



INSURTECH

October 2018

Michael Owen, FCAS





AGENDA

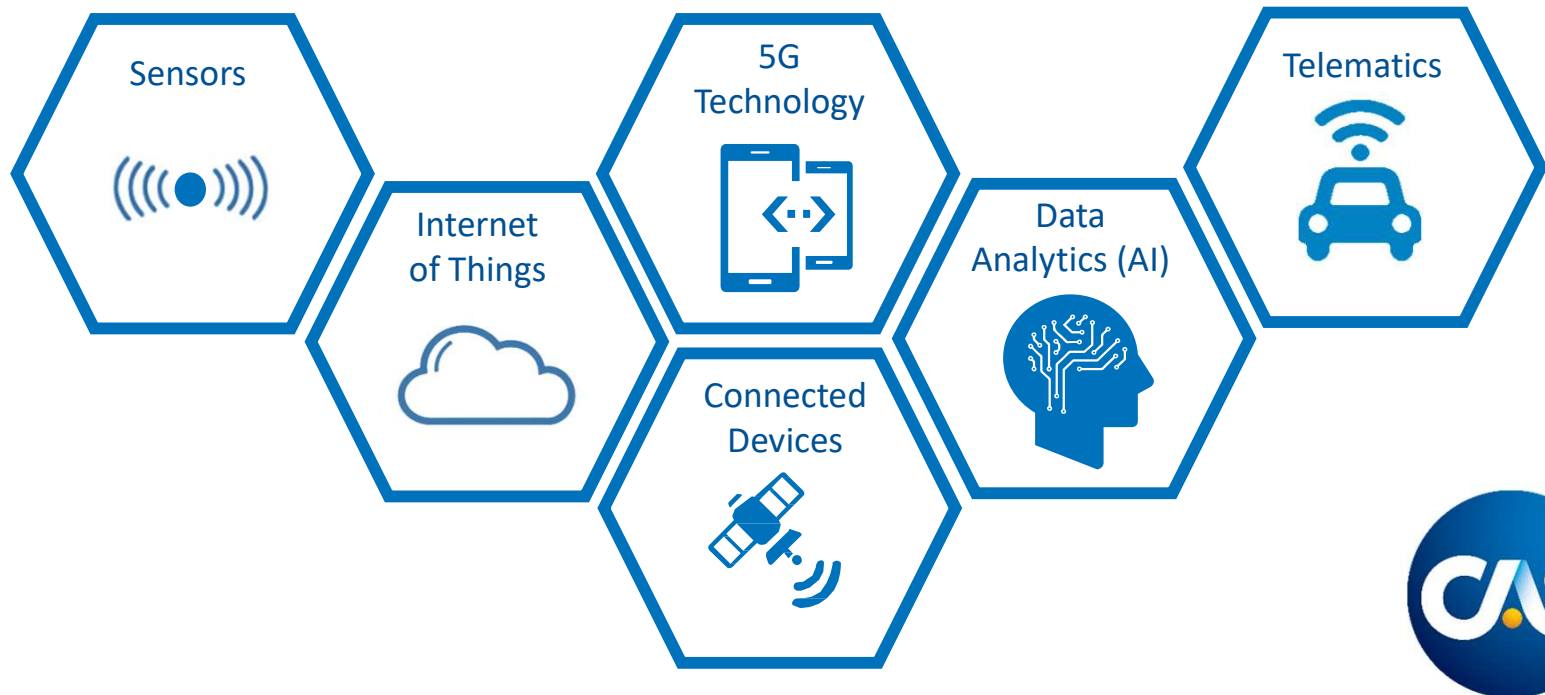
1. What is InsurTech?
2. What are the InsurTech enablers?
3. Who and how much is invested?
4. What is Big Tech doing?
5. Who are the InsurTech companies and where are they located?



- **What is InsurTech?**

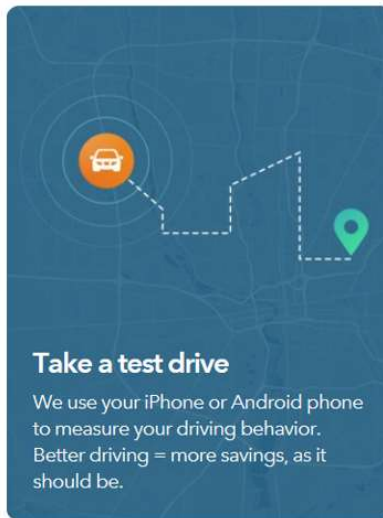
What is InsurTech?

- Short for Insurance Technology, InsurTech refers to using technology in the insurance industry to improve the customer experience, reduce inefficiencies and increase profitability.



Examples of InsurTech Companies

ROOT



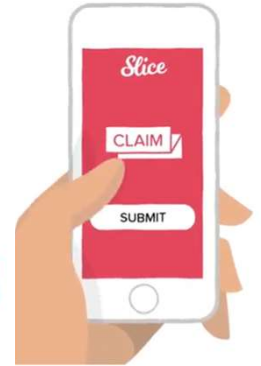
Telematics

Vitality

Vitality is a platform that track fitness and health data through wearable devices and smartphones.

Wearable Devices

AIA *John Hancock*



Usage based insurance for Grab and Uber(*) drivers. Coverage is turned on/off using their phone app.

Usage Based Insurance (UBI)

* There are 11 CAS members working for Uber (6 FCAS and 5 ACAS).



- **What are the InsurTech Enablers?**

The Fourth Industrial Revolution

The Digital Revolution

1784



INDUSTRY 1.0
WATER & STEAM

Steam power, and
mechanization.

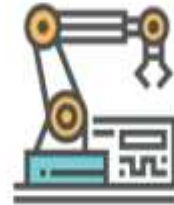
1870



INDUSTRY 2.0
ELECTRICITY

Electrical energy,
mass production
and the first
assembly line
created.

1969



INDUSTRY 3.0
AUTOMATION

Electronics and IT
systems automate
production even
further.

TODAY

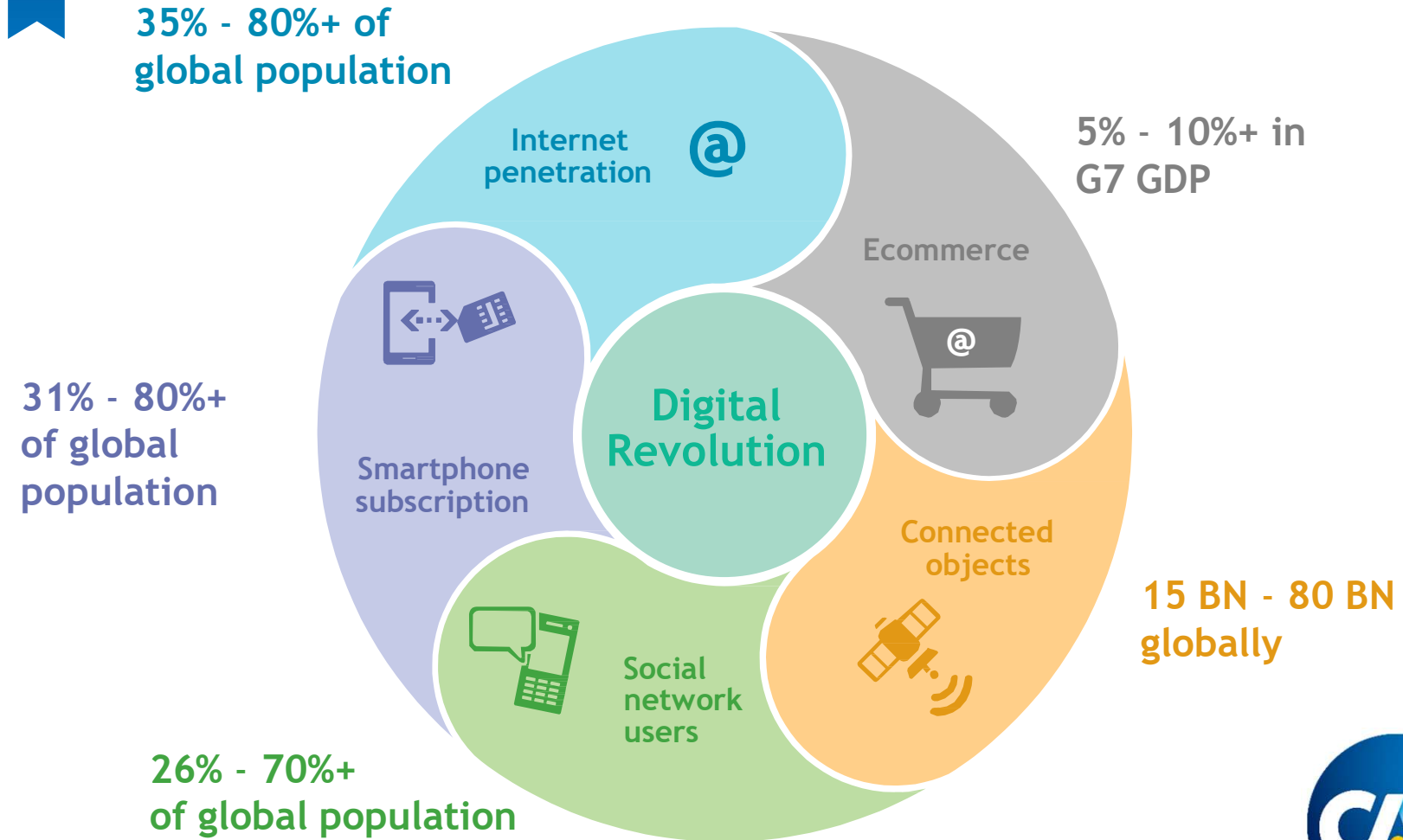


INDUSTRY 4.0
DIGITAL SYSTEMS

Internet of Things,
Big Data,
Artificial Intelligence
and Telematics



The Projected Growth



Source: Oliver Wyman

5G Technology

Massive IoT



1M

Supported connected devices per 1 square kilometer. 5,000 times more than 4G technology.



20

Times faster data transfer speeds compared with 4G.



40

Times shorter latency period

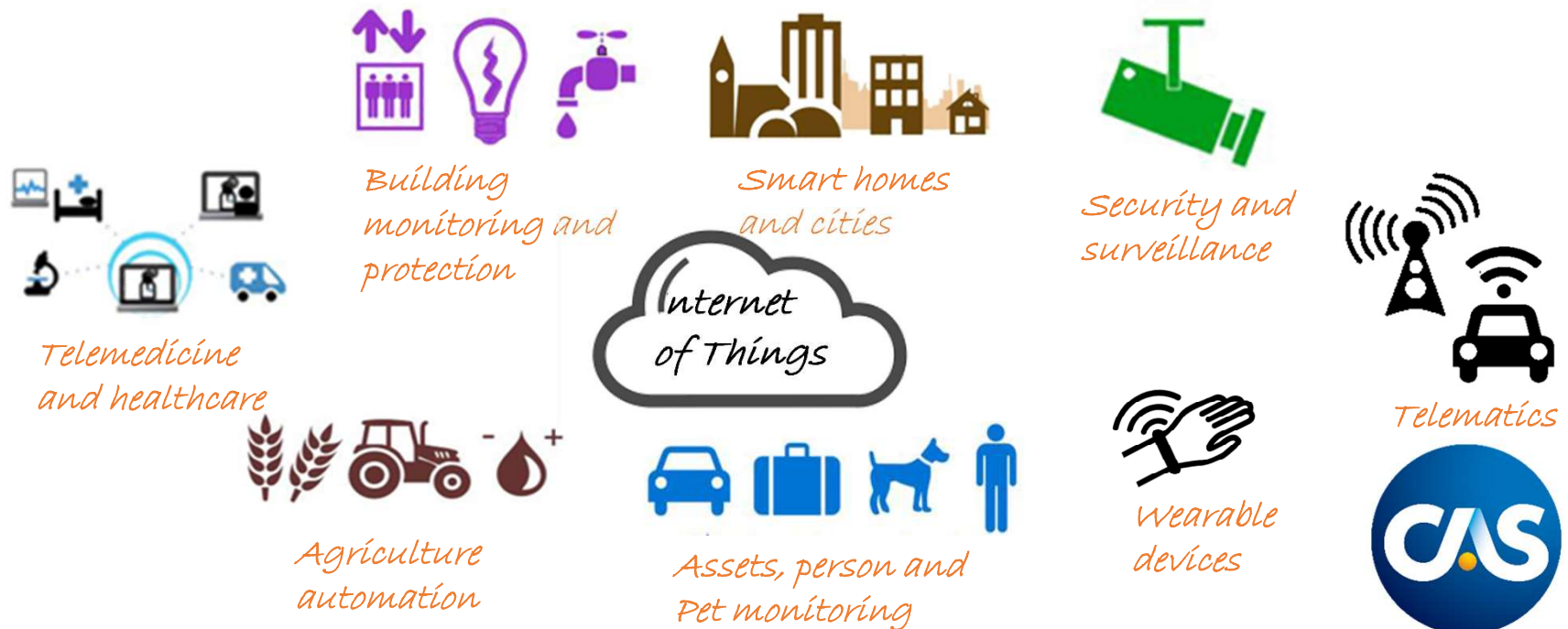
4G LTE Coverage ¹		
Rank	Region	Penetration
1	South Korea	97.49%
2	Japan	94.70%
3	Norway	92.16%
4	Hong Kong	90.34%
5	United States	90.32%
12	Taiwan	87.08%
13	Australia	86.48%
14	India	86.26%
15	Thailand	85.58%
19	Singapore	84.43%
42	Malaysia	74.88%
52	Indonesia	72.39%
54	Vietnam	71.26%
57	Cambodia	70.51%
65	New Zealand	69.07%



1. Source: Opensignal.com, Retrieved 7 May 2018

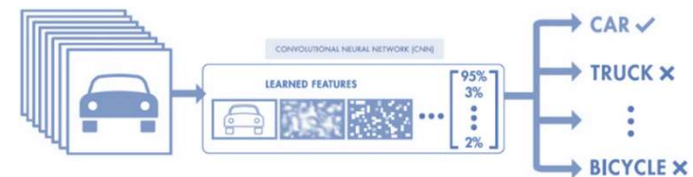
Internet of Things (IoT)

- Computing devices embedded in everyday objects, enabling them to send and receive data.
- These could be sensors to monitor homes, machinery, appliances, driving habits, etcetera.
- Connected devices can also be used to improve distribution and claims management (phone apps).



Big Data

- Originally, big data referred to data sets that are so big that traditional data-processing application software are inadequate to deal with them.
 - Depends on the technology being used to analyze the data
 - Also depends on the speed at which the data arrives
- More recently, big data refers to the large data sets and the analytics tools used to analyze them.
 - Machine learning
 - Predictive analytics
- Data sets are growing rapidly in part because of the information gathered by information-sensing IoT devices.
 - Globally stored data is predicted to grow by a factor of 10 from 2013 to 2020¹.



Chubb Example



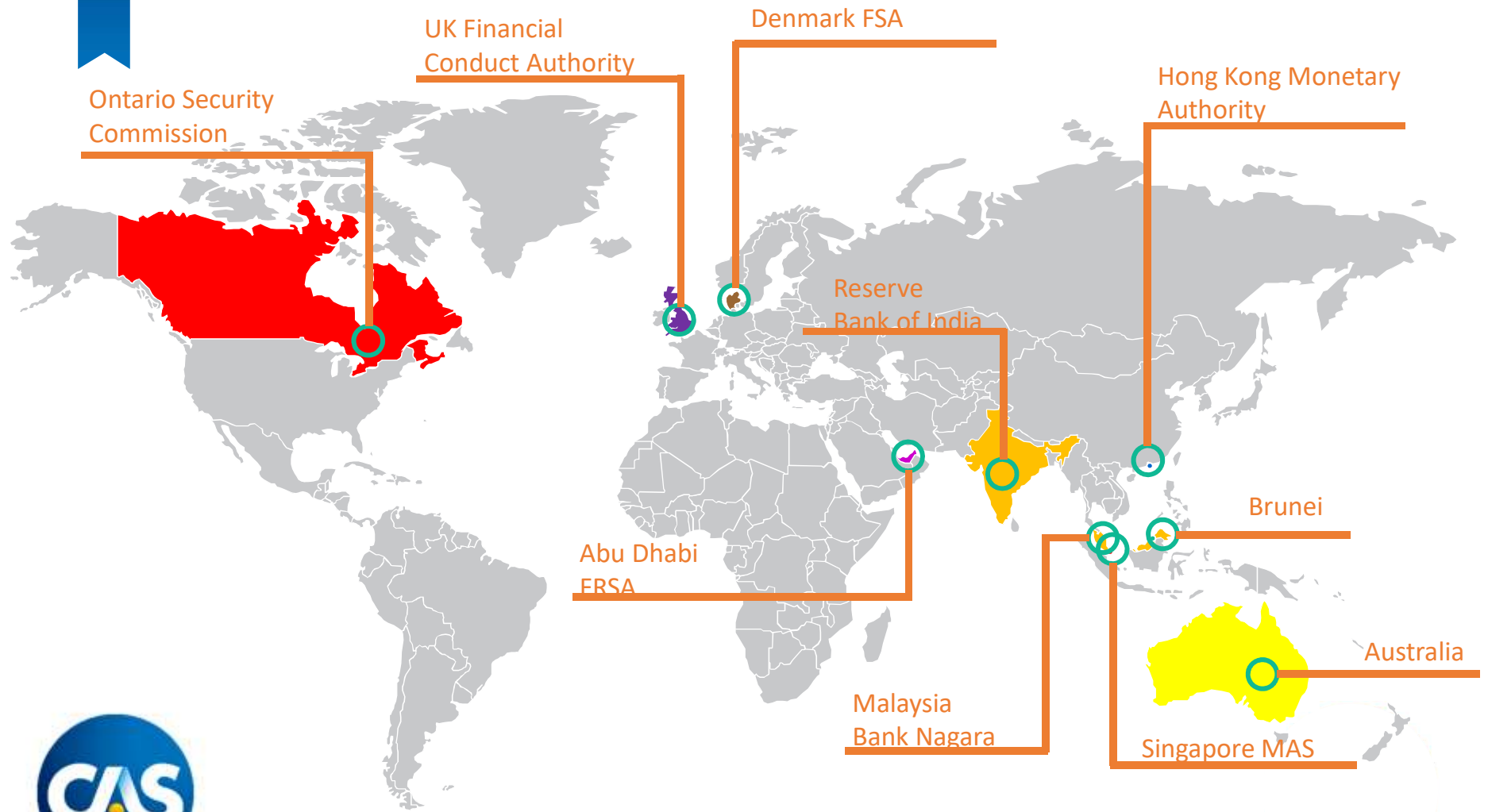
Relying on the availability of data and IoT devices, the insurance company's function will be changed from "repair and replace" to "predict and prevent"

-- Evan Greenberg, Chubb
Chairman and CEO

- Chubb invests over \$1 billion annually in technology to improve distribution, claims management, data analytics and process enhancements.
- Chubb's questionnaire for small business enterprises:
 - Currently 30 questions.
 - Goal is to reduce it to 7 questions in the next 18 months
 - Ultimate goal is two questions; name and address
 - Use web scraping and other sources to get the rest of the information.



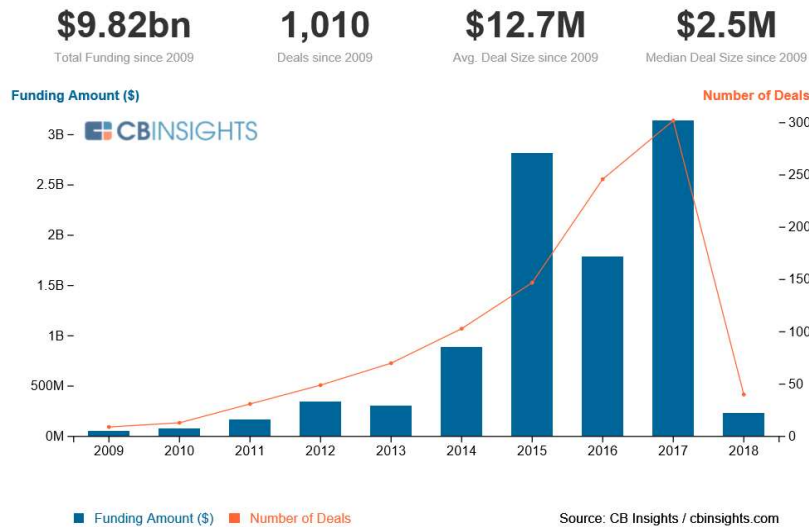
Regulatory Sandboxes



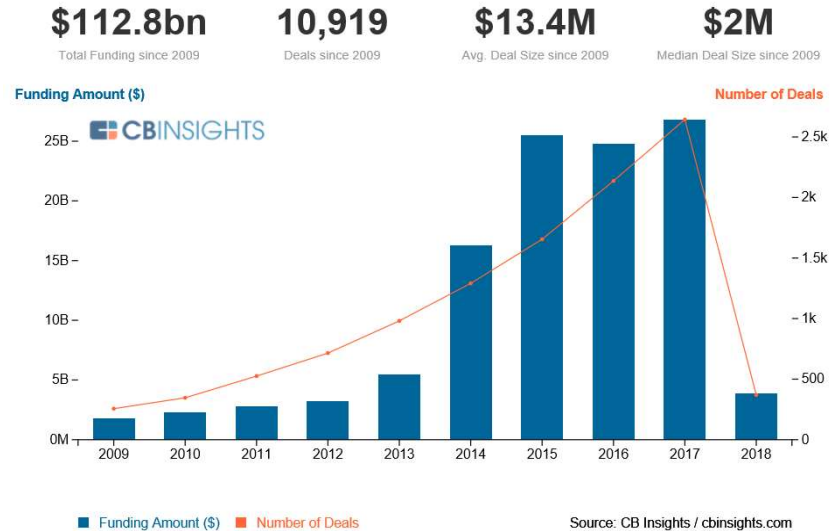
- **Who and How Much is Invested?**

InsurTech versus FinTech Investments

Global InsurTech Investments (USD)



Global FinTech Investments (USD)

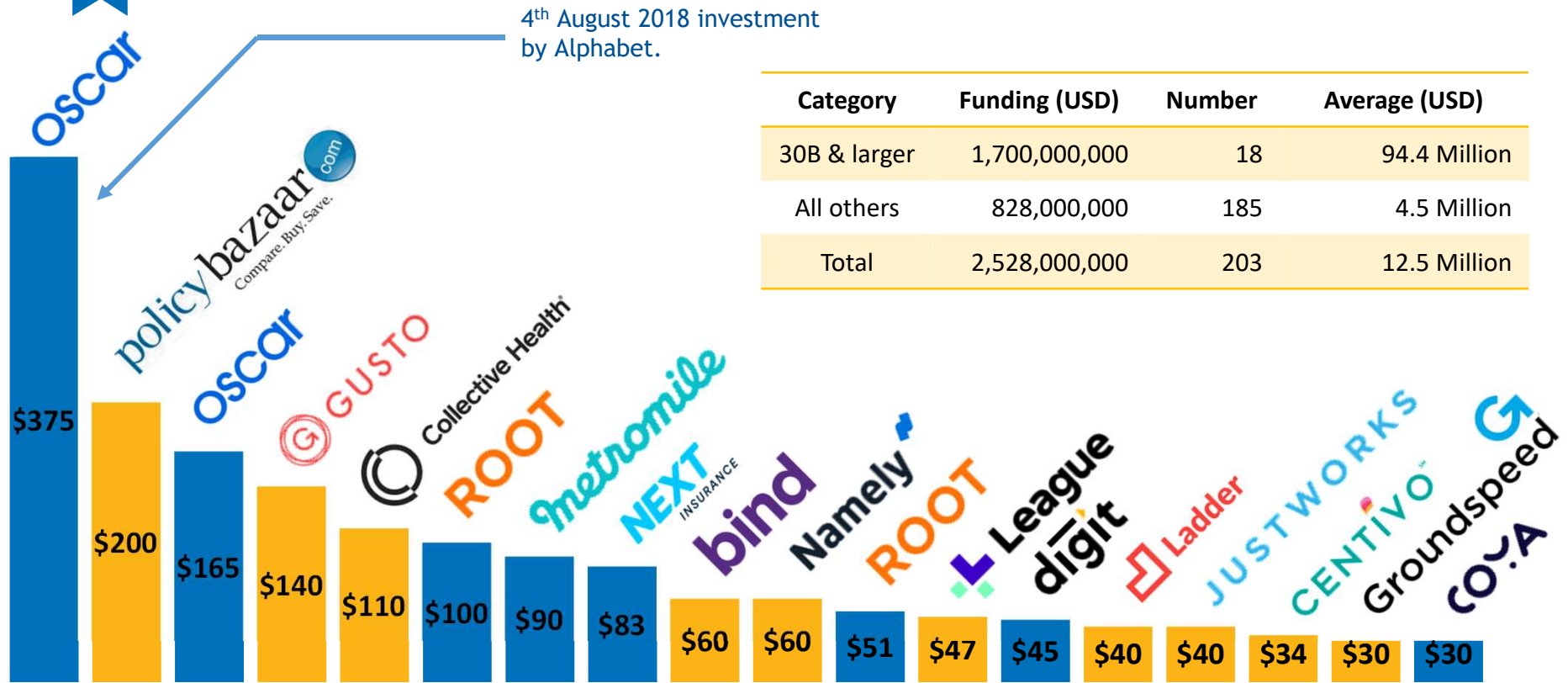


Investments in FinTech companies has been about 10 times larger than investments in InsurTech companies.



\$2.525 Billion of InsurTech investments in 2018

Largest funding rounds



Category	Funding (USD)	Number	Average (USD)
30B & larger	1,700,000,000	18	94.4 Million
All others	828,000,000	185	4.5 Million
Total	2,528,000,000	203	12.5 Million

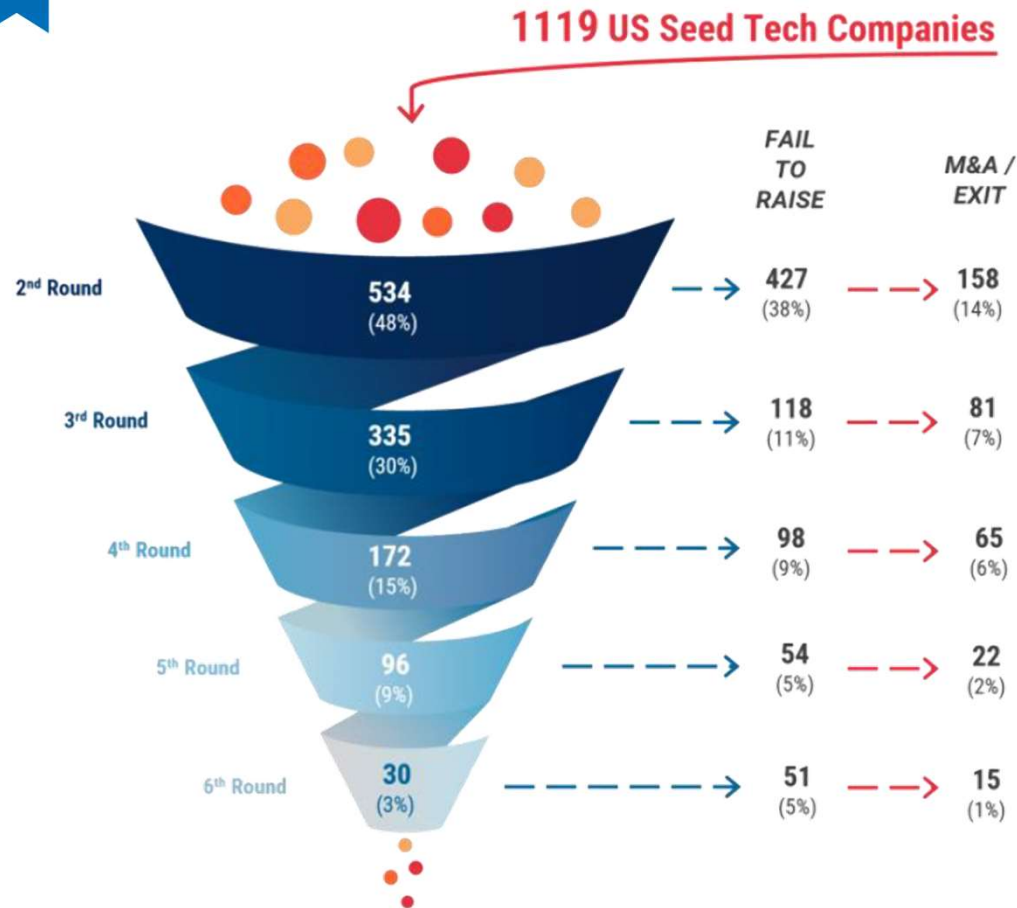
2018 InsurTech Investments (in Millions of USD)

- End to end insurer
- Business to business enabler



Source: CB Insights deal search.
Data through 22 September 2018

Startup Funding Cycle



Approximately 2/3 of the startups have failed.

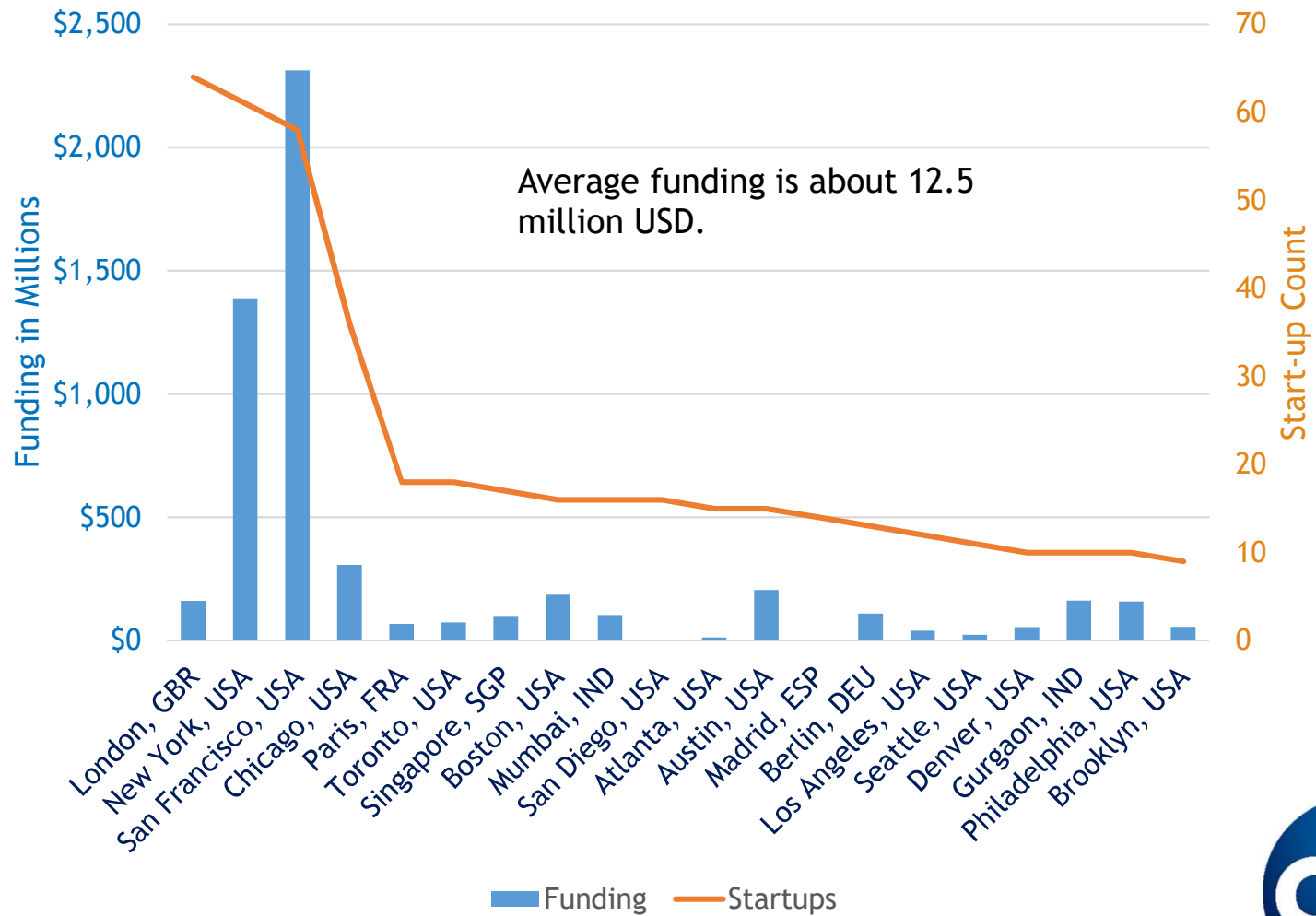
Successfully exit after the first funding round is 14%, successfully exited after the second round is 7%, ...

Source: CB Insights. Represents companies that raised seed money in 2008, 2009 and 2010.



Top 20 InsurTech Cities

439 Startups out of total of 1,438

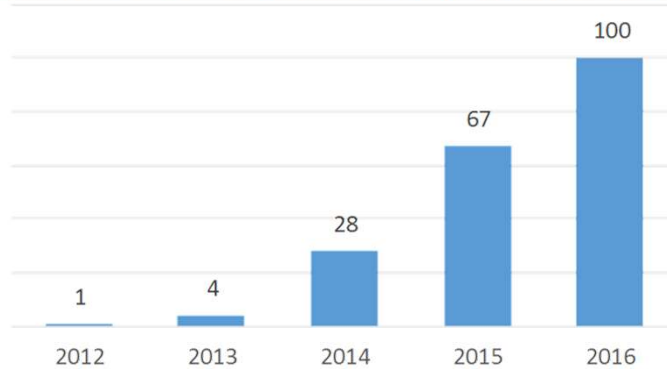


Source: Venture Scanner (unknown as at date)



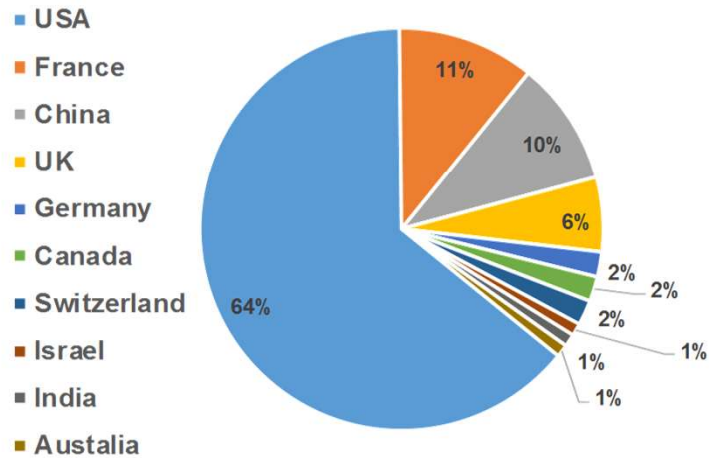
Investments by (re)insurers

Number of Investments by (Re)Insurers



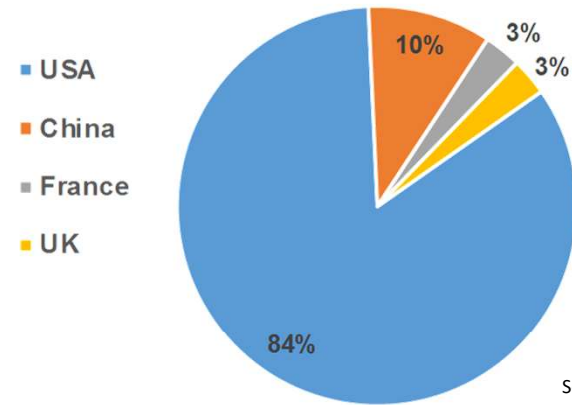
Source: CB Insights

Tech Investments by (Re)Insurers by Country (2015-2016)



Source: CB Insights

Tech Investments by (Re)Insurers by Country (2013-2014)

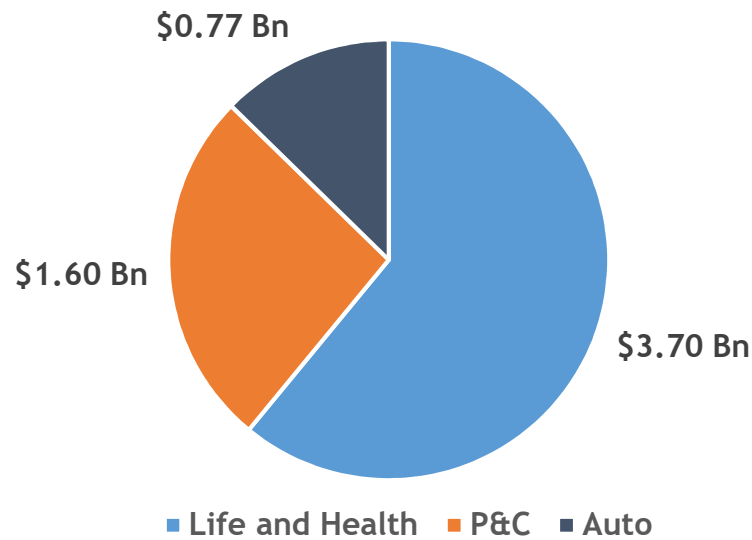


Source: CB Insights



Who are the (re)insurers investing in?

Investments
(2007-2017)



89% of the investments came from **venture capital** companies.

Sources: CB Insights and Venture Scanner.



Some of the largest deals

- **Oscar Health** is a New York-based insurtech which has received **\$1.3 billion** in funding. Oscar uses technology to analyze the symptoms reported by patients and connect them with appropriate doctors. Alphabet is an investor.
- **Zhong An** is the Internet-based P&C insurer headquartered in Shanghai. It has received **\$840 million** (5.8 billion CNY) in funding in two deals since launching in late 2013. Most of its revenue through return-delivery insurance for buyers on Taobao.com, Alibaba's online marketplace in China.
- **Zenefits** provides cloud-based HR services, with a focus on managing health insurance benefits. Headquartered in San Francisco, it has received **\$583.6 million**.
- **Clover Health** combines analytics with health insurance claims data to help health care providers proactively manage patient health. The San Francisco-based firm has received **\$425 million** in funding in four deals.
- **PolicyBazaar** is an online insurance aggregator in India that has received **346.6 million** in funding.
- **MetroMile** is a pay-as-you-drive insurer. Based in San Francisco, it has received **\$295.5 million** in funding.



- **What is Big Tech Doing?**

Big Tech

- For the US, **Big Tech**¹ refers to the large technology companies in the US, namely Amazon, Apple, Facebook Google and Microsoft.
- For China, **Big Tech** refers to Tencent, Ant Financial, Baidu and JD.com.
- Baidu is similar to Google
- Alibaba and JD.com are similar to Amazon, Lazada or Tokopedia as they are e-commerce companies.
- WeChat is similar to WhatsApp or BBM (messaging App).

1. The original big tech definition is Google, Apple, Facebook and Amazon (GAFA).

2 Source: Forbes 2000 using May 11, 2018 closing prices.

Leading global companies by market capital²

RANK	COMPANY	INDUSTRY	MARKET VALUE (\$ BN)
1	Apple	Tech-Hardware	927
2	Amazon	Tech-Internet	778
3	Alphabet (Google)	Tech-Internet	766
4	Microsoft	Tech-Software	751
5	Facebook	Tech-Internet	542
6	Ant Fin (Alibaba)	Tech-Internet	499
7	Berkshire Hathaway	Tech-Internet	491.9
8	Tencent (WeChat)	Financial Services	491.3
9	JPMorgan Chase	Financial Services	388
10	ExxonMobil	Petroleum	344
104	Baidu	Tech-Internet	94
288	JD.com (360Buy)	Tech-Internet	45






Chinese Tech

US Tech

















Big Tech







Number of customers and data collected

Monthly users ¹ Q4 2016, BN	
	>4.7
	>0.4
	>1.9
	>1.8
	>0.6



Types of data gathered

 Ad clicks	 Browser	 ISP
 Device-specific Information	 Email address	 Ad name
 Face scan	 IP address	 Phone number
 Location	 Search queries	 Third-party connect data
 OS	 Time, date	

Methods of tracking data

 Cookies	 Third parties	 Facial recognition software
 Double click and AdSense	 Device tracking technology	 Search queries

Uses for data

 Location services	 Target advertising	 Notifications
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Global population is 7.44 billion



1. Google data includes: Google +, Google aps for business, Google Drive, Google Duo, Google maps, Google photos, Google play; Apple data includes Apple Final Cut Pro X, Apple GameCenter, Apple music, Apple news, Apple TV; Microsoft data includes Microsoft internet explorer, Microsoft Office, Microsoft Office 365, Microsoft Solitaire; Amazon data includes Amazon App Store, Amazon AWS, Amazon Prime, Amazon.com

Source: Baynote; MMC analysis



How Google is using AI for healthcare



Eye disease - Verily can detect diabetic related damage to blood vessel in the eye. Google proved its algorithms were equally as good as trained ophthalmologists in detecting this condition.

Diabetes - Verily has created a continuous glucose monitoring system. The long-term goal is to create a disposable bandage size sensor that can be worn for 14 days.

Heart disease - Verily has created a heart rate monitor that researchers can use to detect heart anomalies.

Verily is also working to find the underlying causes of **Parkinson's disease** and multiple sclerosis using machine learning for early detection.

Alphabet is also an investor in **Oscar Health**.



Google home protection



The Nest learning thermostat is a programmable, self-learning wifi enabled thermostat that optimizes heating and cooling of homes and businesses to conserve energy. It is based on a machine learning algorithm.

Nest Protect is a smoke alarm that uses two wavelengths of light to spot different kinds of smoke, which helps it catch both fast and slow-burning fires quickly. It also has a carbon monoxide sensor.

Nest Cam IQ is home camera security that has the ability to recognize and distinguish between different faces.

Nest Hello is a smart video doorbell with facial recognition.

Google employs 1 FCAS and 1 ACAS.

Waymo (Google's driverless vehicle subsidiary) employs 1 FCAS.



Amazon's move into InsurTech

Amazon Protect and Acko

- Established a healthcare venture with Berkshire Hathaway and JP Morgan to reduce the medical costs of its employees.
- Amazon Protect is **warranty insurance** available in the UK and four countries in Europe.



Include Amazon Protect 2-year Accident & Breakdown Cover for £27.00

Include Amazon Protect 3-year Accident & Breakdown Cover for £30.00

Quantity: 1

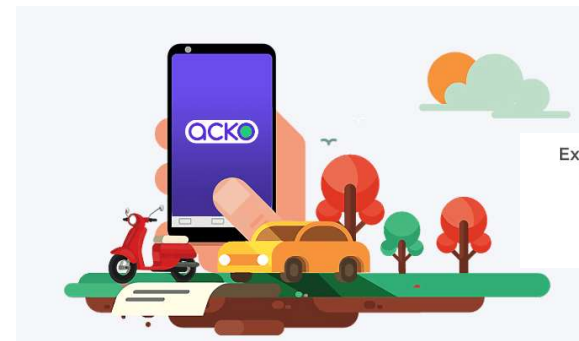
[Add to Basket](#)

Turn on 1-Click ordering

Dispatch to:
Joseph Wong - San Diego - 92101

[Add to List](#)

- Amazon has invested in Acko which is an online insurance policy provider in India.



Exclusively for Amazon users!
Low prices on Car Insurance.

Pay using
amazon pay

- They have invested in the other FinTechs in India include:
 - BankBazaar
 - Emvantage Payments
 - QwikSilver Solutions



China Big Tech Alibaba



- Founding shareholder in **ZhongAn** Insurance along with Tencent and Ping An.
- Joint venture with **China United** received approval to provide agriculture insurance while utilizing Alibaba's technology resources.
- Invested USD 50M in **CompareAsia**, the online aggregator
- 51% stake in **Cathay Insurance China** to collaborate on online insurance products.
- Part owner of **MassMutual Asia**.





China Big Tech Baidu



- Joint venture with **Allianz** to set up an online-only non-life insurance company in China.
- Joint venture **CPIC** to set up a new online motor insurance company.
- Set up an online insurance platform to sell medical insurance, major illness insurance and travel insurance.



China Big Tech Tencent

Tencent 腾讯

- Founding shareholder of **Zhong An** Insurance, along with Alibaba and Ping An.
- Tencent's online insurance agency received regulatory approval to sell insurance products through its apps **WeChat** and **QQ**.
- Tencent formed a partnership with Fubon Financial to sell **Fubon's P&C insurance** policies through its **WeSure** over its messaging apps WeChat and QQ.
- Owns 20% of **Blue**, Hong Kong's first purely digital life insurance company.





Rakuten



- e-commerce provider and internet company in Japan.
- Acquired **Asahi Fire & Marine Insurance**
 - Offers policies for smart homes
 - Warranty insurance for its online sales
 - Using its data on its 90 million loyalty program members, the group will develop insurance policies better tailored to customer.
- Already in the life insurance space with **Rakuten Life**



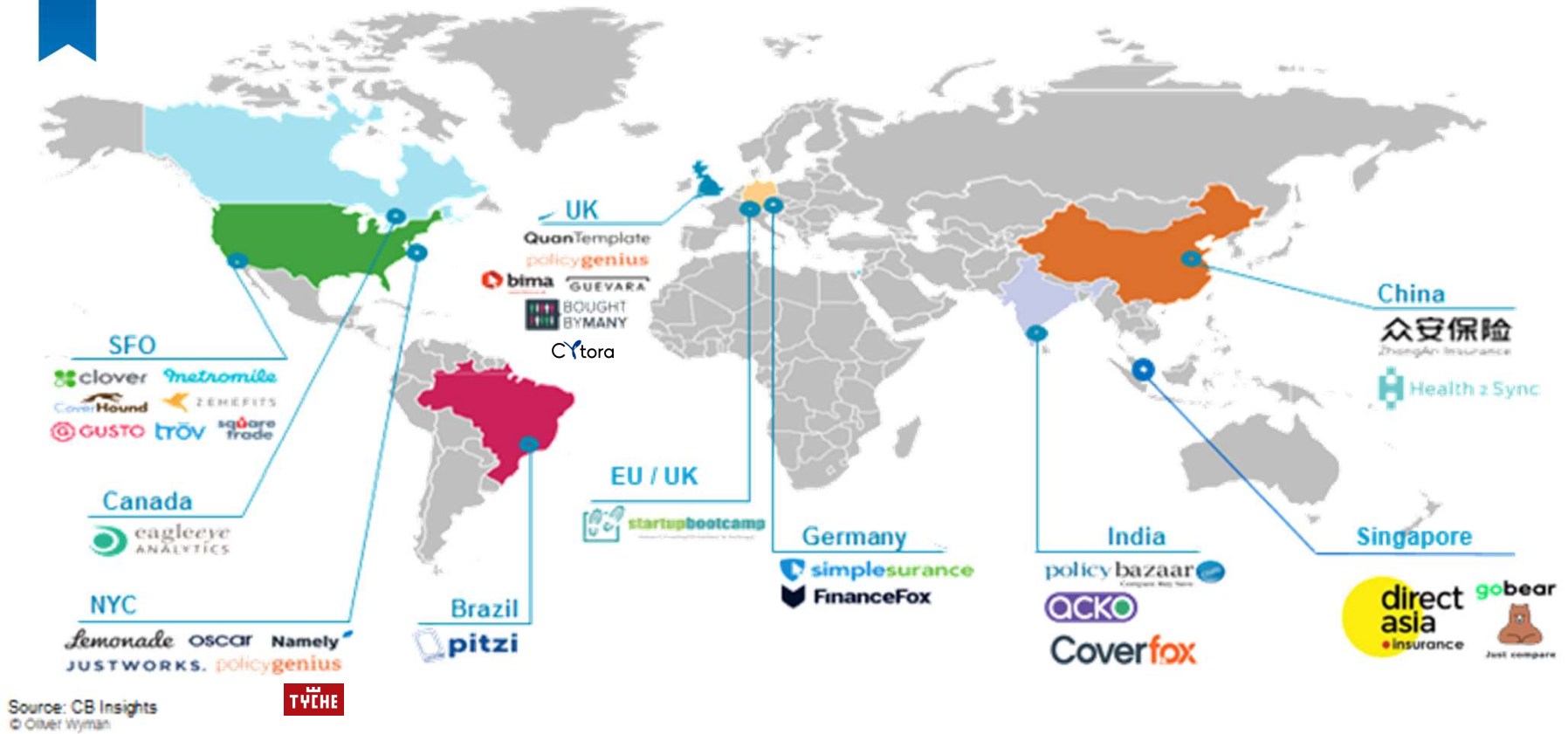
Indonesia

- Grab has partnered with Chubb to provide insurance to its drivers. Using the Grab app, drivers are able to select different insurance options for personal accident coverage, motor insurance, loss of income insurance and per-ride schemes.
- Go-Jek has partnered with Allianz to provide insurance products and services for Go-Jek's customers.
- PasarPolis is a digital insurance startup in Indonesia aiming to tap Southeast Asia's growing internet economy. It's investors are Go-Jek, Tokopedia and Traveloka. PasarPolis offers 'click box' policies for ride-hailing trips on Go-Jek, e-commerce sales through Tokopedia and travel deals booked through Traveloka.



- Who are the InsurTechs and where are they located?

InsurTech by Region



In terms of geography, most of the deals have been in the US. More recently has seen a growth in Asia, in particular Singapore.

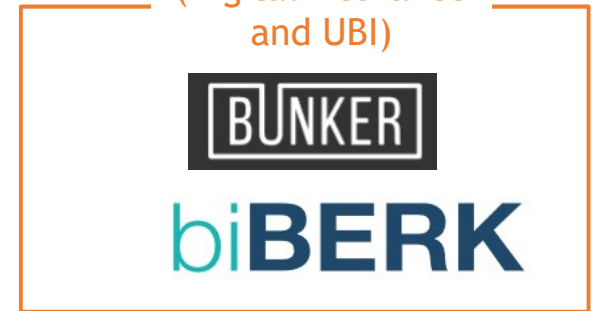


InsurTech by line of business

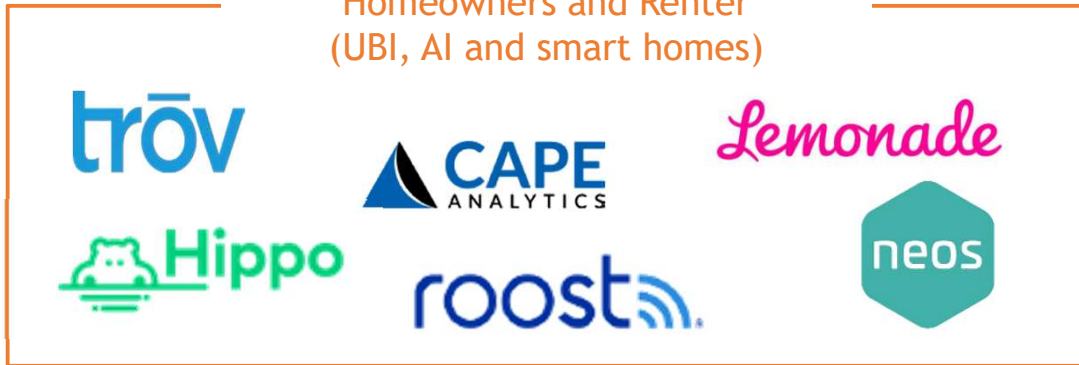
Motor
(Telematics, usage based insurance and P2P)



Small Business
(Digital Insurance and UBI)



Homeowners and Renter
(UBI, AI and smart homes)



Casualty Insurance
(AI and Analytics)



Life Insurance
(Digital and Wearables)



On-Demand Motor Insurance

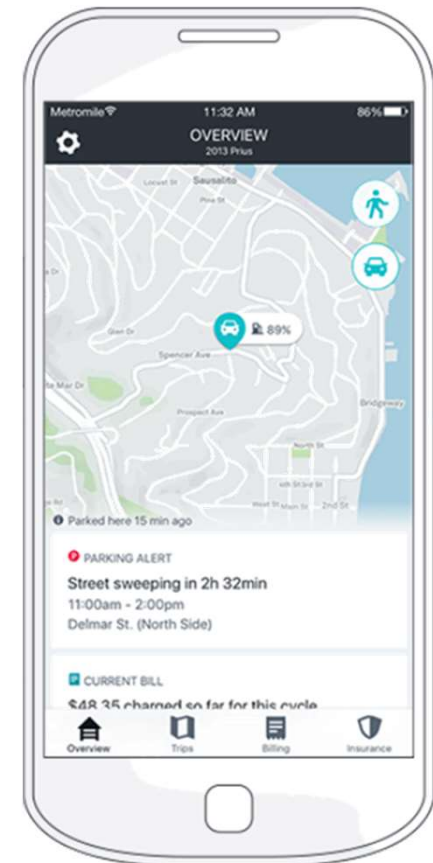
Uses telematics to track the vehicle's location and miles driven.

Monthly premium includes a flat fee of around \$20 plus miles driven x rate per mile (typically around 5¢ per mile). Premium is not based on driving habits or driving location.

Includes an smart phone app for monitoring where your car is located, the best route to your car and your car's health.

There are 4 CAS credential actuaries working for Metromile (3 FCAS and 1 ACAS).

metromile



Motor Insurance and Sensors

ROOT

A 2-3 week test drive period for ROOT to track your driving habits including:

- how gently you accelerate / brake
- the speed of your turns
- the time of day you drive and the duration.

How we use your smartphone to determine your rate.

We use your iPhone or Android phone to measure your driving behavior for 2-3 weeks. Better driving = more savings, as it should be.



Permissions

You enable us to use your phone's GPS and motion sensors so we get the information we need to give you a rate (don't worry – we never sell your data).



Artificial Intelligence

Using machine learning and A.I., we analyze the data from your phone to determine your driving behavior.



Data Science

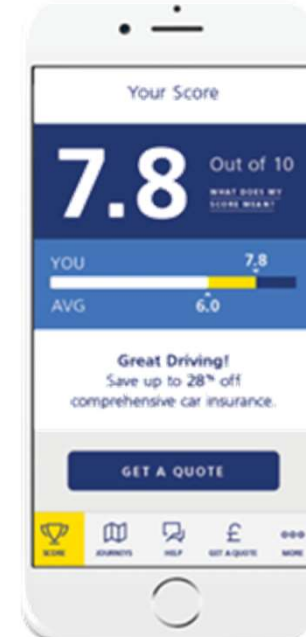
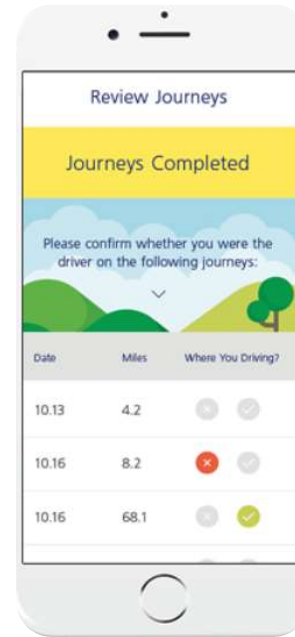
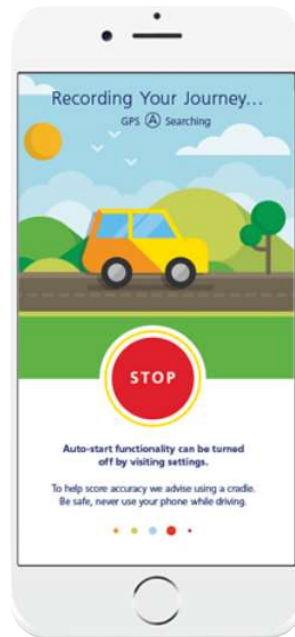
The motion of your phone is different whether you're the driver or the passenger. We assess this motion from the data – using the app's insights to ensure only *your* driving trips are eligible for rating.



Telematics

Aviva's Drive App

- With Aviva Drive App, drivers can saving more than £170 on car insurance.
- Download the app to your phone and track your driving skills (acceleration, cornering and braking), and achieve a high score to earn a better price.



On-demand car insurance for the gig economy

Slice

*Don't buy the whole pie,
just the slice you want.*



Targeted to Uber and Grab drivers

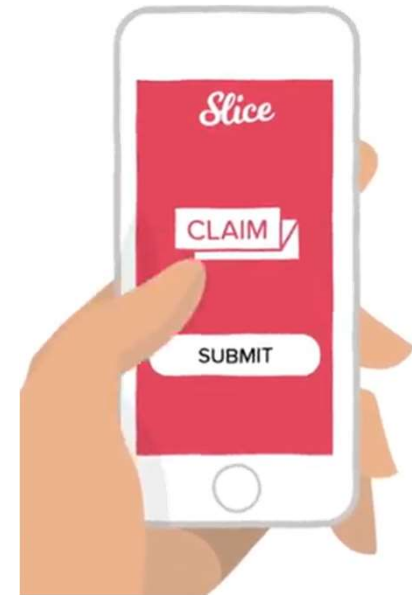
Standard motor policies exclude coverage when carrying persons or property for a fee.

Coverage is turned on / off with the Slice APP.

Cost is based on a combination of mileage and time – **Usage Based Insurance (UBI)**.

Claims can be sent in through the APP.

Investors include Munich Re, Sompo Holdings and XL Innovate



Peer-to-Peer motor insurance

- Guevara formed in 2014 as a UK based P2P car insurer.
- Guevara allows customers to pool their premiums in order to lower the collective premium and then refund unclaimed capital to the group.
- There are two ways to choose a Guevara P2P pool:
 - You can either be invited by a friend or family member or
 - Guevara will suggest the most relevant pool for you based on your risk profile and location.
- Guevara also has an app that it uses to collect data from the scene of an accident and groups have a message board to discuss their claims and make decisions collaboratively.





Digital Small Business Insurance



biBERK BUSINESS INSURANCE
A BERKSHIRE HATHAWAY COMPANY

ABOUT BIBERK INSURANCE PRODUCTS ▾ POLICYHOLDERS ▾

Business Insurance made simple.
Instant Coverage. Big Savings. Insurance Experts.

[START FREE QUOTE](#)

General Liability Workers' Compensation Property & Liability Commercial Auto Umbrella

Proud to be part of Warren Buffett's Berkshire Hathaway Company

3 SIMPLE STEPS TO INSTANT COVERAGE

- 1**
ANSWER A FEW QUESTIONS
- 2**
CHOOSE COVERAGE AND PAY ONLINE
- 3**
GET INSTANT COVERAGE
Go back to doing what you love.



Usage Based Small Business Insurance

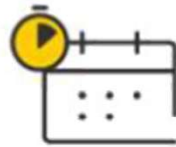
How it Works

BUNKER



Approved in 2 Taps

Download and get insured in less than 30 seconds.



Your Policy, Your Choice

Pay by the job—from a single hour to a full year.



Flexible Coverage

Choose your activities and time period—plus extend or cancel.



Built for Mobile

Share certificates and add Additional Insureds.

BUNKER

USAGE BASED LIABILITY INSURANCE

Simple - Entire process online, takes less than 5 minutes

No Commitments - Tailor your policy to the length you need, between 3 months and 16 months

Affordable - Pay by credit card, rates as low as \$20 per month

Secure - Only available on Bunker and backed by Chubb, a global insurer with over \$150B in assets

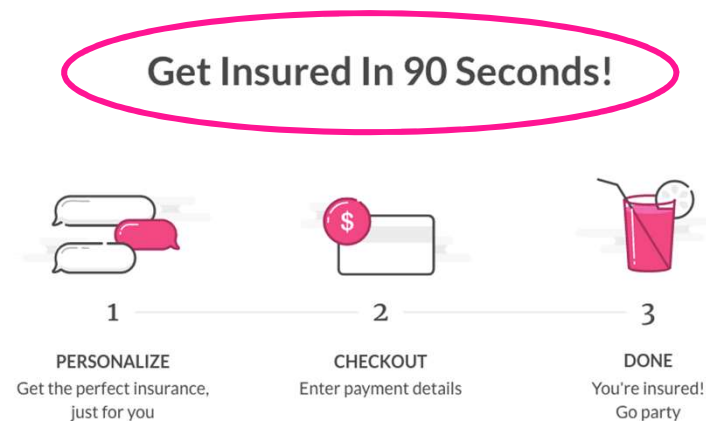
[GET QUOTE](#) [CONTACT AN ADVISOR](#)



AI and Homeowners Insurance

Lemonade

- Homeowners and renters insurance powered by AI and behavioral economics through
- Direct-to-consumer online platform
- Promises zero paperwork and instant everything
 - policy issuance
 - Claims
 - Communication
- 25% of claims approved in 3 seconds.

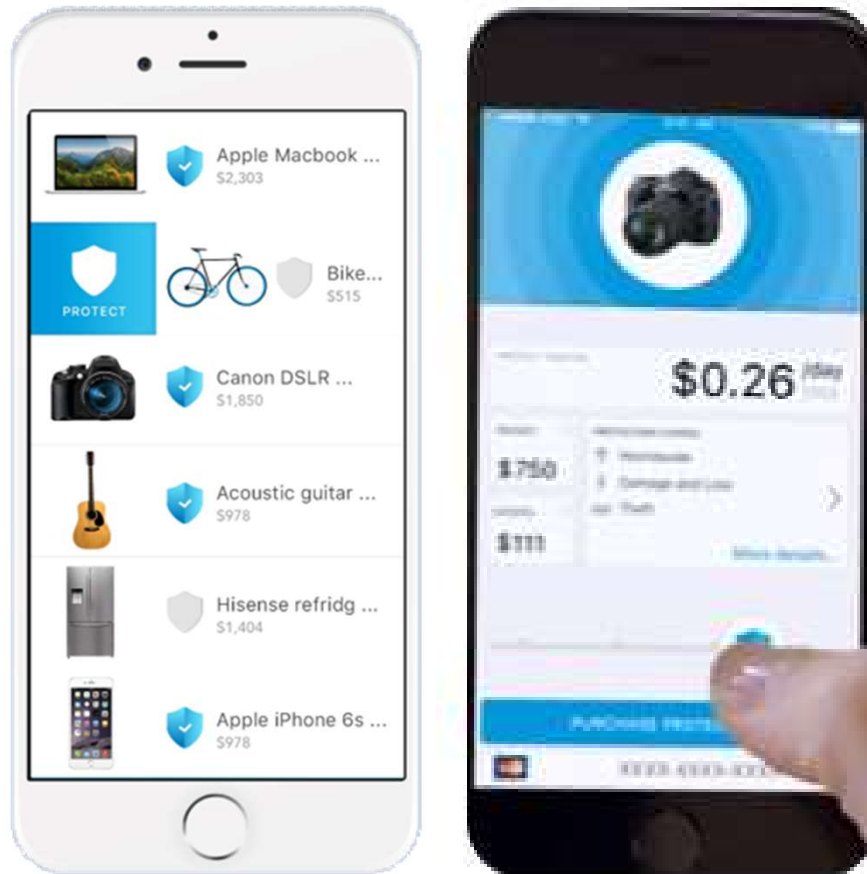


Lemonade has three actuaries, one that is an FCAS. Two have traditional roles of pricing and reserving while the third is a product manager.



Usage Based Insurance for your things

trov



Trov allows users to turn coverage on and off when they like, entirely from their phone. Just swipe to turn on / off.

It is insurance for peoples' things, including home and car. It covers accidental, loss and theft.

Claims can be texted in.

Investors include Suncorp, Sompo Holdings and Munich Re.



Homeowners Insurance



1 Enter your address

2 It auto fills the home details

YEAR BUILT 1979	SQUARE FOOTAGE 2604 sq ft	ROOF TYPE Wood shingle	ROOF CONSTRUCTED / REPLACED 1998
FAMILY UNITS Single family	STORIES 2	SWIMMING POOL No	CONSTRUCTION TYPE OF HOME Frame

3 A quote is typically provided in 60 seconds

4 No agent fees and up to 25% cheaper



Sensors and Homeowners Insurance



- Provides home insurance solutions based on smart technology
- NEOS provides connected technology including motion detectors, smoke detectors, water leakage detectors and cameras. The sensors provide early warnings for the three main causes of loss - fire, burglary and water leakage.
- In the event of an incident, NEOS has a 24/7 service to contact the customer.
- Investors are AVIVA and MUNICH RE.



Peer to Peer Insurance

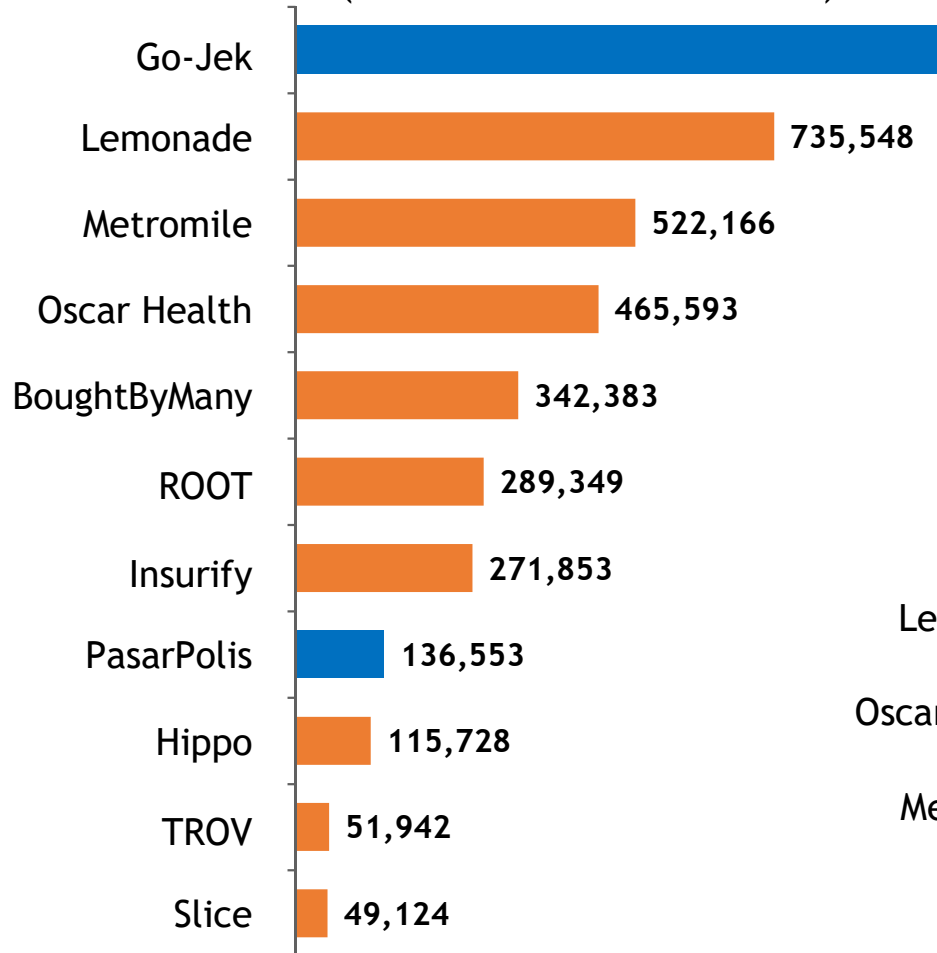


- Analyzes millions of Google searches to identify unmet insurance demand.
- Potential customers **see an advertisement** on Google or social media. They click as become “Members” of Bought By Many.
- **When the groups are large enough**, Bought By Many negotiates products with partner insurers that are then offered via the platform.
- There are currently 155 groups and over ½ million members. Examples include:
 - PA insurance for children playing rugby
 - PA insurance for children riding horses
 - Veterinarian insurance for pets with pre-existing conditions
- Some capacity providers are Munich Re, Allianz, Argo and Covea.

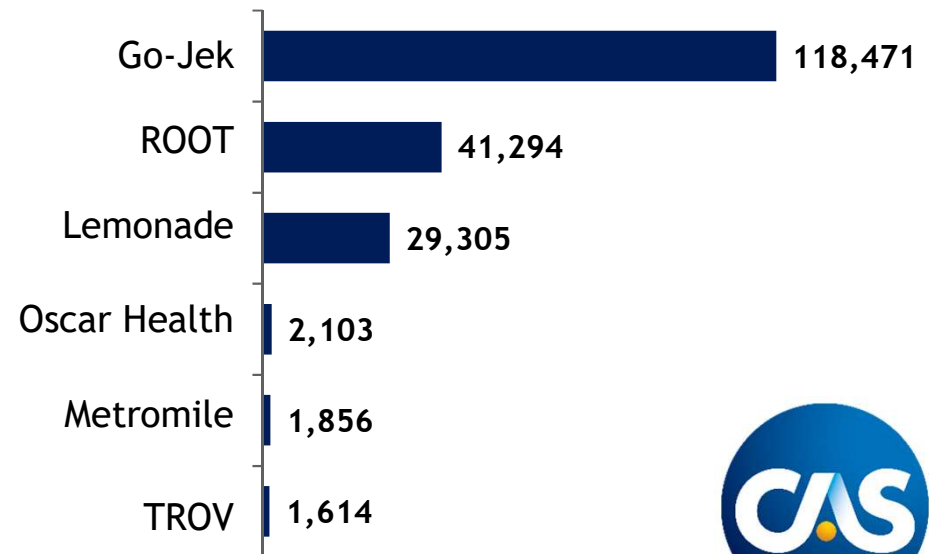


How popular are these companies

Monthly website visits
(Go-Jek is 3.92 million)



App Downloads in
last 30 days



Some InsurTechs in Asia



- ZhongAn is China's online insurance company primarily selling policies for return-delivery insurance through WeChat.
- Coverfox and PolicyBazaar are insurance aggregators in India.
- GoBear is an insurance aggregator for car, travel and health insurance. It is also an aggregator for loans and credit cards.
- Direct Asia is an insurance aggregator for Singapore and Thailand.
- TongJuBao is a P2P insurers focusing on social risks and economic risks such as income protection in China.



InsurTechs In Singapore

Insurance Management



Peer Two Peer



Aggregators



Just compare



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