actuaries</b>	<b>16.1</b>	<b>0.6</b>	<b>19.0</b>	<b>0.7</b>	<b>18.0</b>
<b>Operations research analysts</b>	<b>15.5</b>	<b>0.6</b>	<b>19.5</b>	<b>0.7</b>	<b>25.7</b>
<b>Lawyers</b>	<b>15.9</b>	<b>0.6</b>	<b>18.7</b>	<b>0.7</b>	<b>17.4</b>
<del>Sales representatives, services</del>	415.1	16.1	457.0	16.6	10.1
<b>Insurance sales agents</b>	<b>393.6</b>	<b>15.2</b>	<b>433.3</b>	<b>15.8</b>	<b>10.1</b>
Securities, commodities, and financial services sales agents	9.7	0.4	10.1	0.4	3.5
<del>Office and administrative support occupations</del>	1,001.2	38.8	1,034.1	37.6	3.3
<b>Insurance claims and policy processing clerks</b>	<b>265.8</b>	<b>10.3</b>	<b>293.9</b>	<b>10.7</b>	<b>10.6</b>

# Regional Occupational Outlooks Vary from National Outlook

Claims Outlook Nationally **-0.1**  
 Central IL **+0.32**  
 Downtown Chicago **+0.99**

Underwriting Outlook Nationally **-6.0**  
 Central IL **-1.38**  
 Downtown Chicago **-0.66**

## Occupation Profile for Insurance Adjusters, Examiners, and Investigators in LWA 15, IL

### Occupational Employment & Future Employment Outlook Table

This table shows the long term employment projections for Claims Adjusters, Examiners, and Investigators (no data available for Insurance Adjusters, Examiners, and Investigators) in LWA 15, IL from 2014-2024.

Occupation	2014 Estimated Employment	2024 Projected Employment	Total 2014-2024 Employment Change	2014-2024 Annual Avg. Percent Change
Claims Adjusters, Examiners, and Investigators	1,435	1,481	46	0.32%
Total All	302,179	310,266	8,087	0.26%

## Occupation Profile for Insurance Underwriters in McLean County, IL

### Occupational Employment & Future Employment Outlook Table

This table shows the long term employment projections for Insurance Underwriters in LWA 15, IL (which contains McLean County, IL - no data available for McLean County, IL) from 2014-2024.

Occupation	2014 Estimated Employment	2024 Projected Employment	Total 2014-2024 Employment Change	2014-2024 Annual Avg. Percent Change
Insurance Underwriters	634	552	-82	-1.38%
Total All	302,179	310,266	8,087	0.26%

## Occupation Profile for Insurance Adjusters, Examiners, and Investigators in LWA 07, IL

### Occupational Employment & Future Employment Outlook Table

This table shows the long term employment projections for Claims Adjusters, Examiners, and Investigators (no data available for Insurance Adjusters, Examiners, and Investigators) in LWA 07, IL from 2014-2024.

Occupation	2014 Estimated Employment	2024 Projected Employment	Total 2014-2024 Employment Change	2014-2024 Annual Avg. Percent Change
Claims Adjusters, Examiners, and Investigators	7,025	7,752	727	0.99%
Total All	2,714,316	2,885,560	171,244	0.61%

## Occupation Profile for Insurance Underwriters in Cook County, IL

### Occupational Employment & Future Employment Outlook Table

This table shows the long term employment projections for Insurance Underwriters in LWA 07, IL (which contains Cook County, IL - no data available for Cook County, IL) from 2014-2024.

Occupation	2014 Estimated Employment	2024 Projected Employment	Total 2014-2024 Employment Change	2014-2024 Annual Avg. Percent Change
Insurance Underwriters	2,868	2,685	-183	-0.66%
Total All	2,714,316	2,885,560	171,244	0.61%

Occupation	Illinois Employment 2016	Projected 2026	Employment Change	Percent Change
Insurance Sales Agents	14,220	15,412	1,192	8.38
Customer Service Representatives	11,930	12,165	235	1.97
Insurance Claims and Policy Processing Clerks	8,620	9,485	865	★ 10.04
Claims Adjusters, Examiners, and Investigators	8,360	8,214	(146)	-1.75
Insurance Underwriters	4,780	4,497	(283)	-5.92
Management Analysts	3,390	3,881	491	★ 14.49
General and Operations Managers	3,420	3,708	288	8.41
Business Operations Specialists, All Other	2,150	2,294	144	6.72
First-Line Supervisors of Office and Administrative Support Workers	2,270	2,279	9	0.4
Accountants and Auditors	1,990	2,144	154	7.76
Computer Systems Analysts	1,850	2,008	158	8.55
Software Developers, Applications	1,300	1,669	369	★ 28.39
Actuaries	1,090	1,336	246	★ 22.55
Financial Analysts	1,040	1,111	71	6.83
Insurance Appraisers, Auto Damage	390	403	13	3.45

# Example of Evolution of Task Migration (Phase 1)

Comprehensive Job Tasks for a Professional Occupation (e.g. Claims Adjuster)

Lower Level Tasks Moved to Lower Level Roles Assisted by Technology

## Typical Job Skills

This section shows the job skills that are related to Insurance Adjusters, Examiners, and Investigators.

Rank	Typical Job Skills	Typical Skill Category
1	Calculate data to inform organizational operations	Mental Processes
2	Appraise property values	Mental Processes
3	Interview witnesses, suspects, or claimants	Information Input
4	Estimate costs of goods or services	Mental Processes
5	Advise others on legal or regulatory compliance matters	Interacting With Others
6	Negotiate agreements to resolve disputes	Interacting With Others
7	Prepare legal or investigatory documentation	Work Output
8	Investigate legal issues	Information Input
9	Report information to managers or other personnel	Interacting With Others
10	Collect evidence for legal proceedings	Information Input
11	Gather financial records	Information Input
12	Verify accuracy of records	Mental Processes
13	Verify application data to determine program eligibility	Mental Processes

Insurance Appraisers Using Evaluation Software

Insurance Claims Processing Clerks

Source: This information is based on O\*NET™ data. O\*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.



# DO YOU REALLY THINK PROCESSING JOBS WILL GROW AS FAST AS BLS FORECASTS?

Insurance Claims Processing Clerks

**JIM'S PREDICTION: WE WONT SEE JOB GROWTH IN THIS OCCUPATION BY 2026**

## Occupation Profile for Insurance Claims Clerks in McLean County, IL

### Typical Job Skills Table

The table below shows the job skills that are related to Insurance Claims Clerks.

Rank	Typical Job Skills	Typical Skill Category
1	Check data for recording errors	Mental Processes
2	Prepare documentation for contracts, transactions, or regulatory compliance	Work Output
3	Enter information into databases or software programs	Work Output
4	Execute sales or other financial transactions	Interacting With Others
5	Calculate costs of goods or services	Mental Processes
6	Compile data or documentation	Mental Processes
7	Send information, materials or documentation	Interacting With Others
8	Discuss account status or activity with customers or patrons	Interacting With Others
9	Review customer insurance information	Mental Processes
10	Explain regulations, policies, or procedures	Interacting With Others

**WAVE 2 TASK  
MIGRATION WILL BE  
AI AND AUTOMATION**

**Automation  
and  
Artificial  
Intelligence**



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# ARE THESE HIGH GROWTH DATA ANALYSTS JOBS REALLY GOING TO GROW BY OVER 20%?

## Projections to 2026 for Select Occupations Insurance Nationally

Title

Title	2016		2026		Percent change
	Employment	Percent of industry	Employment	Percent of industry	
Mathematical science occupations	35.4	1.4	43.7	1.6	23.6
Actuaries	16.1	0.6	19.0	0.7	18.0
Operations research analysts	15.5	0.6	19.5	0.7	25.7

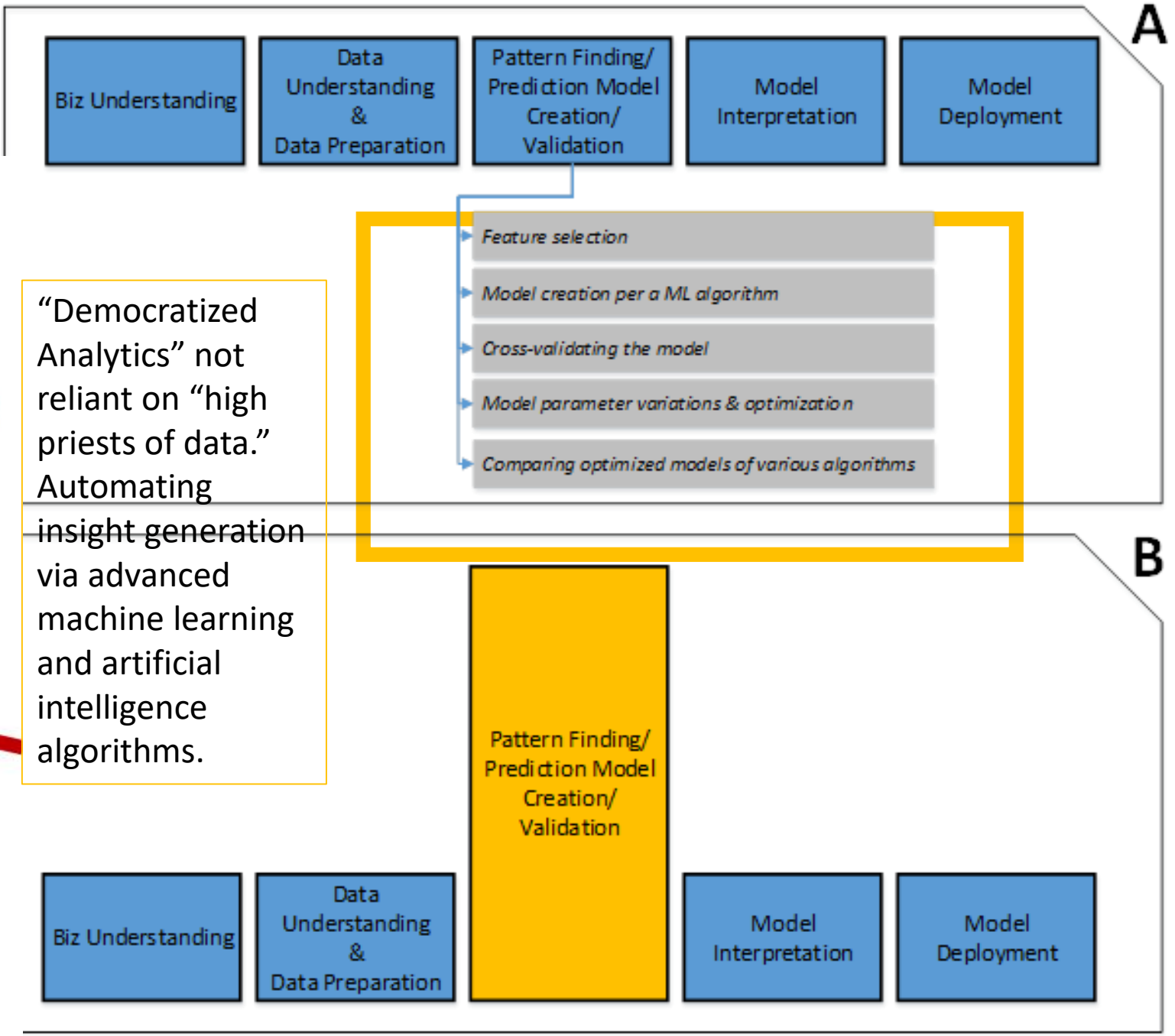
## Typical Job Skills

This section shows the job skills that are related to Actuaries.

Rank	Typical Job Skills	Typical Skill Category
1	Manage financial activities of the organization	Interacting With Others
2	Develop organizational goals or objectives	Mental Processes
3	Analyze health-related data	Mental Processes
4	Analyze data to identify trends or relationships among variables	Mental Processes
5	Negotiate contracts with clients or service providers	Interacting With Others
6	Collaborate with others to develop or implement marketing strategies	Interacting With Others
7	Provide customer service to clients or users	Interacting With Others

Source: This information is based on O\*NET™ data. O\*NET is a trademark registered to the U.S. Department of Labor, Employment and Training Administration.

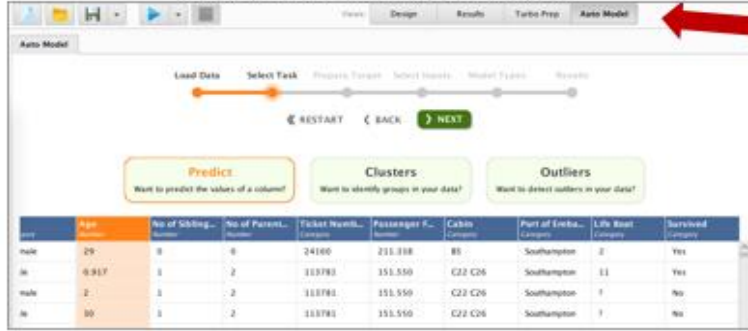
# JIM'S SPECULATION: TASK MIGRATION IN INSURANCE ANALYTICS TO BUSINESS UNITS



<“DataRobot” Augmented Analytics>



<“RapidMiner” Augmented Analytics>



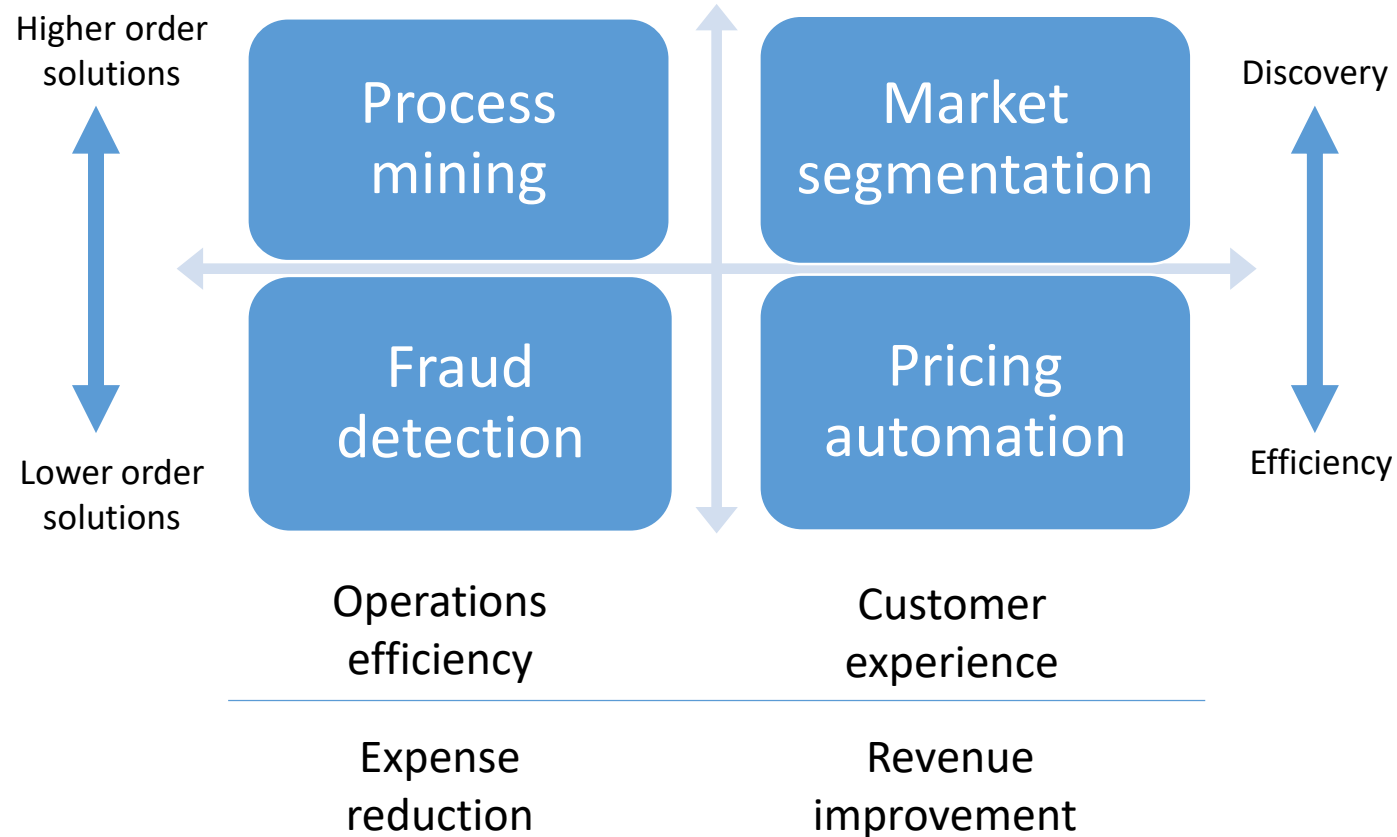
<“Trifacta” Augmented Analytics>



<“Tableau” Augmented Analytics>



# AI Applications in General



Reference: Deloitte

# WHY DO INSURERS HAVE TO GET BETTER AT OPTIMIZING THE COLLABORATION BETWEEN TECHNOLOGY AND PEOPLE?

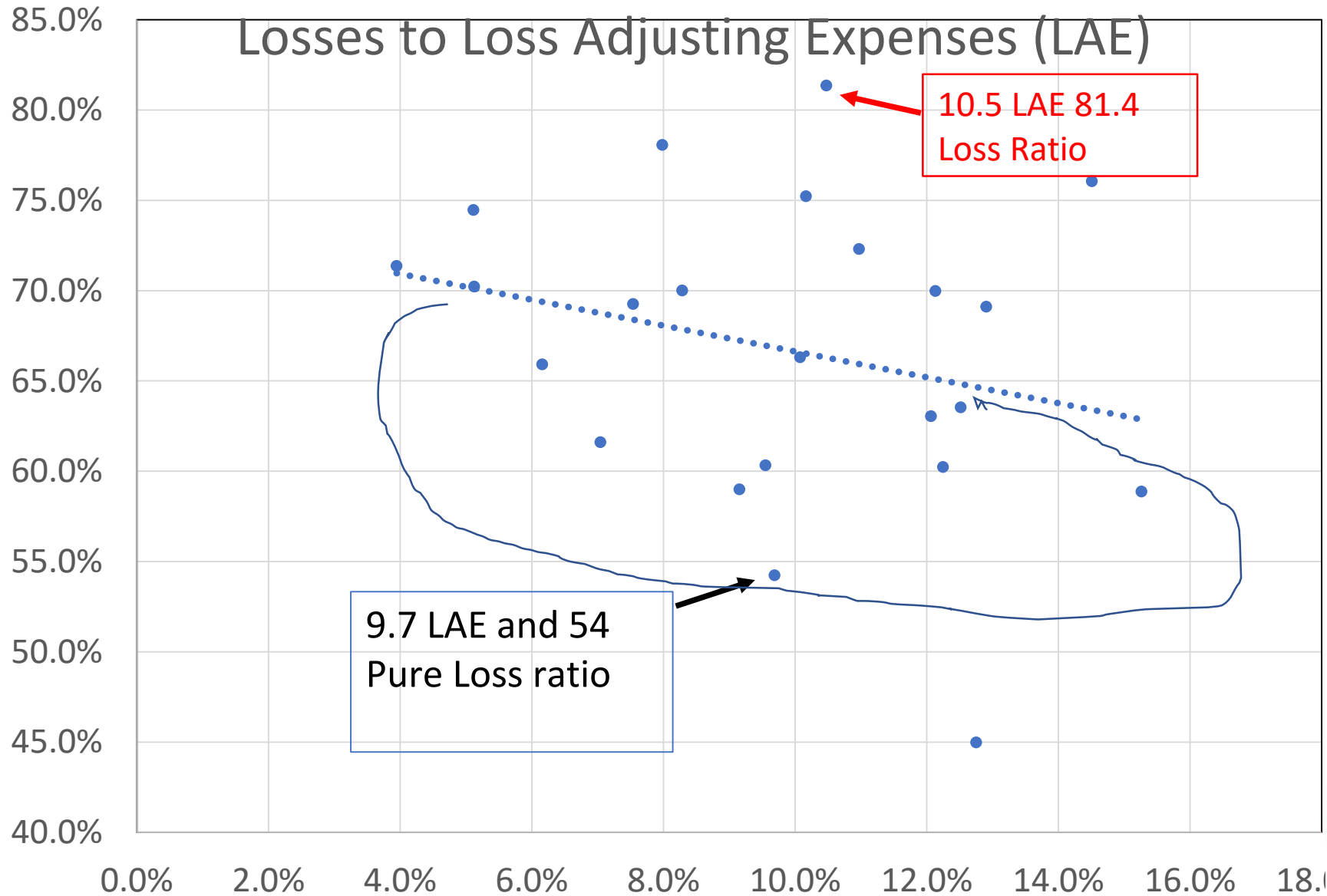


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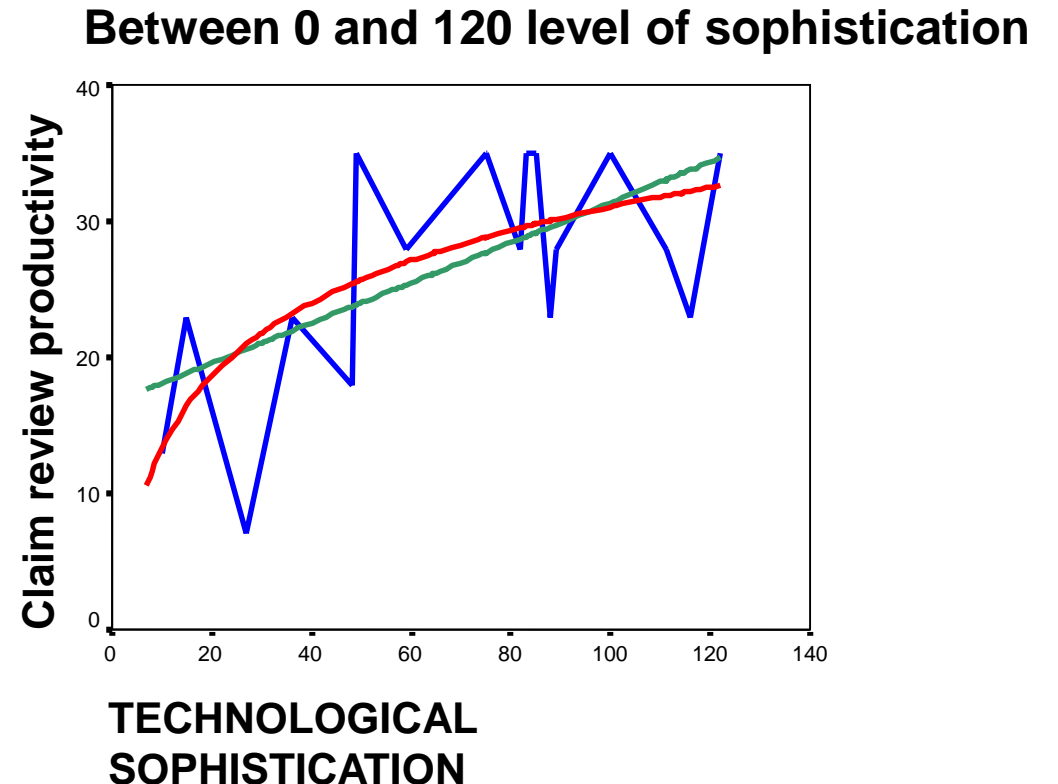
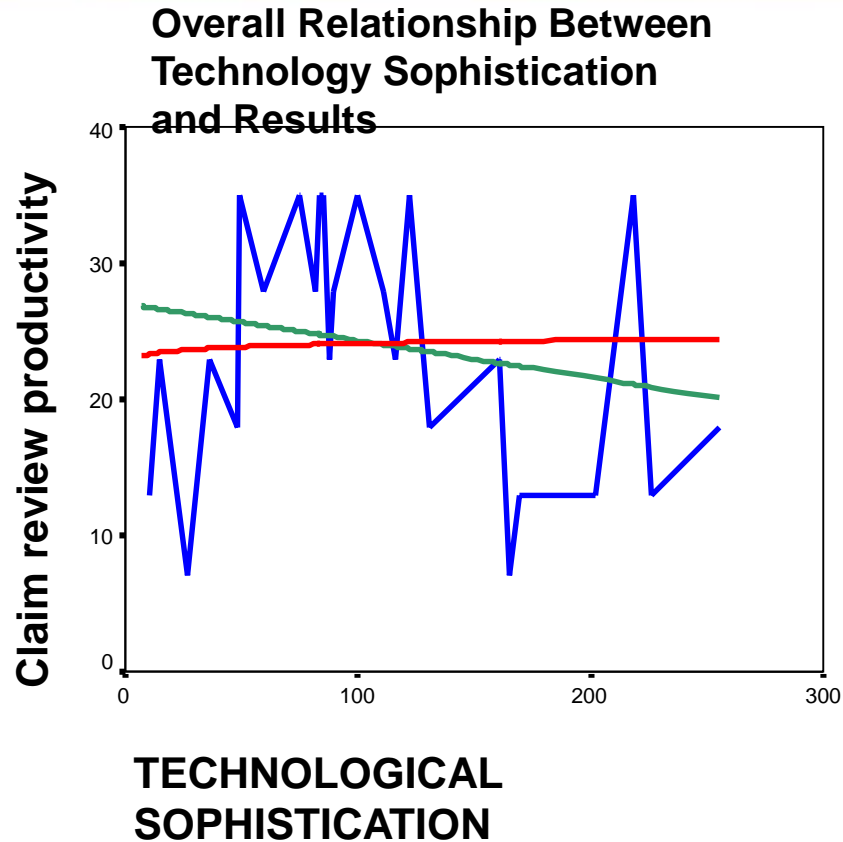


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# BECAUSE: Insurer Results Vary in Their Ability to Optimize a Mix of Personnel and Technology



# Relationship Between Technology and Outcomes



**LEGEND**

- Observed Values
- Linear Relationship
- Curvilinear Relationship



**WHAT KIND OF SKILLS AND  
OCCUPATIONS WOULD BE REQUIRED  
TO ENSURE THAT THE  
COLLABORATION BETWEEN  
TECHNOLOGY AND PEOPLE ARE  
OPTIMIZED ?**



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# HOW WILL INSURTECHS AFFECT JOB OUTLOOKS FOR THE INDUSTRY AND TRADITIONAL INSURANCE ORGS?

1. They might grow the industry helping to increase jobs but main result is likely....
2. They could affect skills needed to succeed and consequently the occupations that thrive
3. They can either affect the ability to attract talent but they may also have talent drained away.



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**Value chain functions**



**Current value chain players**

Agent/  
retail broker/  
wholesale broker

Insurer/  
MGA/  
reinsurer

Adjusters/  
loss control

**InsurTech innovation**

**Aggregators**  
**Online marketplaces**

**U/W risk engines**

AI/ML for  
claims and loss  
control

**INSURIFY**

CYENCE

  
**WeGoLook**  
POWERED BY CRAWFORD



# InsurTech Ownership

- Venture-backed

Metromile


Lemonade

Hippo


zest finance

- Legacy Insurer-backed

HiRoad™ (State Farm)

A BERKSHIRE HATHAWAY COMPANY  
biBERK (Berkshire Hathaway)  
BUSINESS INSURANCE

intrepid (W.R. Berkley)  
DIRECT INSURANCE

TypTap Insurance (Homeowners Choice Property & Casualty)



# STRATEGIC PARTNERSHIPS IN INNOVATION

- Amazon – Travelers
  - Eligible Travelers home insurance customers will also receive a discount on their policy with the purchase of a smart home kit.
- SliceLabs – AXA XL (On Demand Cyber Coverage)
- HSB – Chubb (Personal lines cyber for high wealth insureds)
- Chubb also partnering with CoverHound, Bunker, Insureon (Small business )
- QBE – HyperScience (A machine learning company focused on building enterprise-grade artificial intelligence (AI) solutions for automating office work)
- BMW – Swiss Re (Allows insurer to calculate premiums, while taking into consideration specific driver assistance systems)
- Cisco, Apple, Allianz, Aon (integrated solution to manage cyber risk associated with ransomware and other malware. The joint solution is complete and includes security technologies)



## List Allianz X's corporate venture InsurTech investments, provide a brief description of each firm and explain each firm's business relationship with Allianz, if any.

Since formation in 2013, Allianz X has made 16 investments with a focus on investing in digital growth companies that are part of ecosystems related to insurance. All portfolio companies have strategic partnerships in place with Allianz operating entities. A summary of selected InsurTech investments is described below:

- a) **American Well** – Offers telemedicine solutions to improve access to quality care. Through partnerships with the nation's largest healthcare systems, insurers, employers and retailers, American Well connects millions of Americans with a network of trusted doctors via a video consulting telemedicine service.
- b) **Lemonade** – A licensed insurance carrier offering homeowners and renters insurance powered by artificial intelligence and behavioral economics. Lemonade replaces intermediaries with bots and machine learning to provide customers with zero paperwork and instant insurance access.
- c) **BIMA** – Uses mobile technology to deliver affordable insurance and health products to underserved consumers in emerging markets and families who cannot access vital products through traditional channels. BIMA's tech-enabled approach is key to its ability to reach 30 million subscribers in 14 markets across Africa, Asia and Latin America.
- d) **Simplesurance** – A platform for simple consumer access to insurance. The company enables customers to purchase insurance with just a few clicks within its flagship stores or via its cross-selling solution for e-commerce and within a digital insurance manager.
- e) **GO-JEK** – leading Indonesian on-demand service provider that provides a variety of complete services starting from transportation, logistics, payment, food delivery and other on-demand services, by connecting users to more than 1 million driver partners, more than 150,000 food vendors and more than 30,000 other services.

Additionally, Allianz X has backed other digital growth companies related to insurance and asset management. These include: **N26**, Europe's first mobile bank; **MoneyFarm**, UK-headquartered digital roboadvisor, and **C2FO**, the world's first working capital marketplace.

# WHAT OTHER FORCES WILL MOTIVATE INNOVATION BESIDES EXISTENCE OF NEW TECHNOLOGIES, MORE DATA, AND NEW INSURTECHS?



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**“Innovation is becoming increasingly critical to the long-term success of all insurers”  
(p. 1 Scoring and Assessing Innovation)**

# DRAFT: Scoring and Assessing Innovation

March 14, 2019

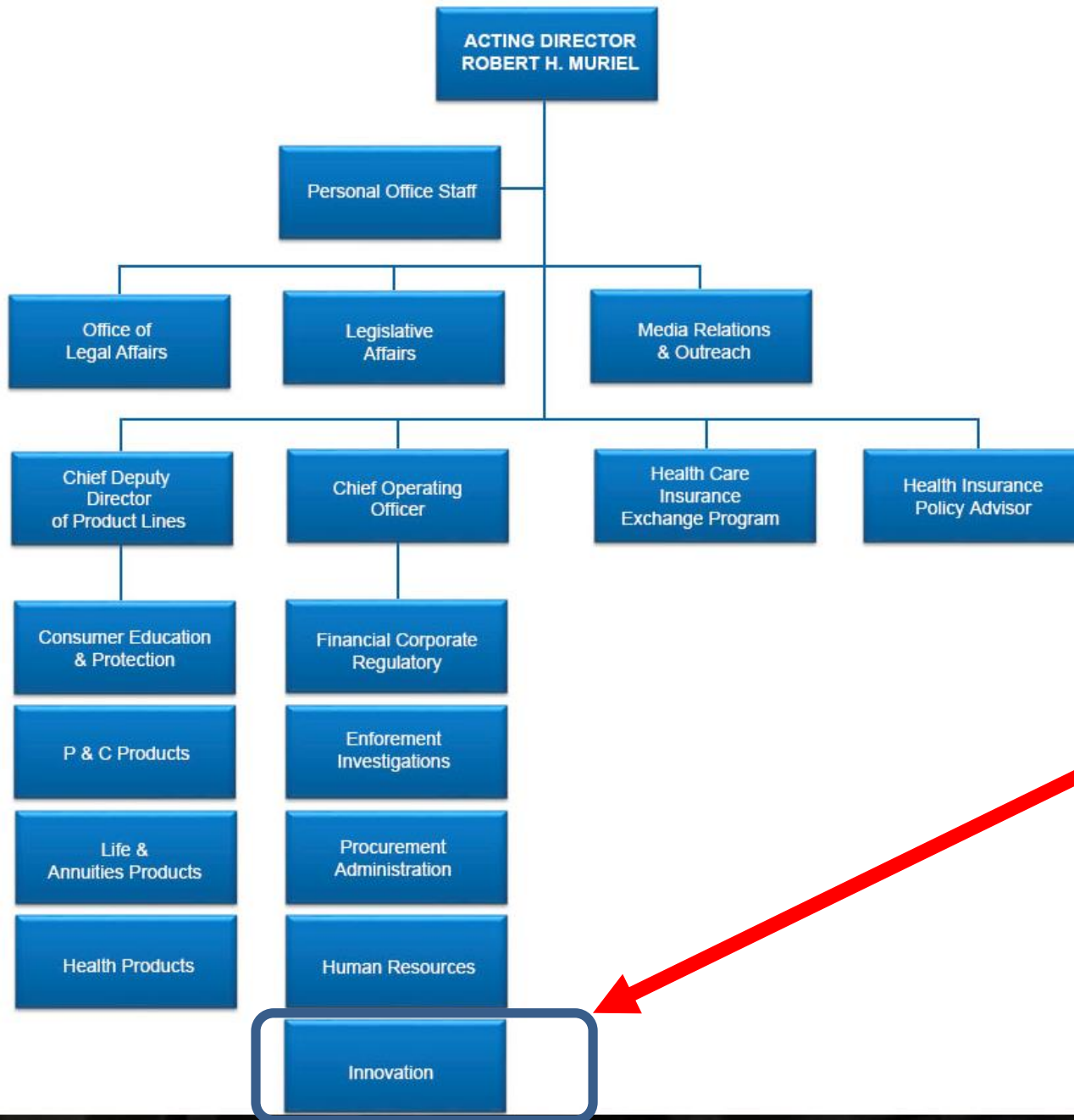
**“Companies operating at this level should be able to provide evidence that middle management understands leadership’s innovation directives, and is actively working to accomplish these goals.” p. 4**

## Exhibit C.2: Innovation Input Score Formula

*Innovation Input Score*

*= Leadership Score + Culture Score + Resources Score  
+ Processes and Structure Score*

# Organizational Chart



## NEW 2019 ORG CHART FOR THE ILLINOIS DEPARTMENT OF INSURANCE

The state of Illinois now has a department of innovation within the Illinois Insurance Department that responds and monitors insurer innovation!



# INSURANCE TECHNOLOGY LANDSCAPE

## Industry Landscape – Selected Category Examples

92 percent of insurtech firms are expected to fail!

**Policy Management Tools / Software**

**Claims Management Tools / Software**

**Innovative / Specialty Insurance**

**Employee Benefits Admin / Insurance Exchange Technology**

**Online Distribution – Direct to Consumer**

<p><b>Lead Gen. / Aggregators</b></p>	<p><b>PCW / Online Agencies / Brokerages</b></p>	<p><b>Health Insurance</b></p>	<p><b>Carrier Affiliated / New Carriers</b></p>
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**Data & Analytics**

**IoT / Telematics**

<p><b>Auto</b></p>	<p><b>Health</b></p>
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**Peer-to-Peer ("P2P")**

**Sales, Marketing and Engagement**





# JIM'S PREDICTIONS ON FIVE KEY SKILLS NEEDED IN INSURANCE THAT WILL AFFECT JOB OUTLOOK

1. **Resilience**: Ability to learn from your failures, recover, make improvements, and set a new path for success. *(Failure is not currently accepted but that has to change to innovate).*
2. **Ability to imagine** how products/services/technologies outside of insurance could be used to benefit Insurance Industry *(Being good at “executing” is table stakes. Must be innovating too.)*
3. **Ability to learn** how new technologies could solve business problems *(Faster pace than in the past and not an option even for management level)*
3. **Ability to integrate and collaborate** with different work cultures (e.g. Insurtech firms)
4. **Ability to understand and use data** to make better decisions, create solutions, and solve problems *(This is same as past but skill will be driven down into business units via use of more user-friendly analytics technology)*



# THE FUTURE OF WORK IN INSURANCE

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