

Time	Flight	Destination	Gate Status
20:00	A 622	Hangzhou	45
	^ 00147		
	A 62208		
20:05	CI 642	Taipei	33
20:05	A 895	Singapore	37
	U 2024		
	^ 00242		
20:10	Z 7431	Medan	48 Est 20:00
20:15	O 304	Beijing	50
	^ 00074		
	J 346n	ShanghaiPVG	51
20:25	K 696	Singapore	52
20:30			

Time	Flight	Destination	Gate Status
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21:20		ShanghaiPVG	23
21:25		Hangzhou	33
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21:30		Sydney	
21:40		Kaohsiung	
21:40		Clark	
		Xiamen	
		Manila	
		Manila	
		Manila	
		Kaohsiung	
		Manila	
		Bangkok	
		Taipei	
22:10		Tel Aviv	
22:15		Taipei	
22:20		Seoul	
22:25			
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22:40			
22:45			
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22:50			

# Quarterly InsurTech Briefing

## Q3 2018

December 2018

20:10	C 001	Bangkok
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	U 00012	
20:50	D 3882	Bangkok
20:55	Z 17W	Guangzhou
20:55	Z 17W	Sydney
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# Quarterly InsurTech Briefing

## Introduction



**Rafał Walkiewicz**

*Chief Executive Officer,  
Willis Towers Watson Securities*

### Foreword: The Trojan horse

Industry outsiders often compare the insurance value chain to a Rube Goldberg machine. A simple task such as risk pooling and protection is performed by a very complex and proprietary ecosystem of participants. From the perspective of outsiders, this complexity is unwarranted and difficult to fully understand.

On the other hand, industry insiders see a very clear rationale for the complexity. In insurance, it can be difficult to establish and maintain trust between the insured and the insurer. In order to establish this trust, the industry has evolved over time to be heavily regulated and dominated by large, financially sound incumbents. From an insider's perspective, a complex system helps to protect insureds against nonpaying insurers and insurers are protected against potential claims fraud by the insured.

In this edition of the Quarterly InsurTech Briefing, we look at event-based, or "parametric," insurance offerings and ask ourselves whether event-driven cover is just a niche product or a Trojan horse that can simplify and fundamentally change the industry.

### Alignment of interest

Basis risk in finance is associated with imperfect hedging. Insureds bear this risk when the payout from an insurance policy does not fully cover the actual loss incurred. Customers demand peace of mind, and high basis risk substantially diminishes the value proposition of insurance.

Indemnification is at the heart of the insurance industry and customers expect products that will cover their actual, incurred loss. It is particularly important in personal lines and small ticket commercial insurance. However, indemnity insurance inherently misaligns the interests of the insurers and those of the insureds. Claims handling is at the core of that conflict of interest. The insured facing a loss is incentivized to inflate the costs while the insurer wants to manage the cost of the claim down. In the most extreme case, indemnity insurance is exposed to fraud.

Paradoxically, lowering basis risk for the insured increases the risk of fraud for the insurer.

Parametric products do not cover the actual loss, but rather pay a predefined amount based on a trigger chosen as a proxy for an actual loss. The customer is exposed to the difference between the economic impact and the triggered payment. Historically, challenges in management of basis risk limited the use of parametric products to large ticket, modeled risk like CAT insurance. However, parametric covers align the interests of the insured with those of the insurer. As an example, in the *Start-Up Company Profiles* we present FloodFlash, a company that offers a parametric flood product that aligns incentives between customer and insurer around flood resilience.

### Simplicity

Parametric insurance is substantially simpler than indemnity products. It does not require costly claim handling, and claims can be settled shortly after verification that a qualifying event occurred. Frictional costs in parametric are very low.

The impact of parametric insurance can be much more profound than simply lowering frictional costs and mitigating the potential for fraud. First, the use of parametric insurance encourages conversation around risk mitigation. Coverage transparency also helps insureds understand their risk exposure and look for ways to manage it down; lower exposure directly translates into the need to purchase lower limits or the use of less expensive triggers. FloodFlash encourages customers to invest in flood barriers and as a result, these customers benefit from immediate premium reductions. Second, the simplicity of parametric insurance facilitates a decoupling of the various functions in the industry value chain and it allows for modularization. Proprietary claim handling requires integration of underwriting and capital – but with easily verifiable triggers and no claim function – risk mitigation and capital can be delivered and priced separately. The need for trust that the claim will be paid is replaced by the need for trust in the event trigger design and the value of the risk mitigation advice.

# Quarterly InsurTech Briefing

## Introduction

Complexity of indemnity-based products opens the door for newcomers like Jumpstart. The company sells a policy designed to make instant payments to earthquake-impacted customers. The product helps with victims' immediate expenses as they deal with the complex claim process in their indemnity-based insurance products. Jumpstart's offering is complimentary to the policies of established incumbents, but it can also become a self-standing offering in the future.

Today, parametric insurance blurs the lines between the definition of insurance and derivatives and brings additional complexity with respect to tax and regulatory treatment. In the future, the simplicity of the product can allow for more streamlined regulation, whether under the current insurance regulation regime or within broader securities regulations.

### Modeling accuracy

Artificial intelligence and machine learning supported by ever-increasing computing power are better equipped to deal with the growth of available data and can drive meaningful improvements in underwriting competence. Removing the human element from risk assessment can further increase the accuracy of modeling for many risk classes. It starts with simple products, like travel insurance. We feature Blink, which offers event-based travel insurance to replace a traditional travel policy. Predictive modeling systems are becoming increasingly capable, and advances in technology will help bridge the gap between parametric and indemnity insurance for more complex risks. With parametric triggers that minimize basis risk, certain indemnity-based insurance offerings may become challenged over the long run. It is unlikely that basis risk will be completely eradicated, but with simplicity driving frictional costs down, the selection between parametric and indemnity covers will likely resemble a choice between lower premium and lower deductible.

The big question is: Who is best positioned to build infrastructure and design algorithms to mitigate basis risk? We feature 30MHz, a company that brings Internet of Things (IoT) technology to agriculture. The company currently offers over 20 sensors as well as a cloud-based analytics platform to help growers produce better quality crops. Some of the generated data can and will be used for insurance applications. However, the complexity of such infrastructure would challenge even a very large insurer to build a proprietary technology to compete with 30MHz.

More importantly, the range of potential applications of this data is so broad that insurer ownership could be a limiting factor.

In the *Transaction Spotlight* section of the report we feature Munich Re's acquisition of relayr. relayr offers sensors and analytics infrastructure to optimize processes in the industrial context. This transaction brings several benefits to the acquirer. This technology can help improve Munich Re's underwriting models and Munich's Hartford Steam Boiler can develop new insurance offerings around relayr's technology. Most interestingly though, it is not inconceivable that Munich Re will offer relayr solutions to other insurers and reinsurers as a fee business in the form of data capture solutions or even as an underwriting module. It can be debated whether third parties, reinsurers or insurers are best positioned to build IoT and IIoT (Industrial Internet of Things) infrastructure. The answer will likely depend on data applicability beyond insurance and on differences in data access between proprietary and open-source third-party information. Nevertheless, whoever owns the data will likely benefit from opening it for use not only by its partners but also by its competitors.

### Hyper personalization

The increase in accuracy of predictive modeling comes with a twist. There is no risk pooling in the future of ultra-accurate models and vast arrays of data that allow for ultra-precise risk pricing. Once you know the future for certain, you can't really insure it; rather, you prepare and save for the inevitable. More importantly, you do not want to subsidize other insureds that make choices that increase their risk exposure.

As Magda Ramada points out in her *Thought Leadership* piece, parametrization of insurance will likely lead to self-mutualization of risk. Using 30MHz as an example, we can see like-minded growers that use the company's technology to optimize their production and mitigate risk, pooling their risk together to avoid premium subsidization of farmers using inferior processes and technology. In the world of event-driven insurance and accurate predictive modeling, homogeneous groups will be incentivized to look for customized insurance that is appropriately priced given the risk mitigation activity of the insured. As a result, parametric covers will not only facilitate modularity of the insurance value chain, but also mass customization and fragmentation of the insurance industry offering.

# Quarterly InsurTech Briefing

## Introduction

### More partnering as entry prices go up

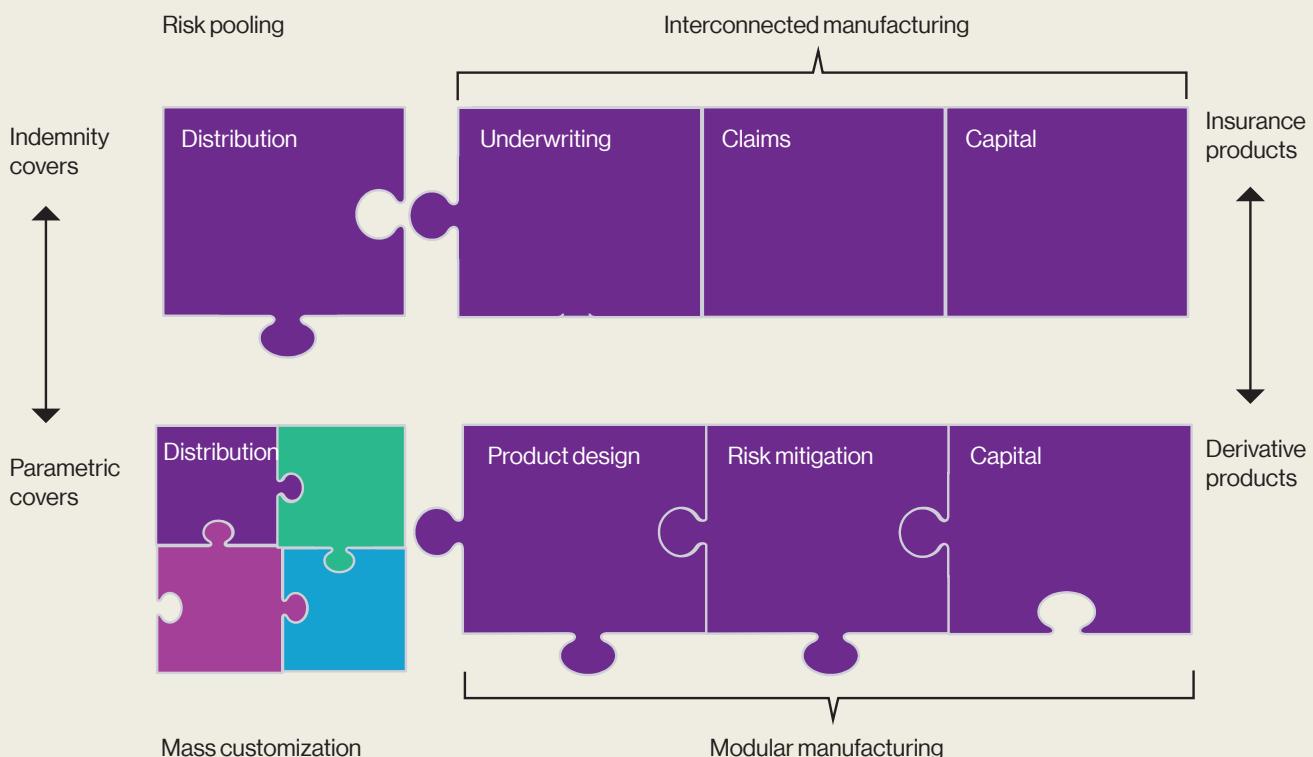
As always, we conclude our report with the *InsurTech Data Center*. \$1.3 billion of InsurTech funding during

Q3 was completed in 57 reported transactions. This amount is more than double the funding volume over the prior quarter, despite a 20% decline in the number of transactions reported.

The trend of growing round sizes continues. Q3 2018 saw eight transactions over \$40 million, compared with six in the first half of 2018. (Re)insurers continue to actively participate in the funding of InsurTech, but the pace decreased as compared with prior quarter. The pipeline of InsurTech partnerships, however, continues to be very strong.

Thank you for your continued support for this publication.

### Evolution of the insurance value chain



# Quarterly InsurTech Briefing

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# Q3 2018 Industry Theme

## A New Insurance Paradigm: Event-Based Insurance

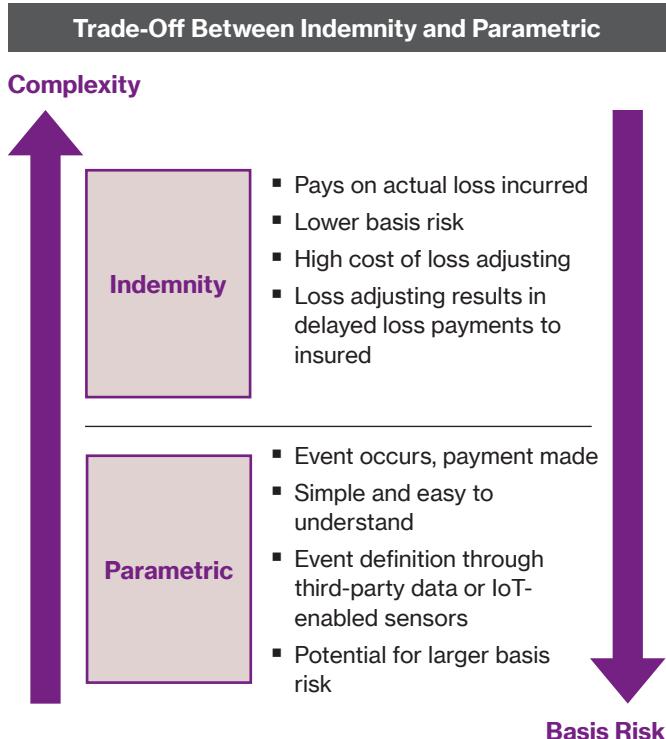
For the Q3 2018 Quarterly Briefing, we are focusing our attention on the emerging trend of InsurTech companies that are developing event-based (i.e., parametric) insurance offerings. We will specifically explore how a handful of new entrants are taking unique approaches to incorporate technology in order to address inefficiencies or coverage gaps that exist within the existing insurance ecosystem, and how they are also using data (third-party and proprietary), advanced sensors and Internet of Things (IoT) capabilities to develop a new paradigm of insurance offerings for the connected world.

Some will be quick to point out that all insurance is essentially 'event-based'. Under the traditional insurance model, when a loss occurs, a claim is submitted and if coverage is applicable and verified, the process of loss adjusting begins in order to determine the quantum of insurance payments. An important point of distinction between the traditional insurance model and what we are calling event-based or parametric insurance is that with traditional insurance two key conditions must be satisfied: the covered event takes place and the actual loss experience exceeds the policy deductible. If one of these conditions is not met, no payments will be made to the policyholder. When we talk about the emergence of event-based offerings, we are referring to policies that are designed to make payments solely after specific loss events and nothing else. This results in a binary outcome that is disconnected from the actual loss experience of the policyholder.

When insurance payments are no longer based on actual loss experience, the policy is no longer tied to the fundamental insurance principle of indemnification (i.e., payments that are equal to actual loss experience less deductibles and limits).

Removing indemnification from the equation greatly increases the flexibility around policy design, and when combined with new technologies and IoT capabilities, opens the door to new possibilities of what can be covered through insurance. As with most things in life, there are trade-offs, and such is the case with event-based insurance. One of the primary considerations most often brought up is the potential for increased basis risk (see graphic above and to the right on trade-offs).

With event-based products there is a potential for increased basis risk, which represents the difference between the economic losses suffered by the policyholder and the amount of payments received from the insurance



company. This is a result of the binary nature of the product and the single point loss distribution of claims payments. New solutions will be developed to manage the basis risk of event-based products and as these products evolve over time, they will gradually become more complex and by extension, better able to manage and mitigate basis risk. Today, indemnity-based products have an advantage in terms of mitigating basis risk, but this comes with significant complexity and high frictional costs. Over time, event-based products will be better suited to integrate new technology in order to increase product complexity and to mitigate basis risk – all while doing so at significantly lower frictional costs.

The event-based insurance offerings that exist today have primarily sought to set policy payment amounts at levels where it can be assumed that the customer has experienced greater or equal economic losses. This is largely a constraint of how event-based products are required to meet insurance definitions and regulations (i.e., insurance should not represent a large economic windfall to the policyholder). Because of this payment design under an insurance framework, these policies are not necessarily intended to replace traditional insurance coverage; rather, they are designed to provide immediate funds to help customers recoup losses and to get back on their feet financially.

# Q3 2018 Industry Theme

## A New Insurance Paradigm: Event-Based Insurance

Customer education of what the policy is designed for – and what it isn't – is critical. Event-based insurance excels in pricing transparency and simplicity, giving customers peace of mind in knowing exactly what they will receive if an event occurs without having to worry about the complexities of claim forms, deductibles and waiting for claims payment processing.

Event-based insurance represents a meaningful customer and premium opportunity for the global insurance industry, especially as the industry continues to adapt to an increasingly connected world. The opportunity, arguably, becomes larger outside of an insurance framework (i.e., an event-based derivative contract) and potentially makes mass adoption more attainable (e.g., SEC regulated vs. 50 state insurance departments in the US). As we will highlight in the following section, advanced sensors and IoT capabilities allow event-based offerings to be implemented to address existing issues related to insurance (e.g., product availability or coverage gaps) in both developed and developing countries.

For insurance companies, event-based insurance offerings are increasingly becoming more economical to deploy. Over the past decade, we have seen a proliferation of connected devices that have exponentially increased the availability and granularity of data. The policy structure and digital nature of the offering fundamentally reduces the complexity and frictional costs of traditional insurance offerings. Since the payments are determined in advance, an insurance company only needs verifiable event data for a payment to be made; there is no need to submit a claim, hire loss adjusters or have complicated reserving models. Also, since severity is predetermined, pricing becomes a function of frequency and not the interaction of frequency and severity. This results in more affordable coverage and more of every premium dollar being spent on paying claims.

In the next section we will take a look at a handful of InsurTech companies that are using a combination of data, advanced sensors and IoT capabilities to develop event-based insurance offerings to address a variety of insurance needs including earthquakes, travel disruption, flooding and losses related to agricultural production. Our featured companies are categorized into two main groups: companies that leverage existing data sources (non-proprietary) and companies that use technology to generate proprietary data for their insurance offerings.

The first group of companies in our report showcase how new event-based insurance offerings can be developed by simply combining available non-proprietary data with IoT capabilities. For example, California-based Jumpstart is able to offer a new form of earthquake insurance coverage in California by using available US Geological Survey (USGS) data feeds for both the policy trigger and event verification. Another example is Ireland-based Blink, which offers customers real-time travel disruption coverage as a result of having access to real-time flight data.

The second group of companies highlight how new insurance offerings can be developed by combining advanced sensor technology (proprietary data generation) with IoT capabilities. Real-time connectivity allows these companies to generate granular data that can be used to better assess risk exposure and focus on risk mitigation strategies. In the UK, FloodFlash has developed an external water-depth sensor that can be installed on the exterior of a house or place of business. The flood insurance offering gives the customer the flexibility to determine the event (water depth) as well as the event payment. Based in the Netherlands, 30MHz has been developing sensor technology focused on agricultural applications. 30MHz sensors are able to provide growers with access to crop-level monitoring and data, which helps growers to increase productivity while also preventing losses related to disease and spoilage.

### Event-Based Go to Market Models: Data Sourcing and Industry Positioning

	Group 1:	Group 2:
Industry Applicability	Beyond Insurance	
Insurance Specific		
 <b>Blink</b> (Travel Disruption)	 <b>30MHz</b> (Agriculture)	
 <b>Jumpstart</b> (Earthquakes)	 <b>FloodFlash</b> (Flooding)	
Third-Party		Proprietary

### Access to Pricing Data

# Start-Up Company Profiles

## Event-Based Insurance Offerings for the Connected World

### Bringing Affordable Earthquake Insurance Coverage to the Masses

Founded in 2015 and headquartered in California, Jumpstart is a surplus lines insurance broker and InsurTech start-up that is on a mission to help more individuals become financially resilient in the event of natural disasters. Jumpstart is the first InsurTech in the US to provide parametric (event-based) insurance coverage for earthquakes and aims to make coverage more available, affordable and hassle-free to help people bounce back in times of need.

The probability of a +6.7 magnitude earthquake (i.e., major earthquake and serious damage to populated areas) occurring in California over the next 30 years is around 99%. However, in 2016 only about 10% of households in California purchased earthquake insurance coverage. The potential gap in coverage is tremendous and can be a result of a number of factors, including the affordability of traditional insurance, complex policy wording, high deductibles (10% to 20% of peril limits) or a lengthy claims process before payments are made.

Jumpstart is looking to make earthquake insurance coverage available and affordable to the masses, especially those who are economically vulnerable in times of natural disasters. To do so requires the company to change the conversation from traditional insurance that is designed for indemnity to a parametric product that is designed to cover immediate needs following an event.

Using an automated underwriting process that only requires a local street address, Jumpstart combines advanced earthquake modeling techniques and third-party data sources to provide an instant quote. Contract terms are simple and transparent. If the insured is in an area of an earthquake where the ground velocity (i.e., shaking intensity) exceeds 30 centimeters per second, a simple verification process occurs and then a payment of \$10,000 is automatically deposited into the policyholder's account - no need for claims adjusting, no deductible payments, no hassles.

Jumpstart has been available in California since the beginning of October of 2018 and in the near future plans on rolling out the product in other states as well as expanding the product to cover others types of natural disasters.

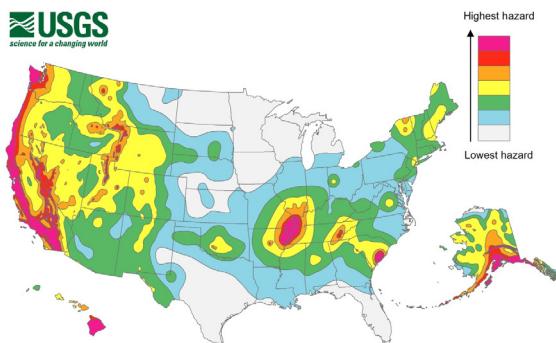
Third-Party Data

Jumpstart

### States with Highest Earthquake Exposure



science for a changing world



### Simple and Transparent Product Offering



#### Step 1

*Application is based on insured's location (insured can be either a renter or homeowner)*

#### Step 2

*If an intense earthquake affects policyholder, a simple event verification process occurs*

#### Step 3

*Payment is deposited directly into bank account (usually within 24 hours)*

### Coverage for Immediate Post-Event Needs



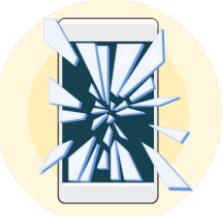
Commute Risk



Building Access Denied



Day Care Cancelled



Broken Phone/Devices

# Start-Up Company Profiles

Third-Party Data

## Event-Based Insurance Offerings for the Connected World



*Bringing Affordable Earthquake Insurance Coverage to the Masses*

### Kate Stillwell – Founder and CEO



- Kate is a licensed structural engineer in California. She previously served as president of the Structural Engineers Association of Northern California and is a Housner Fellow of the Earthquake Engineering Research Institute.
- Previously, Kate served as the executive director of GEM Foundation during its founding and product manager of worldwide earthquake models at EQECAT Inc. (now Core Logic).

### How did the concept for Jumpstart take shape and how has the product or idea evolved over time to where it is today?

*Jumpstart was born from the drive to build resilience. As a structural engineer I realized that safe buildings are necessary in the event of a natural disaster such as an earthquake, but safe buildings are not sufficient for a community to recover. There are many other dimensions of resilience, one of which is making sure there will be enough money in the system immediately following an event. Right now, that's a big missing piece for perils with large protection gaps like earthquake.*

### Why do you believe that now is the right time to launch an event-based insurance offering?

**What challenges have you had to overcome specifically related to your offering (e.g., consumer awareness, data collection, underwriting and analytics)?**

*People in the insurance industry have been talking for a number of years about the potential for parametric offerings for consumers, particularly for earthquake insurance. So, this is not entirely a new idea; however, small limit insurance offerings such as Jumpstart are only viable if the product can be scalable and fully automated – from pricing, to policy administration, to claims eligibility and payment. Technology is now at a stage where this is all feasible.*

*Part of the challenge in developing Jumpstart was building all of the pieces of technology required for the product and linking them to capacity providers. In principle, there is no lack of appetite for earthquake risk in the marketplace; however, in practice there are a number of operational and regulatory risks that must be taken into account. I give a lot of credit to the innovation team at the Channel Syndicate, our first capacity provider, for believing in the Jumpstart business model and putting in the hard yards with us.*

### What do you consider to be the main benefits of event-based insurance versus indemnity offerings as it relates to earthquake insurance?

*Event-based insurance products reinforce, rather than contradict, human nature. It is human nature to underestimate the severity of rare events. With a parametric insurance product, you do not have to change someone's mind and convince them to become afraid of the unknown (i.e., the potential loss event). For example, most Californians do believe the big one is coming, but they also believe they will be in the lucky majority for whom the situation will not be 'that bad'. Knowing you will get a payout, even if not the 'full amount' is compatible with this preexisting optimism.*

### How does the Jumpstart offering work alongside other earthquake insurance offerings (e.g., traditional homeowners/renters coverage)? Do you see Jumpstart as more of an added feature or endorsement to an existing policy or is there a scenario where Jumpstart looks to replace portions of the traditional policy?

*Jumpstart is a completely stand-alone insurance offering that is independent from other insurance policies, with no overlap in coverage. It is definitely not intended to be a replacement for any other policies – and this is very important for customers to understand. This is the reason why we chose the name of the company – to be crystal clear that it is only enough to provide someone with a jump-start, not to make you whole like a traditional indemnity insurance policy. To our relief, we have learned through feedback from our first wave of customers that they do understand that a Jumpstart policy is not a substitute for traditional insurance coverage.*

# Start-Up Company Profiles

Third-Party Data

## Event-Based Insurance Offerings for the Connected World



### *Bringing Affordable Earthquake Insurance Coverage to the Masses*

**Can you elaborate further on the underwriting and pricing process? How does Jumpstart use data (e.g., loss models or third-party data) to develop the insurance offering?**

*The trigger is based solely on the occurrence of shaking intensity, which is a hazard trigger only. For pricing, we built our own probabilistic model that is based on the USGS UCERF-3 hazard probabilities. Some of the requirements for a product to be highly scalable are transparency, simplicity and a seamless customer experience. Underwriting criteria must be structured so as to require only a minimum amount of data or waiting. In the case of Jumpstart, all that's needed is a valid address.*

**The claims process leverages (USGS) data to determine claims eligibility with a current event trigger set at a peak ground velocity (PGV) of 30 centimeters per second. What is unique about PGV in terms of it being used as a trigger and why is this a better indicator of loss potential than something like a Richter scale?**

*First, keep in mind that the Jumpstart payment is meant to cover any additional expenses caused by disruption to life following an earthquake and not necessarily limited to property damage. Shaking intensity, and particularly Modified Mercalli Intensity (MMI), corresponds directly – by definition – to the level of disruption. And MMI has a nearly one-to-one correspondence to our trigger, PGV.*

*Richter scale has a couple of problems if it were to be used as the basis for policy coverage. First, if the earthquake occurs deep within the earth's crust, even if it is a large magnitude, the shaking at the surface might be barely perceptible. Second, shaking intensity solves the "Loma Prieta" problem, which refers to the 1989 earthquake that affected San Francisco. The epicenter of the earthquake was 90 kilometers away, but due to the soft soil conditions San Francisco and Oakland were as hard hit as the epicentral area.*

**What has the experience of working with insurance carriers (Lloyd's of London) in developing the Jumpstart insurance product been like? Have there been any unique challenges that have had to be overcome? Are there examples that you can provide?**

*Lloyd's has been nothing but facilitating. It has a strong reputation for being open and willing to accept new risks that come to market, and in the case of Jumpstart, is really living up to it. It has reviewed and accepted our pricing methodology and our technology with ease. The only real challenge we faced was finding a partner with a coverholder status; however, AmWins stepped up and in the same way as Lloyd's has been accommodating to work with.*

**Where do you see the Jumpstart platform in five years? Ten years?**

*We envision that a 'jumpstart policy' becomes a category-defining generic term for any product with fast, fixed payouts. It will be applied to many different types of natural disasters in many different geographies and beyond – to any unexpected shock.*

**Event-based or parametric insurance offerings have been commonly used in areas of agriculture and natural catastrophe losses. What in your view is the potential for new event-based offerings? Do you envision a scenario where the combination of advanced sensors and the IoT allows for event-based products to become more mainstream or replace entire existing offerings?**

*The way we see it, a risk has to meet two main criteria to be well-suited to parametric offerings and a third criteria is required for it to be considered insurance. First, the objective data measure (i.e., parameter) must be both reliable and independently verifiable by all counterparties. Data now being generated through IoT sensors have tremendous potential in this regard. Second, there must be a gap in insurance coverage that the parametric coverage is looking to address. The gap in coverage is often a result of unaffordable coverage, particularly policies with low frequency / high severity profiles, but it can also just be meaningful untapped opportunity.*

*Once these first two conditions are met, the third criteria is that the payment received by the policyholder must be small enough so that it does not provide an economic windfall – otherwise, it can still be a parametric product, but it would be in the form of a financial derivative rather than an insurance policy. Financial derivatives are regulated differently (in the US, by the Securities and Exchange Commission), but the primary disadvantage to the customer is that proceeds from financial derivatives are taxable.*

*And yes, absolutely, event-based products have near limitless applicability – and there is likely to be a state of the world not too far off in the future in which event-based products leapfrog indemnity products, especially in markets that don't yet have preconceived notions of what insurance products 'should' be.*

# Start-Up Company Profiles

Third-Party Data

## Event-Based Insurance Offerings for the Connected World



### Innovative Data-Driven Flight Disruption Insurance

Based in Ireland and co-founded in 2016 by CEO, Paul Prendergast, and CTO, Peter Bermingham, Blink is an InsurTech start-up that is focused on developing event-based insurance solutions for the global travel and assistance industry.

Today, global air travel connects hundreds of millions of passengers each year to just about every corner of the world. While mobility has certainly increased over time, so too has the number of people each year who inevitably experience the hassles of this modern convenience: flight delays or flight cancellations. Based on US data, so far in 2018 nearly 20% of flights are delayed in some form or another and nearly 2% of flights get cancelled. Across Europe and Asia these figures are similar and represent meaningful economic costs in the aggregate.

Trip delay or cancellation insurance products exist today, but they are a reactive solution to an existing problem. These policies often require customers to fill out forms, submit documents and then wait for a payment to arrive – long after the event has occurred.

Blink takes a different approach and offers customers a real-time insurance offering that delivers the speed and convenience that modern customers demand.

With a Blink travel insurance policy, a customer is instantly notified if a flight is delayed, cancelled or a connecting flight will be missed. Real-time event notification allows for real-time problem resolution. Blink offers customers options for a cash payment, re-booking of next available flights, hotel stays, ground transportation or access to airport lounges to remove the stress and anxiety of travel disruption.

Since forming in 2016, Blink has been acquired by CPP Group, an international provider of life assistance products, and has formed a number of distribution partnerships in large markets (e.g., Blue Cross in Canada and Generali in Pan-Asia).

### Providing Real-Time Solutions for Customers



Flight Cancelled

We notify customers, rebook the next available flight or provide cash reimbursement.



Flight Delayed

We notify customers, provide access to an airport lounge or provide cash reimbursement.

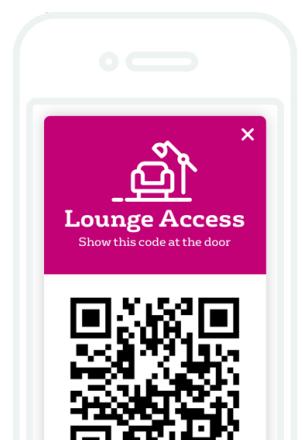


Connection Missed

We notify customers, rebook the next available connecting flight or provide cash reimbursement.

### Blink Lounge | Problems Solved in a Blink

Sorry, your flight AR246 is delayed 3 hours. Please use link below to enjoy your Lounge Access  
[goo.gl/5Hasf3](http://goo.gl/5Hasf3)



# Start-Up Company Profiles

Third-Party Data

## Event-Based Insurance Offerings for the Connected World



### Innovative Data-Driven Flight Disruption Insurance

#### Paul Prendergast – Co-Founder and CEO



- Paul is a serial entrepreneur and has started a number of companies over the past 20 years.
- Paul has won a number of awards in Ireland where Blink is based, and in 2014, with an earlier company, he won the Deloitte Fast 50 for the fastest-growing technology company in Ireland.

#### How did the concept for Blink take shape and how has the product or idea evolved over time to where it is today?

*We were looking at a data-driven insurance platform and felt that building a tangible product was the best way to communicate what we were trying to achieve. Travel insurance was an interesting sector as it is bigger than digital music with little or no innovation over the past 20 years. Secondly, travel was very mature in terms of data availability and there were many global providers that we could partner with to build a scalable event-based insurance solution.*

#### Why do you believe that now is the right time to launch an event-based insurance offering? What challenges have you had to overcome specifically related to your offering (e.g., consumer awareness, data collection, underwriting and analytics)?

*As with all other InsurTech companies, the macro trends are that capacity providers and regulators have been more open to work with technology start-ups. We were fortunate to partner with Munich Re Digital Partners in 2016 and to be the first InsurTech company to be a part of the Financial Conduct Authority's sandbox programme. For us, the initial challenges revolved around working out what was the best approach to bring our idea to market. We tested a number of approaches and are now very happy that we are working with travel insurance companies across the globe to help them provide innovative solutions and enhanced customer experience to their customers.*

#### What do you consider to be the main benefits of event-based insurance versus indemnity offerings as it relates to travel insurance?

*Traditional travel insurance is a reactive solution to an existing problem. Under a traditional indemnity offering, customers can experience a number of pain points, including:*

- They have to resolve problems themselves (e.g., re-booking, delays, frictional costs).
- They have to prove that the incident occurred.
- They only find out what the cover is during an actual claim (i.e., lack of transparency).
- There are many policy exclusions and excesses in place.

*As a result, the traditional product has many opportunities to result in a poor customer experience. With Blink as well as other event-based offerings, the customer experience and value proposition are much different. When an event occurs, the problem is immediately identified and customers are notified proactively (i.e., there is no need to file a claim afterwards). Real-time notification also allows us to offer real-time claims processing with no exclusions or excuses.*

*Customers today demand simplicity and speed. Our customers are always pleasantly surprised at how simple and transparent the process is and how quickly it works. They will continue to demand higher levels of service offerings and it is up to users of data to provide a progressive customer experience that matches advancements in technology.*

#### How does the Blink insurance offering work alongside other travel insurance offerings (e.g., trip cancellation, med/evac, lost luggage)? Do you see Blink as more of an added feature or endorsement to an existing policy or is there a scenario where Blink looks to replace portions of the traditional policy?

*Our travel insurance partners view the Blink solution in two ways. Firstly, they see it as a way of adding real value to their core travel insurance solution and providing real innovation to their customers. Most partners are looking to remove the fluff from their policies where there is no real usage or real customer value and to replace this with solid tangible value. So in this sense, the Blink offering can be seen as somewhat of a replacement or modernization of the traditional policy. The second is selling it as a stand-alone product to drive a new revenue stream. This could be a secondary sale if the core travel insurance policy is not sold or particularly relevant to certain demographics (e.g., millennials or new digital distribution channels).*

# Start-Up Company Profiles

Third-Party Data

## Event-Based Insurance Offerings for the Connected World



### Innovative Data-Driven Flight Disruption Insurance

**Can you elaborate further on the underwriting process and how Blink is able to connect to proprietary and third-party data to determine that an event has been triggered?**

*People are always surprised when we say that our key stakeholder is not the customer, rather the underwriter. We have always believed that if you build a product and process that an underwriter can trust, then the outcome will be a great customer experience. We are very much tech people doing insurance and are focused on building our solutions around APIs. That is our minimum requirement as we work with data partners and it allows us to move quickly and to scale our event-based offerings. We work closely with established data providers that have been providing solid data for years and this data availability was a key reason why we chose the travel insurance market.*

**How does the Blink offering work? Does a customer have to prepay prior to each flight or is it a service that is always available and working in the background (i.e., it knows when a customer is travelling and automatically activates)?**

*It can be both. We work on programs where, depending on how it is sold, we get the flight data automatically and are able to track and cover travellers automatically. Alternatively, we offer simple and intuitive ways for travellers to add flight data to our platform. In terms of policy length, we can offer per trip, annual or episodic policies and are currently working on interesting partnerships that will deliver some new ways of looking at this cover in the future.*

**What have been some of the challenges in working with the airline/travel industry to offer this new type of insurance product? Have there been any unique challenges that you've overcome that you can share?**

*There is always a challenge when you are bringing a new solution to market and we tend to shy away from the typical ancillary services approach and instead choose to partner with companies where we can make a major impact. Our route to market is primarily working with large travel insurance companies that work closely with the major airlines and travel industry and that are very good at educating and informing their partners of the benefits that new solutions like Blink can bring to their customers.*

**Where do you see the Blink platform in five years? Ten years?**

*The evolution of InsurTech is just starting as we are now a part of a rapidly changing parent company (CPP Group) that brings us significant global reach as well as the support and infrastructure to scale Blink over the next five to 10 years. We have two major areas that we are focused on.*

*The first is the overall trip event insurance solution. Travel as an industry is moving at pace and we see ourselves as protecting all elements of the travellers trip, growing from flight to include luggage, accommodation, security, ground transportation and experiences. Our view is the traveller wants insurance to invisibly protect all elements of a trip without ever having to think about it. As data access is getting greater over time we believe this vision can be delivered on using our scalable technology platform.*

*The second major area is risk pricing. One of the major new initiatives for us in the next six months is using big data to calculate the real risk of each flight so that underwriters can accurately price the risk of a flight and so we can offer the best priced product to travellers. This approach will broaden to all the other elements of a trip as data availability improves.*

*We are very confident that, while no one can see 10 years ahead, we have built a platform, team and culture that can move very quickly to continuously innovate in the travel insurance space.*

**Event-based or parametric insurance offerings have been commonly used in areas of agriculture and natural catastrophe losses. What in your view is the potential for new event-based offerings? Do you envision a scenario where the combination of advanced sensors and IoT allows event-based products to become more mainstream or replace entire existing offerings?**

*The core driver for Blink is having access to reliable data and we see this is as the major macro trend in InsurTech. Our view is that connected cars, connected humans (wearables) and commercial connected devices will provide major opportunities to offer new types of cover that are more relevant, are priced more accurately and are delivered with speed at lower cost. We are very focused on travel at present, but once we consolidate our position as leader in our niche, we look forward to examining lots of other insurance sectors.*

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### Making the World More Resilient to Catastrophic Events

Founded in 2017, FloodFlash is a UK-based InsurTech start-up that is looking to make catastrophe insurance available and affordable to those who need it most. By combining IoT sensor technology with high-resolution pricing algorithms, FloodFlash is pioneering the development of a new event-based flood insurance offering for the connected world.

Globally, flooding is one of the largest categories of natural catastrophe losses. Additionally, there is a multibillion-dollar coverage gap that exists between economic losses and what is covered through traditional insurance. The coverage gap persists for a variety of reasons, including a lack of product availability, underwriting uncertainty in high risk areas, and a high cost of traditional coverage.

FloodFlash is using technology to fundamentally rethink the insurance proposition. Whereas traditional policies indemnify the policyholder against the cost of damages sustained, a FloodFlash policy is 'event-based' or 'parametric' insurance that simply pays out a pre-agreed settlement as soon as a critical flood depth is breached.

Each policy is based on a quote generated instantly on FloodFlash's cloud-based platform. Only a street address is needed, and the quote is bespoke to that specific building. A customer can adjust the settlement size and the trigger depth in order to find a level of coverage and premium that makes the most sense for them.

Triggering events are monitored by the FloodFlash device: an installed IoT water-depth sensor that provides real-time event notifications and determines whether the customer's chosen depth has been breached. If it has, it initiates an automated claims process based on the amount of coverage the policyholder has selected. The customer can use the settlement as they see fit; repairing damage, replacing contents or stock, or covering loss of revenue through business interruption.

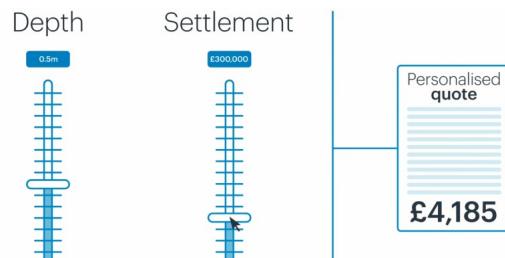
There is no need for costly loss adjusting after an event, and major sources of uncertainty (such as building vulnerability or stock value) are removed. These are the key reasons that FloodFlash policies can be made more accessible and more affordable, even for those who have been previously flooded or who operate in high-risk areas.

For FloodFlash, the IoT is the enabler that turns the sensor technology into a viable insurance product and also unlocks significant value for the policyholder and insurer. For consumers, FloodFlash helps to increase financial resilience to natural disasters. For insurers, FloodFlash represents a new way to generate premiums for markets that have been difficult to serve via traditional policies. Additionally, the IoT allows for real-time monitoring and data collection, which can be used to further refine loss models or to provide an array of risk mitigation services at a local level.

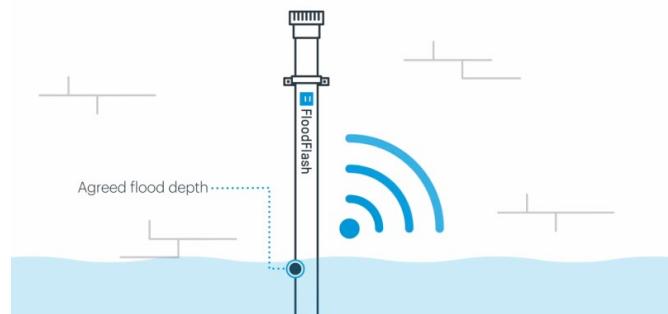
### FloodFlash Insurance Value Proposition

#### Pricing Transparency for Trigger and Settlement Levels

##### FloodFlash Images



#### Sensors + IoT Enable Real-Time Event Verification



#### No Paperwork or Loss Adjusting; Real-Time Payments



# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### *Making the World More Resilient to Catastrophic Events*

#### **Adam Rimmer and Ian Bartholomew – Co-Founders**



Adam Rimmer and Ian Bartholomew met at catastrophe-modelling firm RMS in 2011. Between them they have modelled and structured the triggers on over \$2 billion of parametric catastrophe bonds and insurance-linked securities, including \$0.5 billion that included triggers based on depth of flooding. Ian holds an MA and an MPhil from the University of Cambridge and a PhD from the University of Edinburgh; Adam holds an MA in natural sciences from the University of Cambridge.

#### **How did the concept for FloodFlash take shape and how has the product or idea evolved over time to where it is today?**

*Adam and I met at RMS, where we worked together in the Capital Markets team on modelling and structuring for catastrophe bonds. After the New York Metropolitan Transportation Authority launched MetroCat Re, in the aftermath of superstorm Sandy, we realised that parametric insurance could help solve the global flood under-insurance problem, if it could be successfully turned into a mass market product.*

*We ran a pilot in the UK last year with our first premium-paying customers. This phase let us prove the FloodFlash product was possible, from a regulatory perspective, with capacity, and that it is something customers want to buy. The evidence from our pilot helped us to raise funding from some great venture capital investors, and we are now on the journey to prove that the product can work at scale by establishing a flood-specialist MGA using our proprietary tech platform and sensors. We have invested heavily in that technology development and it now supports seamless underwriting and claims process. At heart, event-based insurance is simple, and we want it to remain so for our customers and partners.*

#### **Why do you believe that now is the right time to launch an event-based insurance offering? What challenges have you had to overcome specifically related to your offering (e.g., consumer awareness, data collection, underwriting and analytics)?**

*There are all sorts of reasons. Technology has a large part to play, both in the development of high-resolution risk models and in the availability of IoT communications. As you say, there is also growing awareness of catastrophe risk. We know that severe weather events are expected to get more frequent and have greater impact. A recent piece of research tells us that there have been nearly \$50 billion of flood damages globally per year over the past 10 years, only \$9 billion of which were covered by insurance. There is a huge opportunity for the insurance industry to help solve that problem, which exists in both established and emerging insurance markets. InsurTech certainly has a bit of buzz at the moment, and this is an area we feel it can have a real impact.*

*As a start-up in the insurance industry, we face challenges every day. Underwriting, data collection, analytics and claims are the hurdles we identified in the first place. Through a combination of our technical expertise and vision for the product, we have always had a clear idea of how they can be solved. The trickier side of things is to grow a start-up in an industry that has traditionally been slower moving. We have been fortunate to work with some forward-thinking partners, however, who share our hopes for the potential of event-based insurance. We came through the FCA regulatory sandbox, which provided a safe environment in which to test our new product. It also gave us access to experts from the regulator, making sure that they were comfortable with how it works, the protection it offers to our customers and our approach to technology development. We have also worked closely with our capacity providers, who have embraced our approach to technical pricing and risk management.*

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### *Making the World More Resilient to Catastrophic Events*

#### **What do you consider to be the main benefits of event-based insurance versus indemnity offerings as it relates to flood insurance?**

*Event-based insurance brings benefits on both sides of the equation, to the insurers that underwrite policies, and to the end customer.*

*It tends to be the case that customers who most need flood insurance are those who will have most difficulty finding cover. The logic behind this isn't that flooding is unpredictable, rather that the consequential damages, and the following costs of repair, are so difficult to quantify. This problem leaves insurers exposed to a great deal of uncertainty in their risk. By creating a policy that pays a fixed sum if water depth during a flood exceeds a pre-agreed depth, we greatly reduce the uncertainty for an insurer, allowing them to write risks in places that might ordinarily be excluded.*

*For the insurers, this provides the simple benefit of being able to write more premium. This applies both to previously excluded risks in established insurance markets, and new risks in emerging markets where there is less in the way of claims history and underwriting data.*

*Settlements are fixed and specifically contingent on flood depth. Because depth is easier to predict than the cost of damage, there is a great deal more certainty in the underwriting of a given policy and across a whole portfolio. Another happy benefit is the potential to make big efficiency gains. FloodFlash provides an automated underwriting platform to its partners. On the claims side, there is no need for a loss adjuster and settlements can be resolved within hours.*

*For customers, we see the ability to get cover in more places as the main benefit. There are no excluded areas and we can provide a risk-specific premium for every customer. That said, the product itself is fairly compelling. The objective and transparent trigger that you get with event-based insurance provides peace of mind. You can be paid quickly, with total flexibility on how to spend the money. Overall, this will let our customers begin their recovery faster, following a hassle-free claims process. We aim for our customers to pay fair premiums, which reflect the risk of flooding. The product efficiency and underwriting certainty should allow cover to be provided at a lower price than traditional insurance for a given level of risk.*

*The final piece of the puzzle is the alignment of incentives between customer and insurer around flood resilience. There is a clear mechanism for increased protection, say with flood barriers, to immediately reduce premiums. Stories from our customers tell us that traditional insurers struggle to reward flood resilience. With event-based insurance, however, if you are protected to a greater depth, you can simply choose a policy that pays out at a greater depth, which will always cost less.*

#### **Can you elaborate a little more on the underwriting and application process? How has the process been working with your carrier partners? Have there been any unique insights or observations with working alongside 'traditional' insurance markets?**

*At present, our product is distributed in the UK via retail brokers. Our partners log in to the FloodFlash platform and follow a simple route from quote to bind, with automated generation of policy documents. All that is required is entry of a postcode and address. The platform then calls our automated risk pricing engine to generate a quote. Our mantra has always been to make flood insurance available everywhere, for everyone. In practice, this means that we will always be able to provide a quote for cover, with premiums that directly reflect the risk of flooding. Clearly, if someone has very high risk he or she might be motivated to put in place some form of flood protection and buy a slightly different policy from us. For me this points to a hugely powerful alignment of incentives. The better protected you are, the lower your risk and the cheaper your premiums.*

*We have spent a lot of time with our capacity providers to make them comfortable with our risk algorithms and rating process. This has been a really positive process. Perhaps the most interesting area of development has been around historical flooding and the treatment of customers who have flooded previously. Through our use of risk modelling, we want insurers to get away from the idea that recent flooding makes someone more risky (and therefore uninsurable). At the same time, we have to accept that people who haven't flooded in the past might do so in the future. This might appear to present a clash with traditional approaches to underwriting, but it is really a question of understanding the tools and data that are available to us, particularly in relation to risk modelling.*

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### *Making the World More Resilient to Catastrophic Events*

#### **How do you assist customers with the self-underwriting process (i.e., the trigger depth and amount of coverage)? Is there a related consulting model that goes along with FloodFlash?**

*Understanding the true cost of flooding is a fascinating area. We currently leave this important decision in the hands of our customers and any independent advisors they might work with. While we aren't in a position to give advice in individual cases, there is a lot we can do to provide meaningful contextual information, for example around the typical size of flood claims, costs of cleanup and repair, and tools to help to estimate replacement values. In many respects this process is no different to determination of limits for a traditional insurance policy. Ultimately, a customer has to ask the question: "what will I need in the event of a disaster?" This could include anything from damage to a property, wages and other ongoing financial commitments, rent for new premises or replacement stock. We are in our early stages at the moment, but supporting customers and brokers in this area will be a huge focus for us as we grow.*

*We are often asked about basis risk – the possibility that a customer will either receive more than his or her costs or, in some cases, less. We recognise that this potential exists with event-based insurance. At the same time, I would argue that the true cost of flooding is so indefinite that a traditional product, which ties loss directly to damages experienced by a property and perhaps some bodily injury coverages, doesn't really capture the cost of flooding. This is particularly true for businesses, where the contingent costs of flooding become evident in complex ways and may last for years after an event. With an event-based product, we aim to re-imagine insurance as a true risk management product that offers a lifeline to customers in the event of a disaster.*

*In this context, it will be fascinating to see what our customers spend their settlements on, not only on the cost of repairs but also on other areas of a business. There is also plenty of evidence that the ability to recover faster is a major factor in reducing the overall cost of flooding. The flexibility offered by event-based insurance has the potential to influence, and challenge, current approaches to flood recovery.*

#### **How does FloodFlash mitigate fraud risk? The most critical component to event-based offering is the ability to have verifiable data related to the event that cannot be tampered with. Are there some common scenarios that you can comment on and that show how FloodFlash is able to recognize the legitimacy of the claims event?**

*This is always one of the first questions we get asked: "What happens if someone pours a bucket of water on the sensor??!?"*

*From a technical point of view this is a really interesting area of the business. The key part is that fraud mitigation is completely centred on the data that we collect. Our technology allows us to collect a time series of water depth over the course of an event. We can see the rise and fall of water, giving a signal that can be processed and analysed. We have a multi-layered approach to fraud prevention, which incorporates primary water level data, secondary data from the FloodFlash sensor network and external sources of data to assess the validity of a claim, considering the potential for false positives from a water level sensor and the risk of fraudulent activity.*

*Behind this approach is our logic that, if the solution to fraud prevention is all about the data, it is something that we can constantly develop and improve, staying one step ahead of any malign practices. As an InsurTech start-up, I feel almost duty bound to tell you about machine learning, AI and blockchain; this is the area of our business where they will really have an impact.*

#### **Where do you see FloodFlash in five years? 10 years?**

*Our overarching goal is to protect all the people, governments and businesses that end up footing the bill for natural disasters because they can't access affordable insurance. The first phase of that mission is to demonstrate that event-based flood insurance is a powerful solution to the global flood underinsurance problem, and our structure as an MGA is the perfect way for us to stimulate the market. This is where we are focused for the next few months.*

*Looking to the future though, we see event-based insurance as an entire new category that will protect multiple people from multiple perils in multiple countries. We want FloodFlash to be at the centre of that. In five years we see ourselves well under way on that mission; in 10 years, we like to envisage a world where the majority of the world's catastrophe risk passes through FloodFlash, efficiently executed on parametric smart contracts, moving from those at risk to the balance sheets of those built to take it: insurance and reinsurance companies, and ultimately pension funds and alternative capital sources.*

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World

### Bridging the Gap Between Agriculture and Technology

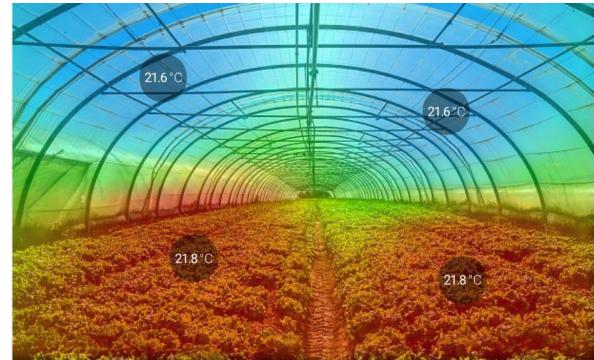


Founded in 2014 and headquartered in the Netherlands, 30MHz is a technology-focused start-up that is focused on bringing sensors and IoT applications to the underserved agriculture and horticulture industries. The company has developed a number of wireless IoT sensors that are easy to install, can be meshed together on a single private network and are built to withstand harsh growing conditions. This technology is providing growers with new opportunities to monitor growing conditions and to generate more granular crop-level data – turning metrics captured from the physical world into actionable insights at an industrial scale.

While 30MHz previously sought to develop solutions for broader commercial applications (e.g., industrial, manufacturing and facilities management), the founders of 30MHz recognized a meaningful opportunity to apply 30MHz's technology to an underserved market: agriculture. Their mission is simple: provide growers with advanced technology to monitor real-time growing conditions at granular levels, use sensor-generated data to make better decisions and use data insights to make indoor growing more efficient and environmentally friendly.

By some estimates, approximately 30% of crops are lost before ultimate consumption as a result of suboptimal growing conditions, spoilage or disease. A meaningful portion of this economic cost can be avoided through the use of IoT sensors and real-time monitoring. With 30MHz, growers can get access to real-time monitoring of their crops or supply chain on any device, providing valuable insights from seed to harvest and all the way through the supply chain to the end consumer. The 30MHz platform can help to optimize irrigation and ventilation, help to prevent disease or sunscald, assist with pest control and better predict the shelf life of products in transit, which have many potential future crop insurance and product liability applications.

#### Granular Monitoring and Crop-Level Data



#### 30MHz – Built for Farmers' Needs



##### Customer Control

*Designed for customization: add any kind of data source, measure metrics that matter, control how you see data and who you share insights with.*



##### Fast Deployment

*Unbox sensors and start measuring. Set up a wireless network in minutes - no technical ability needed for installation.*



##### User Friendly

*Intuitive real-time analytics, alerts and is easy to use. Anyone across an organization can use without a steep learning curve. Useable on any device.*



##### Own Your Own Data

*It's data based on your business environment, there's no reason why you shouldn't own it. Export data via CSV, API or share live dashboards with key stakeholders.*

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### Bridging the Gap Between Agriculture and Technology

#### Jurg van Vliet – Co-Founder and CEO



- Jurg began his career at Phillips Research and has since founded several successful software engineering and web consultancy businesses, including 2Yellows and 9apps.
- World-leading expert on Amazon AWS, having written several introductory and advanced books for O'Reilly. He has expertise through the value chain in software engineering, software and systems architecture and mobile software.

#### How did the concept for 30MHz take shape and how has the product or offering evolved over time to where it is today?

30MHz consists of four co-founders: Flavia Paganelli, Jasper Geurtsen, Fleur van Vliet and Jurg van Vliet. All four have extensive experience as software engineers and computer science specialists at companies such as TomTom, Phillips, Layar and AWS to name a few. In November 2014, Jurg, Fleur, Flavia and Jasper joined forces to incorporate 30MHz.

The founders saw an opportunity to bring their services of cloud infrastructure to handle mass amounts of data and tools like real-time sensors that monitor online assets to the offline world. Essentially, 30MHz sought to use IoT as a means to connect offline assets. In less than a year after founding 30MHz, the company secured its first anchor client through a strategic partnership with the Port of Amsterdam. Soon, more opportunities emerged in the industrial landscape with businesses looking to generate real-time feedback and insight on their assets – from steel companies to logistics warehouses. The 30MHz technology had wide applicability, which was evident on the range of early 30MHz customers (e.g., commercial offices looking to understand asset utilization or museums wanting to better understand visitor movement and flow).

While the company had proven its business model with a variety of clients, there was one industry that stood out in terms of the potential to maximize the value of the 30MHz offering: agriculture. The Netherlands is the second largest agricultural exporter after the US. A Dutch greenhouse hectare produces 20 times more tomatoes than the same area outdoors. Wageningen UR is the authority on agricultural research in the world. The market was fast adopting the use of wireless sensors for agriculture, so two years ago we made the strategic decision to focus solely on the agricultural industry.

The pressure on agriculture is significant. To continue to feed the world's population, production will need to double by 2050. All focus is now on what is being called the third wave of modern agricultural revolutions, with precision agriculture being an important part. It is not entirely clear how this will evolve over time, but there is general consensus that it will require a combination of sensor technology, IoT and vast amounts of data. AWS has made large-scale data-driven solutions accessible to all users large and small. Historically, hundreds of thousands of euros were needed to build the infrastructure needed to handle data from hundreds or thousands of sensors, making reliable storage and scaling quite expensive. Today, sensor prices are plummeting and the IoT is maturing rapidly, which makes building a cost-effective and user-friendly sensor network feasible.

Building a platform like 30MHz requires a diverse and highly talented team with skills ranging from hardware to embedded software as well as years of experience building cloud native solutions. We are at exactly the right place in the Netherlands at the right time. We are building a collaborative platform to digitize the environment and indoor farming, create a marketplace and connect the global agricultural community.

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### Bridging the Gap Between Agriculture and Technology

**How does the 30MHz platform sync with sensors? Are you a manufacturer of sensors or are you sensor-agnostic? Is there a limit to the number of sensors or devices that can be incorporated into the 30MHz platform?**

We currently facilitate our product offering by enabling customers using our sensors to communicate privately and securely to a 30MHz gateway. These sensors work on radio frequency (RF), which gives the sensors an ability to work at distances of up to 7 kilometers (direct line of sight). The sensors are also able to mesh together on a single network, which ensures that all locations within a grower's operations are able to be covered with sensor technology. The ability for the sensors to work at long distances also makes it possible to deploy 30MHz in hard to reach areas (e.g., glasshouses or cold storage) or harsh conditions. From the onset we designed 30MHz to be suitable for industrial use; it needed to be highly scalable and robust enough to work in the worst conditions.

We can also incorporate existing sensor data either through our API or by attaching our "30MHz Connect" technology to an existing computer or machine. The integration of data through 30MHz Connect does take a bit of development, but with each new sensor programmed, knowledge improves and so does the speed of enabling the device. In time, we would expect the industry to be able to connect and pair these devices independently, and we want to provide the industry with access to 30MHz product distribution and customers.

We are sensor agnostic and already see a number of other sensor providers wanting to use their hardware with our platform. The sensors that we offer are a result of direct feedback of what solutions customers are looking for (while taking into consideration the costs, durability and accuracy of such sensor requests).

There is no limit per se, but we guide customers that the maximum number of sensors that can be connected to a single gateway is 4,000. We designed 30MHz for industrial use and if a customer requires more than 4,000 sensors (which has not happened yet) they have an ability to deploy another gateway. The limitations of the overall platform is in the millions of connected sensors, but this can easily be expanded through additional development.

**What are some examples of things that the 30MHz sensors are able to track today? Are there any emerging technologies that you are monitoring for potential applications to agricultural industry?**

At 30MHz, we are enabling existing sensor technology and also effectively lowering the barriers to deployment. For example, many customers may have handheld versions of one or two wired sensors. Through wireless enablement, customers are able to place these devices anywhere and can deploy additional sensors without the expensive install costs and time.

The benefits of collecting sensor-generated data in the cloud are many and it enables complicated and data-hungry calculations to happen effortlessly. For example, one of our more popular sensors is the Pointed Microclimate Sensor. It captures object temperature, air temperature and relative humidity. With these three data points, one can derive complicated calculations like dew point and vapor pressure deficit (i.e., plant stress). Previously, calculating plant stress was done manually by taking collected data and inputting this into Excel worksheets. The process was very time-sensitive and as a result growers only were able to take a couple of measurements per day. With 30MHz, this process is entirely automated, data integrity is established and growers are able to get minute-to-minute updates.

Currently there are over 20 sensors enabled for growers and some of the data elements captured are as follows:

Soil Moisture • Soil Temp • Oxygen Levels • CO2 Levels • Light • Wind Speed and Direction • Airflow • Rainfall • Internal Temperatures (probes) • Electricity • Water Flow

# Start-Up Company Profiles

Proprietary Data

## Event-Based Insurance Offerings for the Connected World



### Bridging the Gap Between Agriculture and Technology

**While you do not have an explicit insurance offering today, there are some interesting potential use cases that you have identified as potential insurance-related offerings. Can you provide a couple of examples of how the 30MHz platform could be used for insurance applications?**

Currently, there are two insurance-related offerings that we plan to make available to customers along with the 30MHz platform.

1. *Product Liability – 30MHz can potentially help mitigate product liability exposures by being able to monitor growing conditions and product provenance from seed through to end retail. This can help to lower or mitigate product liability risks (i.e., disease, spoilage or rot), especially when supply chain users incorporate 30MHz technology that can quickly provide alerts for any potential liability issues. In addition to any accidents or issues that arise, the entire supply chain can be notified. Retailers or supply chain managers can better manage and control quality standards by requiring 30MHz technology to be incorporated along the supply chain.*
2. *Loss Prevention and Mitigation – It is estimated that nearly a third of food is lost before ultimate consumption. This is not only an economic issue, but a social one in terms of finite global resources. Many of the contributors to food waste relate to issues of disease, pests and human error. Many of these factors can be reduced or prevented by simply being able to continuously monitor the environment and to leverage data to make better data-driven decisions.*

**In addition to insurance applications, you have identified examples of how the 30MHz technology can be used for social good with one example being the prevalence of food waste in the system today. How does the 30MHz technology help to solve this global issue?**

*The issue of global food production is an important one for 30MHz and something that is core to our business model and value proposition. As we've discussed, indoor farming is the future and it is imperative that we take the industry from analog to digital. At the same time, we need to lower the existing barriers that have prevented meaningful adoption of sensor technology and IoT applications in order to increase overall productivity. Arable land is finite and in some geographies, degrading rapidly, which reinforces the need for farming solutions to become more high tech.*

*Arguably there is enough arable land at the moment to maintain the status quo, but we see a large misallocation of where this arable land is and the yields that are being produced. In some countries, we see wars, conflicts or civil unrest from a lack of local food security. Through technology we have the ability to increase the wealth of a nation by increasing food security while also being able to improve the agricultural industry of emerging markets – which helps countries develop faster and move up the economic value chain.*

**Given the vast amount of data that can be collected through your platform (and likely others in the future), would you think it would be feasible to develop event-based insurance offerings in the future (e.g., predetermined event triggers and corresponding payments)?**

*Yes, I believe that there will be many opportunities for the development of event-based insurance offerings. However, first the environment needs to be digitized. Additionally, I think it will be easier for insurers to price new offerings as a result of being able to leverage large amounts of customers across vast geographies. It will likely also be easier for end consumers to pool together to create collectives or mutuals to self-insure.*

### Where do you see the 30MHz platform in five years? Ten years?

*We want to become the go-to platform for indoor agriculture and this means conquering multiple markets. We want to have 70% plus of all indoor agriculture growers using 30MHz technology. We hope to have helped to digitize the environment and give customers the ability to generate vast amounts of data that can be analyzed internally and/or shared within the community of growers. In addition, we aim to have other manufacturers of sensor devices or other third-party data providers to be able to integrate into the 30MHz platform. This integration will greatly enhance data granularity and modeling techniques that can be shared on a worldwide basis. Pest infestation or other costly risks can be monitored in real-time to give growers meaningful insights and time to take preemptive actions. In addition to having growers on our platform, we also want to be a conduit for other vendors and agricultural service providers so that additional services (e.g., remote advice or AI) can be easily distributed on the 30MHz platform. A digitized agricultural economy will significantly accelerate innovation; we envision a sort of 30MHz app store of digital services for customers to purchase to monitor their soil data or even to buy insurance for the crop.*

# Transaction Spotlight

Munich Re acquired IIoT start-up, relayr, for \$300 million to advance its IoT strategy and to develop new revenue streams

## The Power of Technology in Next-Gen Manufacturing

In keeping with the theme, this quarter's transaction spotlight focuses on another example of a company that is employing sensor technology and IoT applications in an effort to digitize the physical world in order to help customers make better data-driven decisions. This transaction also showcases the meaningful opportunity the industry has to develop new insurance and other financial products that provide assurance to industrial and commercial companies looking to make significant investments in IoT.

In September 2018, Munich Re through its subsidiary Hartford Steam Boiler (HSB) acquired 100% of Berlin-based Industrial Internet of Things (IIoT) start-up, relayr, for \$300 million.

Founded in 2013, relayr is dedicated to helping industrial clients reap the benefits of IoT applications and to assist companies in the process of adapting and connecting existing infrastructure to generate new forms of data that deliver meaningful business intelligence and operational efficiencies.

As an example, the relayr platform connects new and legacy hardware and software to extract, digest and analyze data from physical objects (e.g., trains, assembly lines). This makes it possible for clients to monitor assets and to determine whether a machine is likely to fail, allowing time for preventative maintenance to be completed in advance of a costly malfunction. Clients are better positioned to manage existing infrastructure and can also extend the useful life of capital intensive assets.

This transaction is also noteworthy in that in addition to providing Munich Re with access to new and better quality underwriting data, this transaction also opens the door to potential data monetization opportunities for the broader insurance industry (e.g., data as a service for other insurance companies).



## Munich Re: Importance of IoT Strategy

*"IoT is already significantly changing our world and has the potential to disrupt the traditional insurance and reinsurance industry through new business models, services and competitors."*

*"This acquisition supports our strategy to combine knowledge of risk, data analysis skill and financial strength with the technological expertise of relayr."*

- Torsten Jeworrek

## Munich Re/relayr Insurance Offerings



### Completion Warranty

Insurance instrument that covers the deliverables laid out in relayr's SOW, encouraging businesses to work with relayr



### Retrofit Warranty

Insurance coverage for any post-retrofit breakdown and replacement of original warranties on retrofitted machines



### Business Outcomes Warranty

Tailored insurance packages and warranties related to project effectiveness, cost savings or energy savings



### Service Level Warranty

Tied to the success of implementation and initial effectiveness; de-risking business model transformation and covers against any unexpected claims

## The relayr Value Stack



# Thought Leadership

## A Trip to the Future Where Hyper-Granular Data Meet New Governance Paradigms



**Dr. Magdalena Ramada**  
Director and Senior Economist,  
Willis Towers Watson

For the past four years, I have been dedicated to the InsurTech space and, in particular, to blockchain and the way in which it will shape the future of risk, working with both incumbents and start-ups to understand how we evolve as a tech-enabled industry. I could therefore focus on latest use cases and the shiniest toys on the proof-of-concept shelf. Instead, I have decided to take you on a back-to-the-future type of ride, one that involves a great deal of imagination to envision a future for insurance – being built today in a very concrete way – that may look fundamentally different from what we know.

### The Journey from Risk to Capital

So, let us go back to the beginning. In essence, the insurance industry – and in a broader sense the financial services industry in general – is meant to be an enabler in the *risk-to-capital journey*. Most human interactions and economic activities are inherently affected by uncertainty. When that uncertainty can be quantitatively assessed and measured, it becomes risk, and when risk can be priced, it can be transacted like any other asset. When risks find a way to capital, uncertain cash flows become businesses and people can focus on being productive, as opposed to hindered by fear. Risks usually do not affect people and businesses all in the same way; hence, they can be pooled and the burden can be shared, based on a principle of rewarded solidarity.

If we deconstruct that notion into its driving principles, all that is needed to enable that risk-to-capital journey is the ability to measure uncertainty and the existence of an efficient market that is able to price and place risk. With the vast amount of digital and almost real-time streaming data, mapping the behavior of devices and people and with the increased computational capacity of processing all that data, measuring and forecasting uncertainty has become more accurate than ever. Technology has also improved our ability to run highly efficient and transparent markets, and with blockchain, even fully decentralized, peer-to-peer ones. And yet, when we look at the insurance industry today, most risk-to-capital journeys seem everything but efficient and straightforward.

### Data-Enabled Products

It therefore appears that there is significant room for improvement, and that is what this report is all about. In this particular issue, we have focused on data – mostly streaming from devices – and parametric or index-based insurance. Parametric products are easy to understand; they can be automated fairly easily and processed in minutes, if not seconds. They constitute a key way of covering insurance gaps and complement other indemnity-based insurance products.

From weather-based crop insurance, to micro-life insurance products, any parametric insurance product pre-defines a single source of information (e.g., a specific weather index) and a threshold-based trigger (e.g., earthquake reached a magnitude above 6.5) to activate a process that executes an insurance policy. That does not necessarily mean, though, that these products all display a high degree of automation. Indeed, in many cases (e.g., flight delay), traditional products, despite being parametric, still require data from multiple parties to be collated and submitted, like requesting a letter from an airline certifying that the insured's flight was delayed, scanning it and submitting a claim manually.

As we have seen throughout this report, data from drones, satellites, smart devices and wearables can deliver automation in many parametric insurance products. They can further help to improve the efficiency and pricing accuracy of indemnity-based insurance. They can increase the pool of insurable people and enable pricing and products that adapt with people and businesses' needs and behavior. That is not the future, it is the present.

But how safe are that data? Where should that data come from? Who should own it and protect the data? What does hyper-granularity of data and constant observability mean for the sustainability of the insurance industry? How dystopian does a future look like, where digital identity twins exist and pools-of-one cease to actually pool risk?

### Let's Imagine...

... a world in which your everyday behavior gets mapped and registered into a blockchain-enabled identity solution, where your data develop into a digital footprint that is immutable, highly encrypted and owned and accessed only by you. This identity solution is connected to devices you own or use, ranging from your smart home, your connected car and your smart refrigerator, to wearables tracking your sleep, your heart rate, your brain activity and, why not, even your molecular decay. All that data are streamed in real

# Thought Leadership

## A Trip to the Future Where Hyper-Granular Data Meet New Governance Paradigms

time into a highly encrypted vault and your private keys are the only way to access the data. Service providers like health practitioners, insurers or banks can trust the data in your custody, because they know the data was written into that vault by trusted devices or entities, and that the data sits on an immutable ledger that you cannot corrupt.

You sleep well at night knowing that the data are not being used by third parties without your consent and that you can provide selective access to only parts of that data, whenever service providers incentivize you to do so with appropriate rewards.

In this world, you also have a private virtual assistant, powered by AI, which is coded to defend your interests and has learned from all the data in your vault. Having a private virtual assistant is a widespread thing these days; indeed, everyone has one. They learn to communicate with you and for you, by listening to your calls, reading through your messages and social media posts and following the dinner conversation you had with your children after a long day. You do not worry about such an assistant, because it feels more like an extension of yourself, given you own it and are the only one who can grant access to it and make use of its insights. This artificial general intelligence (AGI) communicates with other distributed AGIs and negotiates on your behalf.

You also do not need to worry about buying insurance, because based on the information in your vault, your private AGI has contracted with an AI-enabled blockchain smart contract that self-issues a personalized insurance policy, designed only for you, with clauses, prices and coverage that self-adapt in real time to your needs, by learning from your past behavior and assessing your riskiness in almost real time. Risk factors will be assessed on an individual basis and your smart motor insurance policy may know that even though you consistently exceed speed limits by 10%, what actually constitutes a higher accident risk factor in your case is that you have slept less than five hours or that you cheated on your ketogenic diet that morning.

Your private AI assistant will let your smart car know that you may be having a bad day in advance, as well as other smart cars on the road, to mitigate the risks of an accident. Your smart insurance policy will monitor your behavior and may decide to charge you more or to help you reduce your stress and incentivize you to change your eating habits. The wearable device tracking your brain activity will let you know a day in advance that you'll be having a migraine and will suggest games to play in your smartphone to re-engage certain types of synapses to avoid brain fog.

It will also let your smart disability insurance policy know about the changing odds of developing Alzheimer's. Smart accident insurance policies will access information about your sleep, your geolocation, the weather, trail conditions, your smart fabric t-shirt and your sneaker's soles to assess the likelihood of a fall on a run-by-run basis. Smoke detectors will communicate events to smart contracts; claims will be processed as soon as losses occur and fraud will be avoided through automated and reliable triggers. Whenever a loss happens, everyone who is eligible is indemnified. It does not depend on people submitting a claim and there is unbreakable escrow by design.

One day these AI-powered smart contracts, that can actually assess and price risks in real time, will get open-sourced and coded into distributed virtual machines that aren't actually owned by an underwriter. These machines will not only assess the riskiness of individuals, also will automatically pool them to mutualize against those risks in large, decentralized, autonomous peer-to-peer (P2P) insurance networks, tokenize those risks and then find investors whose risk appetite is adequate to insure/reinsure them in equally distributed pools of capital.

### Living in a World of High-Stake Technologies

This possible but still rather implausible future makes most people feel uneasy. And while we do not have adequate governance mechanisms for a future like the one depicted, every piece of technology needed for a world like that already exists.

I worked on developing a self-issuing and self-closing insurance policy that uses smart contracts and the IoT to track smart containers and automate cargo insurance. I also worked on a product that allows you to insure everyday activities by the minute, connecting to your run app or to your bike and in the future to your self-sovereign data identity. Smart contracts that can automatically issue simple insurance policies and communicate with connected devices to self-execute already exist in the personal lines market, like AXA's Fizzy on travel delay, or Saldo.mx's micro-life insurance Consuelo. The use of shared bicycles can be unlocked by smart contracts today after reading your uPort identity solution. Smart homes and smart construction sites communicate with insurers to help mitigate losses and avoid accidents. Connected devices like phones or refrigerators can activate product insurance policies. Drone and satellite images allow for accurate loss estimates within hours after catastrophes.

# Thought Leadership

## A Trip to the Future Where Hyper-Granular Data Meet New Governance Paradigms

Brain activity wearables developed by Neuroverse can forecast your migraine 24 hours in advance and are being tested on PTSD patients today. Smart fabrics and surgical threads can broadcast real-time data to doctors, or to deep machine learning algorithms, like the one being used by Freenome to understand molecular decay and forecast the odds of your body developing over 200 different types of cancer. Social robots like Hanson Robotics' Sophia are already able to detect stress levels, your mood or read your micro-facial expressions.

Sovrin, uPort or DNABits are developing blockchain-based identity vaults or "data wallets" that can be read by a smart contract, enabling self-sovereign identities and pushing the ownership of identity data from centralized servers or clouds to distributed ledgers. Singularity Net is working on blockchain-distributed AGIs that communicate and learn from one another.

Fully distributed, peer-to-peer networks mutualizing risks without an underwriter exist as well, such as those piloted by Etherisc and Teambrella. Etherisc launched a fully distributed parametric catastrophe insurance for Puerto Rico and crop insurance in Africa. This is happening even in the life and health space, where Zhongtopia in China is exploring how to run a peer-to-peer, fully coded health mutual. The first fully coded and distributed mutual-like entity covering cyber risks in the crypto space is being built by Nexus Mutual and due to be launched in Q1 2019 in the UK.

### The Future of Risk in the Context of the Future of Data

While many of these experiments are under way, they remain exactly that – experimental – given their limited scope and scale. For risks to be fully autonomously assessed, priced and placed, digital identity and provenance solutions need to mature significantly and consumers need to become considerably more data savvy. Data need to travel from outside the blockchain into distributed ledgers in a safe and reliable way and hence standards for data, authentication and security are needed. Regulation to protect consumers from the dark side of analytics and hyper-segmentation needs to be developed. Interoperability of multiple ecosystems is also lacking. Solvency models and pricing models will have to account for unbreakable escrow and 100% indemnification of those eligible.

Yet, the vision of tech-enabled and distributed, decentralized ways of social interaction is a very powerful one and drives a highly capitalized ecosystem of startups. This ecosystem is developing the infrastructure and data plumbing to enable that paradigm shift, knowing that synergies between distributed ledger technologies and IoT will allow data and value flows to be automated across entire value chains among multiple parties – business networks and peer-to-peer ones alike – with trust being coded in, as opposed to provided by third parties.

Quite overwhelming, I know. Still, despite the great need for new governance models and for more discussion on the sustainability and long-term implications of these fourth generation solutions to deal with risk, in the short term, I strongly believe that these experiments constitute more of an opportunity than a threat.

These data-driven parametric products are delivering insurability where there was none. They are making insurance financially viable for underserved markets and providing coverage for significant insurance gaps. Even the more disruptive product innovation that we are witnessing, around hyper-personalized and adaptive products and the coded self-mutualization of risks, is fulfilling an important short-term goal: it is generating new data. It is helping us understand how to deal with moral hazard, adverse selection, asymmetries of power and asymmetries of information in the context of ultra-granular data and risk hyper-transparency.

Finally, this also means that the insurance industry will have to analyze in which areas automation and decentralization make sense, and conversely, for which types of more complex risks underwriters will be indispensable, refocusing its efforts and resources where they add more value.

# The Data Center

## InsurTech by the Numbers

### Q3 2018 Deal Count Is Down from Q1 and Q2 Levels

- **57 InsurTech deals, with a total value of \$1.26 billion, were announced in Q3 2018**
  - Compared with Q3 of 2017, deal count increased by 19% while funding volume also increased by 303%
    - 57 transactions in Q3 2018 were lower than Q1 and Q2 of 2018 but higher than quarterly average of 2017 (51)
    - Increased investment count in the UK this quarter, representing 18% of the total Q3 funding round compared with 9% of total investment count since 2013
    - Investment from international markets remains strong; transactions outside of the US account for 43% of total transactions since 2013 and 53% in the quarter
    - Early-stage investments also remain strong; Seed and Series A account for 64% of total transactions since 2013 and 58% in the quarter
  - P&C funding volume increased by 32% over Q2 2018 and increased 224% from Q3 2017
    - 40 P&C transactions in the quarter were slightly below the 44 transactions in Q2 2018, but were 48% higher than Q3 2017
  - Life & Health (L&H) funding volume was up 367% from Q2 2018 and increased 406% from Q3 of 2017
    - Despite the overall deal count being down from Q2 2018 and Q3 2017, the \$687 million in funding value for the quarter was the highest amount since Q2 of 2017 and the third highest on record
- **While InsurTech deal count decreased 20% from Q2 2018, funding volume increased by 117% due to certain significant transaction investments for the same period**
  - Q3 saw eight transactions reaching or exceeding \$40 million in funding, compared with six in the first half of 2018
  - The largest deal in the quarter was the \$375 million late-stage funding round for Oscar Health, which brought its total valuation to \$1.27 billion
  - The remaining +\$40 million transactions included:
    - Gusto's \$140 million Series C funding round, which brought total funding for the start-up US payroll and benefits platform to \$316 million
    - Root's \$100 million Series D funding round, which brought total funding for the US-based personal auto insurer to \$164 million
    - Metromile's \$90 million Series E funding round brought total funding for the California-based car insurance platform to \$296 million
    - Next Insurance's \$83 million Series B funding, which brought total funding for the small business focused digital insurance distribution platform to \$131 million
    - Namely's \$60 million Series E funding, which brought total funding for the HR, payroll, time management and employee benefits cloud-based platform to \$231 million

- LEAGUE raised a \$47 million Series B funding round, which brought the total funding to \$76 million for the Toronto-based digital start-up connecting workplaces to a network of health services benefits
- Digit Insurance's \$45 million Series B funding round, which brought the India-based technology enabled personal lines insurer's total funding to \$105 million

### Technology Investments by (Re)insurers Continued at an Active Pace

- **With a total of 26 investments, Q3 2018 was slightly above the average technology investments by (re)insurers since 2014 and represented a decrease of 24% and 7% from Q2 2018 and Q3 2017, respectively**
  - US-based technology firms remain the number one targets with 50% of (re)insurer investments for the quarter, lower than the 61% figure for all investments since 2013
  - UK and Israel-based firms outperformed their historical share of total investment count; Q3 produced 45% (\$101 million) of total Israel-based funding volume
- For Q3 2018, fewer (re)insurer investments (\$66 million and eight investments) were made in the Seed and Series A stage than in Q2 2018 (\$134 million and 11 investments)

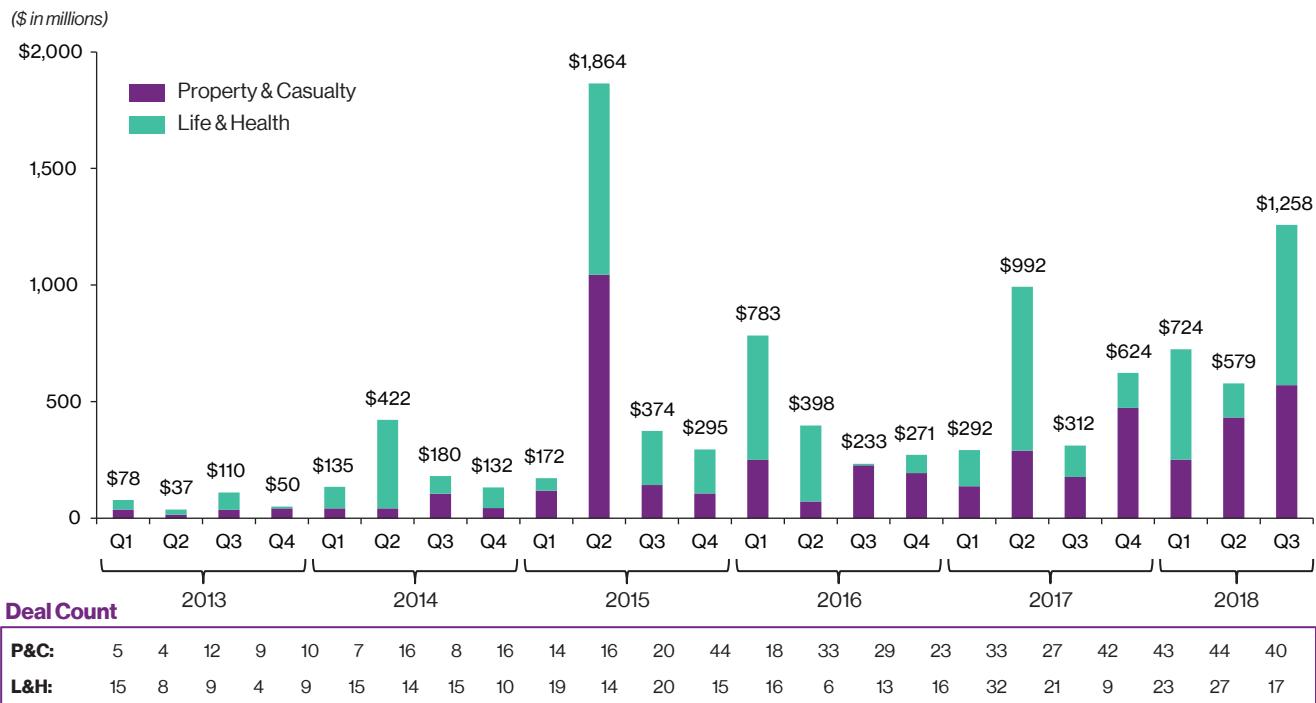
### (Re)insurer Partnerships Grew Significantly in Q3

- **There were 31 strategic partnerships between (re)insurers and technology companies in the quarter, the highest amount recorded by this publication**
  - Travelers will provide Notion's smart home monitoring system, used to help with water leaks, fire damage and theft, to customers in California
  - Intact partnered with Voyage to access data and create risk profiles in real time from Voyage's fleet of driverless cars
  - RGA has entered into a partnership with Trupo to reinsure Trupo's products for freelance workers in the US
  - QBE formed a partnership with Jupiter in order to strengthen the firm's climate risk management capabilities
  - In partnership with RSA, Zego brings a pay-as-you-go solution to the courier and transport market
  - Swiss Re partnered with BMW to utilize BMW's driver-assistance systems to develop vehicle-specific insurance ratings and car insurance premiums
  - Sompo has partnered with ZhongAn to build Internet-based insurance products by leveraging the big data analysis and AI expertise of ZhongAn

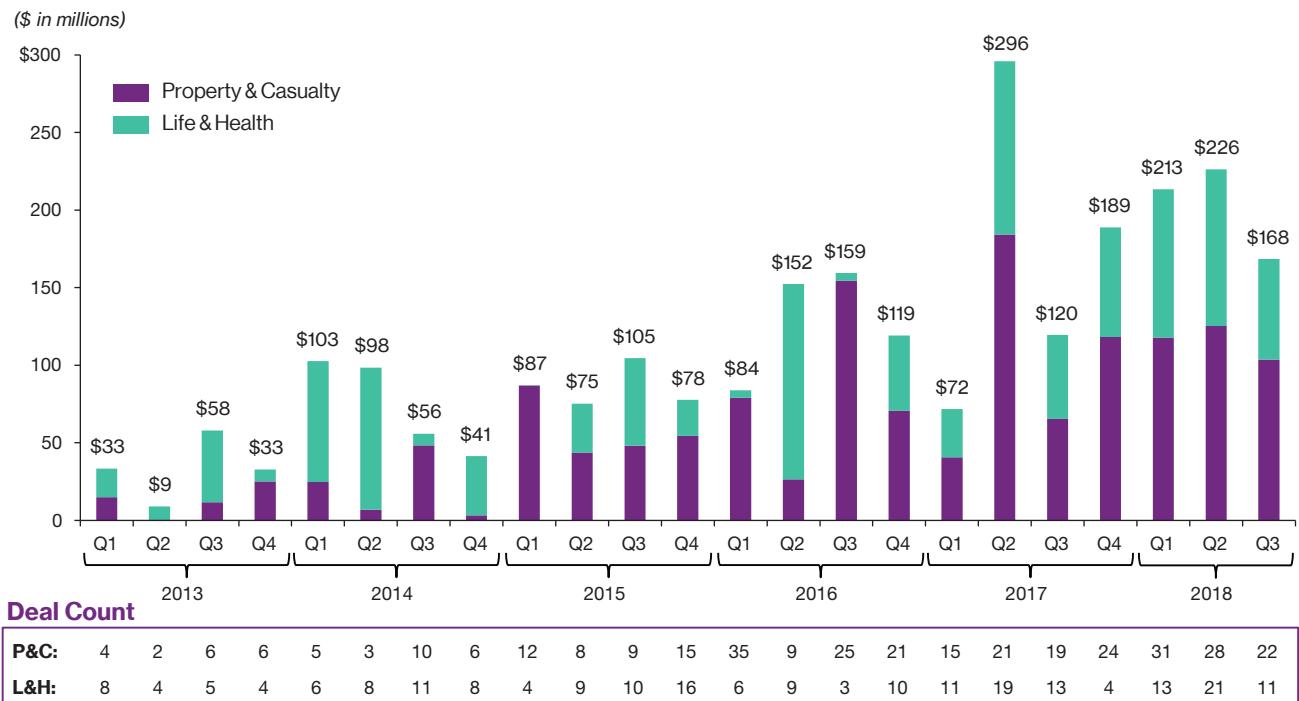
# The Data Center

## InsurTech by the Numbers

### Quarterly InsurTech Funding Volume – All Stages



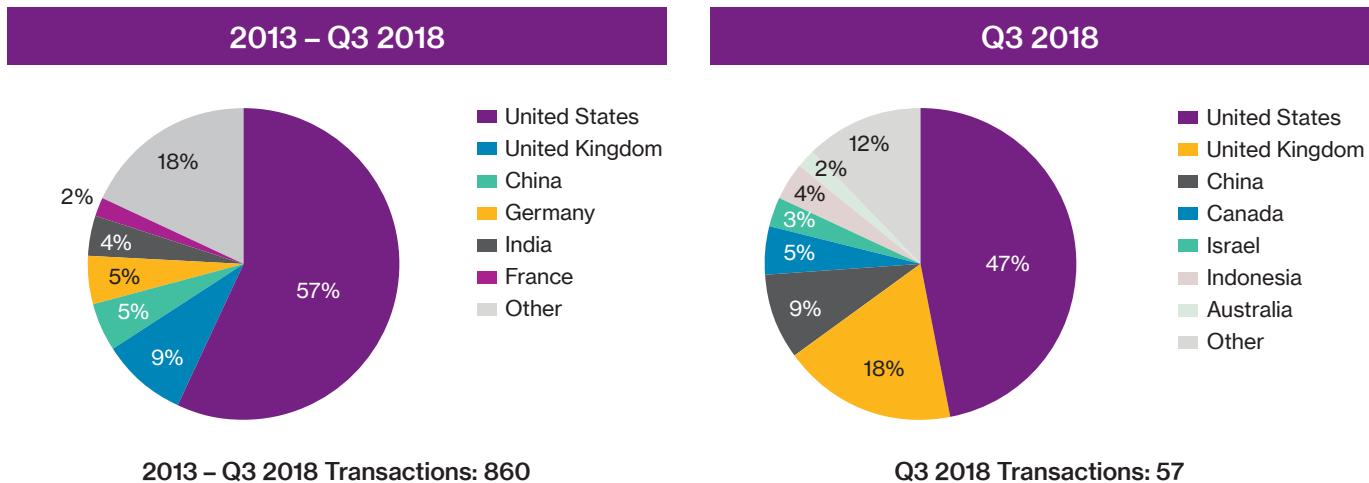
### Quarterly InsurTech Funding Volume – Early Stage



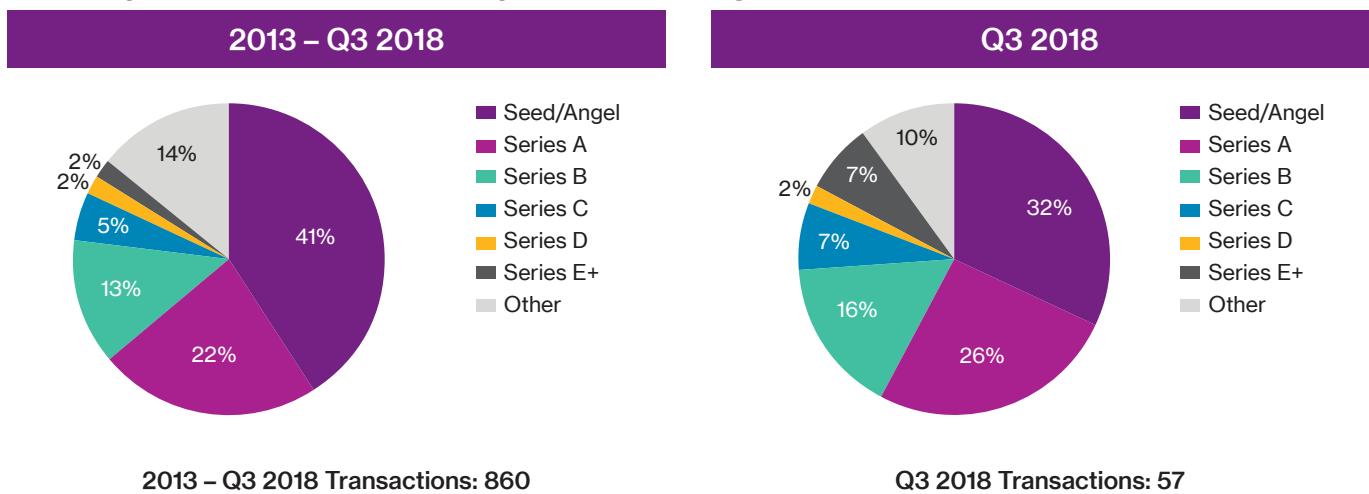
# The Data Center

## InsurTech by the Numbers

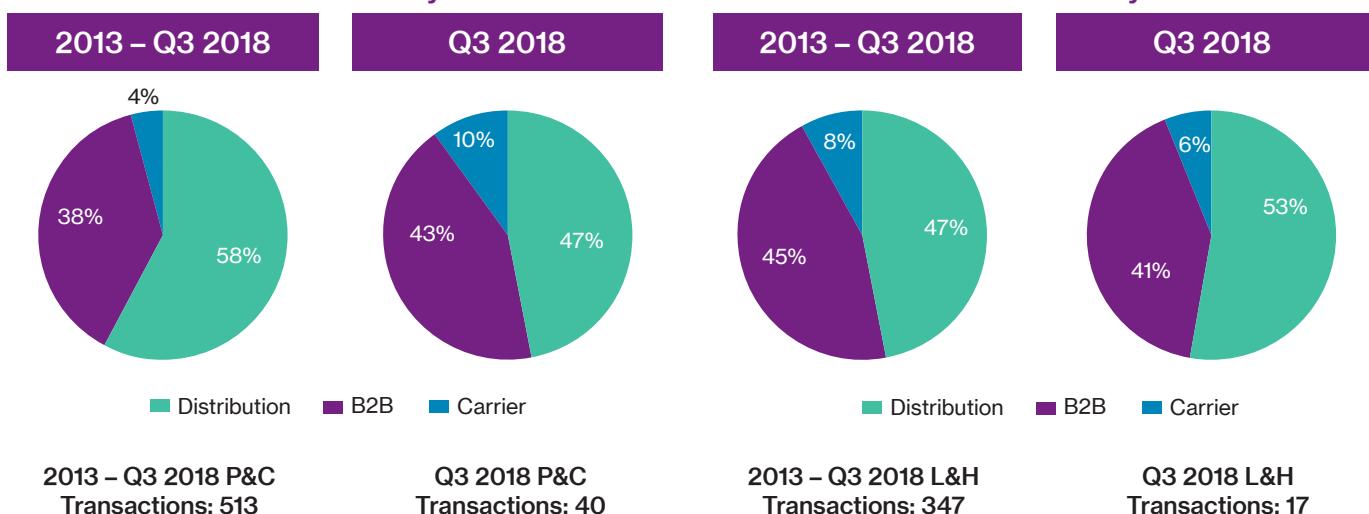
### Quarterly InsurTech Transactions by Target Country



### Quarterly InsurTech Transactions by Investment Stage



### P&C InsurTech Transactions by Subsector



# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Funding (\$mm)					
Date	Company	Round	Total	Investor(s)	Description
07/02/18	Windward	16.5	32.3	<ul style="list-style-type: none"> <li>▪ <a href="#">Aleph</a></li> <li>▪ <a href="#">Angelic Ventures</a></li> <li>▪ <a href="#">Dan Senior</a></li> <li>▪ <a href="#">David Patraeus</a></li> <li>▪ <a href="#">Horizons Ventures</a></li> <li>▪ <a href="#">John Browne</a></li> <li>▪ <a href="#">Marc Benioff</a></li> <li>▪ <a href="#">XL Innovate</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Israel-based insurance broker developing technology for the maritime industry</li> <li>▪ Windward's proprietary data and machine learning technology analyzes 1,500 different variables from commercial shipping fleets to better understand risk in real time</li> </ul>
07/03/18	Bought By Many	19.8	29.3	<ul style="list-style-type: none"> <li>▪ <a href="#">CommerzVentures</a></li> <li>▪ <a href="#">Crispin Odey</a></li> <li>▪ <a href="#">Evelyn Bourke</a></li> <li>▪ <a href="#">Munich Re/HSB Ventures</a></li> <li>▪ <a href="#">Octopus Ventures</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ UK-based MGA utilizing millions of insurance-related Google search terms to identify unmet insurance needs and works with direct customers or insurers to provide insurance solutions</li> <li>▪ Bought By Many has over half a million members across 300 insurance groups</li> </ul>
07/03/18	Planck Resolution	12.0	12.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Arbor Ventures</a></li> <li>▪ <a href="#">Eight Roads Ventures</a></li> <li>▪ <a href="#">Viola Group</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Israel-based company that develops AI software to help analyze and perform risk assessments of commercial businesses</li> </ul>
07/06/18	Tractable	25.0	34.8	<ul style="list-style-type: none"> <li>▪ Andy Homer</li> <li>▪ Entrepreneur First</li> <li>▪ Greg Gladwell</li> <li>▪ <a href="#">Ignition Partners</a></li> <li>▪ <a href="#">Insight Venture Partners</a></li> <li>▪ Scott Roza</li> <li>▪ Stuart Bartlett</li> <li>▪ Tony Emms</li> <li>▪ Zetta Venture Partners</li> </ul>	<ul style="list-style-type: none"> <li>▪ London-based AI system assists insurers in disaster recovery</li> <li>▪ Tractable uses deep machine learning to automate visual damage appraisal and therefore speed up insurance claims payments</li> </ul>
07/11/18	Next Insurance	83.0	131.0	<ul style="list-style-type: none"> <li>▪ <a href="#">American Express Ventures</a></li> <li>▪ <a href="#">Markel</a></li> <li>▪ <a href="#">Munich Re</a></li> <li>▪ <a href="#">Munich Re/HSB Ventures</a></li> <li>▪ <a href="#">Nationwide Ventures</a></li> <li>▪ <a href="#">Redpoint Ventures</a></li> <li>▪ <a href="#">Ribbit Capital</a></li> <li>▪ <a href="#">SGVC</a></li> <li>▪ <a href="#">TLV Partners</a></li> <li>▪ <a href="#">Zeev Ventures</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Palo Alto-based digital insurance distribution platform focused on insurance coverage for small businesses</li> <li>▪ Designs insurance plans for industries that are often overlooked by more general insurers (e.g., photographers, personal trainers)</li> </ul>
07/16/18	Digital Risks	3.0	3.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Atami Capital</a></li> <li>▪ <a href="#">Beazley Investments</a></li> <li>▪ <a href="#">Early Market</a></li> <li>▪ <a href="#">London Co-Investment Fund</a></li> <li>▪ <a href="#">Seedcamp</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ UK-based insurance for digital businesses (e.g., online media)</li> <li>▪ Offers monthly plans to cover new and evolving risks facing digital innovators</li> </ul>
07/16/18	TowerIQ	2.0	2.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Clocktower Technology Ventures</a></li> <li>▪ <a href="#">DCOU FinTech Innovation Center</a></li> <li>▪ <a href="#">Hyperplane Venture Capital</a></li> <li>▪ <a href="#">Vestigo Ventures</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Boston-based SAAS platform consolidates backend data and administration tasks for the brokers in the commercial insurance space</li> <li>▪ TowerIQ provides communication, data insights and exposure-gathering services to free brokers to focus on clients</li> </ul>
07/18/18	Spruce Holdings	15.6	20.1	<ul style="list-style-type: none"> <li>▪ <a href="#">Bessemer Venture Partners</a></li> <li>▪ Boris Khentov</li> <li>▪ <a href="#">Collaborative Fund</a></li> <li>▪ Joe Ziemer</li> <li>▪ Jon Stein</li> <li>▪ Mike Reust</li> <li>▪ <a href="#">Munich Re/HSB Ventures</a></li> <li>▪ <a href="#">Omidyar Network</a></li> <li>▪ Third Prime Capital</li> <li>▪ Undisclosed Angel Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based Spruce Holdings is the first digital-native title company focused on the US title insurance industry</li> <li>▪ Technology integrates with real estate companies' existing platforms to improve processes and close property sales quicker</li> </ul>

Note: Blue font denotes current round investors.

# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Date	Company	Funding (\$mm)			Investor(s)	Description
		Round	Total	Investor(s)		
07/24/18	Aligned Business	0.1	0.1	▪ <a href="#">MetLife Digital Accelerator</a>		<ul style="list-style-type: none"> <li>Sydney- and Singapore-based end-to-end digital insurance solution specialist for companies transitioning to digital distribution</li> <li>Service includes flexible product configuration and real-time policy quotation/purchase through to accumulation of data for analytics</li> </ul>
07/24/18	Halos Insurance	0.1	0.1	▪ <a href="#">MetLife Digital Accelerator</a>		<ul style="list-style-type: none"> <li>Washington DC-based Halos is using latest technologies and going back to first principles to design products for low-risk groups and reduce accidents for high-risk groups</li> </ul>
07/24/18	MetroMile	90.0	295.5	<ul style="list-style-type: none"> <li>▪ <a href="#">Australian Future Fund</a></li> <li>▪ China Pacific Insurance</li> <li>▪ David Friedberg</li> <li>▪ Felicis Ventures</li> <li>▪ First Round Capital</li> <li>▪ <a href="#">Index Ventures</a></li> <li>▪ <a href="#">Intact Financial Corporation</a></li> <li>▪ Intact Ventures</li> <li>▪ Mark Cuban</li> <li>▪ Mitsui &amp; Co. (U.S.A.)</li> <li>▪ <a href="#">New Enterprise Associates</a></li> <li>▪ <a href="#">Section 32</a></li> <li>▪ SV Angel</li> <li>▪ <a href="#">Tokio Marine Holdings</a></li> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>California-based car insurance platform for 'low mileage drivers' to pay based on their actual number of miles on the road</li> <li>Metromile is revolutionizing car insurance through technology with its pay-per-mile insurance model</li> <li>Uses a small free wireless device that plugs into a car's OBDII port to securely count miles and to determine monthly insurance bill</li> </ul>	
07/24/18	Safely	0.1	0.1	<ul style="list-style-type: none"> <li>▪ Advanced Technology Development Center</li> <li>▪ <a href="#">MetLife Digital Accelerator</a></li> <li>▪ Plug and Play Accelerator</li> </ul>		<ul style="list-style-type: none"> <li>Atlanta-based Safely provides products and services for property managers, homeowners and Airbnb and vacation rentals</li> <li>Safely leverages data analytics and databases to verify guests and provides up to \$1 million in primary commercial insurance</li> </ul>
07/25/18	Assurely	0.6	0.6	▪ <a href="#">Undisclosed Investors</a>		<ul style="list-style-type: none"> <li>New York-based platform that creates and customizes insurance products for emerging, disruptive and transformative marketplaces</li> <li>Assurely's first product, CrowdProtector, protects investors from fraud while increasing confidence of potential investors and the overall value proposition of the crowdfunding platform</li> </ul>
07/25/18	By Miles	1.3	1.8	<ul style="list-style-type: none"> <li>▪ Fintech Fast Forward</li> <li>▪ Hambro Perks</li> <li>▪ <a href="#">InMotion Ventures</a></li> <li>▪ <a href="#">InsurTech Gateway</a></li> <li>▪ <a href="#">JamJar Investments</a></li> <li>▪ Undisclosed Angel</li> </ul>		<ul style="list-style-type: none"> <li>UK-based auto insurance provider offering per miles coverages for consumers who live in cities and use their car infrequently</li> <li>Fixed annual cost covers vehicle while parked with simple pay-per-mile premiums additional</li> <li>A tracker is plugged under a car's dashboard and the By Miles app allows customers to monitor the premiums incurred</li> </ul>
07/25/18	Collision Management Systems	1.6	1.6	▪ <a href="#">BGF</a>		<ul style="list-style-type: none"> <li>UK-based Collision Management Systems supplies real-time data and crash detection software to telematics providers, motor manufacturers and insurance businesses to help manage risk</li> <li>Projects currently in US, South America, Middle East and Japan</li> </ul>
07/25/18	Digit Insurance	45.0	105.0	▪ <a href="#">Fairfax Financial Holdings</a>		<ul style="list-style-type: none"> <li>India-based technology-enabled general insurance company with a focus on personal lines coverages including travel</li> </ul>
07/26/18	Groundspeed Analytics	30.0	32.0	<ul style="list-style-type: none"> <li>▪ ManchesterStory Group</li> <li>▪ Michigan Angel Fund</li> <li>▪ <a href="#">Oak HC/FT Partners</a></li> <li>▪ Tappan Hill Ventures</li> </ul>		<ul style="list-style-type: none"> <li>Michigan-based analytics platform using machine learning to harvest, normalize and extract data that can be transformed into useful information to unlock hidden value in unstructured data</li> <li>Data findings utilized by brokers and carriers can be extracted from loss runs, risk exposures and policy data</li> </ul>
07/27/18	Pet City	0.7	0.7	<ul style="list-style-type: none"> <li>▪ <a href="#">Chizi Fund</a></li> <li>▪ <a href="#">Shunchong</a></li> </ul>		<ul style="list-style-type: none"> <li>China-based Pet City allows customers to buy health insurance for their pets through its official account on WeChat</li> <li>Pet City partners with ZhongAn to develop insurance products related to medical costs, burial and transportation of pets</li> </ul>
08/01/18	FloodFlash	2.5	2.8	<ul style="list-style-type: none"> <li>▪ Hambro Perks</li> <li>▪ <a href="#">InsurTech Gateway</a></li> <li>▪ <a href="#">LocalGlobe</a></li> <li>▪ <a href="#">Pentech Ventures</a></li> </ul>		<ul style="list-style-type: none"> <li>UK-based InsurTech start-up that is looking to address the existing inefficiencies of flood insurance with a new event-based offering</li> <li>The FloodFlash policy combines sensor technology and IoT applications to pay insureds a fixed sum money as soon as flood</li> </ul>

Note: Blue font denotes current round investors.

# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Date	Company	Funding (\$mm)			Description
		Round	Total	Investor(s)	
08/09/18	Pie Insurance	11.0	15.3	<ul style="list-style-type: none"> <li>▪ Aspect Ventures</li> <li>▪ Elefund</li> <li>▪ Greycroft Partners</li> <li>▪ Moxley Holdings</li> <li>▪ Sirius International Insurance Group</li> </ul>	<ul style="list-style-type: none"> <li>▪ Washington DC-based workers compensation MGA using data analytics to provide policies for small businesses</li> <li>▪ As of October, Pie served customers in eight states with further expansion to 15 - 20 states by the end of 2018</li> </ul>
08/10/18	Dais Technology	9.0	14.0	<ul style="list-style-type: none"> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chicago-based Dais provides insurance carriers and agencies with a range of workplace efficiencies, from workflow automation to billing to using data to quantify risk</li> </ul>
08/15/18	Ins. For Renascence	---	---	<ul style="list-style-type: none"> <li>▪ Chenshan Capital</li> <li>▪ Cloud Angel Fund</li> <li>▪ CRCM Ventures</li> <li>▪ Matrix Partners China</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shanghai-based specialist in pre-insurance risk control and product customization for personal insurance lines</li> <li>▪ Ins. For Renascence utilizes machine learning and cloud computing to gather data such as consumption habits and fraud</li> </ul>
08/17/18	XAGENT	1.2	3.3	<ul style="list-style-type: none"> <li>▪ Brian Kapiloff</li> <li>▪ Terry Scali</li> <li>▪ Tribeca Angels</li> <li>▪ World Insurance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Virginia-based insurance intermediary connecting retail agents to national "A" rated carriers with instant bindable quotes</li> <li>▪ Provides a 50-state submission platform for a variety of standard and surplus lines commercial coverages</li> </ul>
08/22/18	Custodian	0.2	0.2	<ul style="list-style-type: none"> <li>▪ 500 Accelerator</li> </ul>	<ul style="list-style-type: none"> <li>▪ LatAm-based Custodian specializes in advancing claims management for auto insurance</li> </ul>
08/22/18	Galaxy.AI	2.9	3.0	<ul style="list-style-type: none"> <li>▪ Techstars</li> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based Galaxy. AI has built proprietary technology for auto insurance claims processing</li> <li>▪ Galaxy uses machine vision and deep learning to analyze damaged vehicle images and provides claims cost via a mobile app to claim adjusters</li> </ul>
08/22/18	Root Insurance	100.0	164.0	<ul style="list-style-type: none"> <li>▪ Drive Capital</li> <li>▪ Redpoint Ventures</li> <li>▪ Ribbit Capital</li> <li>▪ Scale Venture Partners</li> <li>▪ Silicon Valley Bank</li> <li>▪ Tiger Global Management</li> </ul>	<ul style="list-style-type: none"> <li>▪ Columbus-based personal auto insurer offering coverages and claims handling services entirely through its mobile application</li> <li>▪ A personalized quote is obtained after a 2 - 3 week test drive with policy purchase, management and claims fulfilled via app</li> </ul>
09/07/18	reThought Insurance	---	---	<ul style="list-style-type: none"> <li>▪ Plug and Play Ventures</li> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Colorado-based tech-centric MGA focused on serving US Commercial Flood risks</li> <li>▪ reThought has developed a state-of-the-art proprietary underwriting methodology and risk technology enabling the assessment, underwriting and pricing of Commercial Flood cover</li> </ul>
09/10/18	Bold Penguin	1.9	1.9	<ul style="list-style-type: none"> <li>▪ Pivot Investment Partners</li> <li>▪ Plug and Play Accelerator</li> </ul>	<ul style="list-style-type: none"> <li>▪ Columbus-based Bold Penguin focuses on matching insurance agents' and insurers' P&amp;C products through its online marketplace</li> </ul>
09/10/18	OneDegree	12.7	12.7	<ul style="list-style-type: none"> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hong Kong-based online platform that lets consumers purchase personal lines and health products directly</li> <li>▪ The start-up will initially sell medical insurance plans for pets</li> </ul>
09/07/18	Simplis	2.3	2.3	<ul style="list-style-type: none"> <li>▪ APRIL Group</li> </ul>	<ul style="list-style-type: none"> <li>▪ French-based Simplis offers insurance products aimed at small commercial customers within the gig-economy</li> </ul>
09/10/18	Waffle Insurance	---	---	<ul style="list-style-type: none"> <li>▪ Barclays Accelerator</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based Waffle operates a tech platform offering holistic insurance protection to the personal lines market</li> <li>▪ Waffle evaluates each person holistically, not just as a driver or homeowner, to provide cheaper universal insurance coverage</li> </ul>
09/07/18	Conservis	4.0	30.7	<ul style="list-style-type: none"> <li>▪ Cultivian Sandbox</li> <li>▪ Heartland Advisors</li> <li>▪ Middleland Capital</li> <li>▪ Pontifax AgTech</li> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Minneapolis-based Conservis is a leading provider of enterprise agriculture management solutions</li> <li>▪ The software provides up-to-the-minute data reports for farmers, landowners, insurance companies and regulatory agencies</li> </ul>

Note: Blue font denotes current round investors.

# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Date	Company	Funding (\$mm)			Description
		Round	Total	Investor(s)	
09/17/18	MoveSouq	4.0	7.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Addventure</a></li> <li>▪ <a href="#">Emaar Properties</a></li> <li>▪ Undisclosed Angel Investors</li> <li>▪ Undisclosed Investors</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dubai-based multifaceted online platform providing quotes and online bookings for moving, home services and insurance</li> </ul>
09/17/18	Setoo	9.3	12.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Kamet</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ UK-based Setoo is a fully automated SaaS platform enabling e-businesses to develop tailor-made protection products</li> </ul>
09/20/18	Hedvig	3.4	4.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Cherry Ventures</a></li> <li>▪ <a href="#">Nicklas Storakers</a></li> <li>▪ Philian Invest</li> <li>▪ <a href="#">Sophia Bendz</a></li> <li>▪ <a href="#">Sven Hagstromer</a></li> <li>▪ <a href="#">Tacito Partners</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Sweden-based Hedvig offers insurance for both rental and owned apartments, as well as insurance for travel and personal items</li> <li>▪ Users pay a flat monthly fee depending on their need with Hedvig taking a fixed 20% from the monthly payment</li> </ul>
09/24/18	Socotra	5.5	8.8	<ul style="list-style-type: none"> <li>▪ <a href="#">8VC</a></li> <li>▪ Undisclosed Angel Investors</li> <li>▪ Undisclosed Investors</li> <li>▪ USAA</li> </ul>	<ul style="list-style-type: none"> <li>▪ Socotra created the first cloud-native, productized insurance platform; supports underwriting, administration, claims, billing, reporting</li> <li>▪ Recently announced that Life by Spot, a direct-to-consumer life insurance start-up backed by Hamilton Re, has chosen Socotra to</li> </ul>
09/25/18	Concirrus	6.6	15.1	<ul style="list-style-type: none"> <li>▪ <a href="#">Eos Venture Partners</a></li> <li>▪ Imperial Innovations</li> <li>▪ <a href="#">IQ Capital Partners</a></li> <li>▪ Touchstone Innovations</li> </ul>	<ul style="list-style-type: none"> <li>▪ London-based AI and machine learning software platform providing risk insights to the marine industry</li> <li>▪ Concirrus enables marine insurers to manage risks in real time and to develop underwriting insights and new insurance products</li> </ul>
09/26/18	C88 Financial Technologies	---	28.0	<ul style="list-style-type: none"> <li>▪ Altitude Partners</li> <li>▪ Captii Ventures</li> <li>▪ Deutsche Investitions</li> <li>▪ Experian</li> <li>▪ FengHe Fund Management</li> <li>▪ Fuchsia Venture Capital</li> <li>▪ InterVest</li> <li>▪ Jasrag Investments</li> <li>▪ Kejora Ventures</li> <li>▪ Kickstart Ventures</li> <li>▪ <a href="#">Korea Investment Partners</a></li> <li>▪ Monk's Hill Ventures</li> <li>▪ Mountain Kejora Ventures</li> <li>▪ Pelago Capital</li> <li>▪ responsAbility Investments</li> <li>▪ Telstra Ventures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Singapore-based platform assisting insurance companies to communicate and interact with digital customers, market their products and manage their data integrity and digital reputation</li> <li>▪ C88 is one of the largest FinTech companies in South East Asia, and has served over 20 million customers in Indonesia and the Philippines since its founding</li> </ul>
09/26/18	Slice Labs	20.0	40.3	<ul style="list-style-type: none"> <li>▪ <a href="#">Horizons Ventures</a></li> <li>▪ <a href="#">JetBlue Technology Ventures</a></li> <li>▪ <a href="#">Munich Re/HSB Ventures</a></li> <li>▪ Plug and Play Accelerator</li> <li>▪ Plug and Play Ventures</li> <li>▪ <a href="#">Sompo Holdings</a></li> <li>▪ <a href="#">The Co-Operators General Insurance Company</a></li> <li>▪ Undisclosed Investors</li> <li>▪ <a href="#">Veronorte</a></li> <li>▪ <a href="#">XL Innovate</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based start-up that provides on-demand home share insurance product, available via online or app</li> <li>▪ Key markets include the on-demand economy and pay-per-use customers (e.g., ride sharing and Airbnb)</li> </ul>

Note: Blue font denotes current round investors.

# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Date	Company	Funding (\$mm)			Description
		Round	Total	Investor(s)	
07/06/18	iyunbao	---	---	<ul style="list-style-type: none"> <li>▪ China Growth Capital</li> <li>▪ DT Capital Partners</li> <li>▪ Meridian Capital</li> </ul>	<ul style="list-style-type: none"> <li>▪ Shanghai-based digital distribution platform that uses artificial intelligence to make the insurance purchasing process more efficient and transparent for customers and agents</li> </ul>
07/11/18	Proformex	1.0	5.0	<ul style="list-style-type: none"> <li>▪ Undisclosed Angel Investors</li> <li>▪ Vcapital</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ohio-based life insurance policy administration platform that seeks to proactively identify problems with inforce life insurance portfolios, helping to protect policies against lapse, degradation and asset erosion</li> <li>▪ Proformex employs an on-demand platform built to assist trusted advisors in monitoring, tracking and ongoing performance</li> </ul>
07/18/18	Centivo	34.0	34.0	<ul style="list-style-type: none"> <li>▪ Bain Capital Ventures</li> <li>▪ Bessemer Venture Partners</li> <li>▪ F-Prime Capital</li> <li>▪ Ingleside Investors</li> <li>▪ Jim Foreman</li> <li>▪ Ken Goulet</li> <li>▪ Kevin Hill</li> <li>▪ Maverick Ventures</li> <li>▪ Oxeon Partners</li> <li>▪ Rand Capital</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based Centivo offers a new type of self-funded health plan that focuses on patient outcomes and includes a policy design that rewards individuals for high-value care and adherence</li> <li>▪ Centivo uses a state-of-the-art digital technology platform and concierge support to enable optimal care and exceptional patient experience</li> </ul>
07/24/18	Buddy	0.1	0.1	<ul style="list-style-type: none"> <li>▪ MetLife Digital Accelerator</li> </ul>	<ul style="list-style-type: none"> <li>▪ Virginia-based online insurance platform that has created a one-of-a-kind episodic accident insurance coverage that helps cover out-of-pocket costs of ER and hospital trips for outdoor enthusiasts</li> <li>▪ Buddy provides customers with a fast and inexpensive means to obtain accident insurance coverage with flexible coverage options by the day, week, month or year</li> </ul>
07/24/18	CloudAdvisors	0.2	0.2	<ul style="list-style-type: none"> <li>▪ Victory Square Technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Vancouver-based online platform serving the group life and health industry to connect marketplace data with insurance advisors</li> <li>▪ Uses process automation and machine learning to offer digital client management, on-demand insights, reporting, governance and compliance assistance</li> </ul>
07/24/18	LEAGUE	47.2	76.2	<ul style="list-style-type: none"> <li>▪ BDC Venture Capital</li> <li>▪ Foundation Capital</li> <li>▪ Infinite Potential Group</li> <li>▪ Manulife Financial</li> <li>▪ OMERS Ventures</li> <li>▪ Portag3 Ventures</li> <li>▪ Power Financial Corporation</li> <li>▪ Quantum Valley Investments</li> <li>▪ RBC Ventures</li> <li>▪ Real Ventures</li> <li>▪ Royal Bank of Canada</li> <li>▪ TELUS Ventures</li> <li>▪ Wittoning Ventures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Toronto-based start-up offering a new digital alternative to traditional health insurance that connects employers and employees to a comprehensive network of health services and benefits</li> <li>▪ Offers businesses customized employee health care benefits through an app that allows employers to create a culture of wellness and to focus on promoting preventative approaches to health care</li> </ul>
07/24/18	Portabl	0.1	0.1	<ul style="list-style-type: none"> <li>▪ MetLife Digital Accelerator</li> </ul>	<ul style="list-style-type: none"> <li>▪ London-based start-up building a SaaS business and an ecosystem that provides portable insurance, benefits and savings products for those who live and work in the freelance and gig economies</li> <li>▪ The Portabl app will recommend the most appropriate insurance and benefits products to help take the guesswork out of the insurance buying process</li> </ul>

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# The Data Center

## Q3 2018 InsurTech Transactions – P&C

Date	Company	Funding (\$mm)			Description
		Round	Total	Investor(s)	
07/31/18	Gusto	140.0	316.1	<ul style="list-style-type: none"> <li>▪ <a href="#">137 Ventures</a></li> <li>▪ A-Grade</li> <li>▪ Brainchild Holdings</li> <li>▪ <a href="#">capitalG</a></li> <li>▪ Cota Capital</li> <li>▪ Data Collective</li> <li>▪ <a href="#">Dragoneer Investment Group</a></li> <li>▪ <a href="#">Emergence Capital Partners</a></li> <li>▪ <a href="#">General Catalyst</a></li> <li>▪ Google Ventures</li> <li>▪ <a href="#">Kleiner Perkins Caufield Byers</a></li> <li>▪ <a href="#">MSD Capital</a></li> <li>▪ Obvious Ventures</li> <li>▪ Pear</li> <li>▪ Ribbit Capital</li> <li>▪ Rothenberg Ventures</li> <li>▪ Salesforce Ventures</li> <li>▪ Sherpalo Ventures</li> <li>▪ Signatures Capital</li> <li>▪ Slow Ventures</li> <li>▪ <a href="#">T. Rowe Price</a></li> <li>▪ WME Ventures</li> <li>▪ <a href="#">Y Combinator</a></li> <li>▪ Other Individuals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Based in California, Gusto is a cloud-based payroll, benefits and human resource management solution for small businesses</li> <li>▪ Gusto has over 60,000 business customers and serves all 50 states</li> </ul>
07/31/18	Trupo	---	--	<ul style="list-style-type: none"> <li>▪ <a href="#">Freelancers Union</a></li> <li>▪ <a href="#">Sequoia Capital</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Brooklyn-based Trupo brings short-term disability and health insurance products to the needs of freelance workers</li> <li>▪ Trupo is on a mission to make short-term disability insurance as easily accessible to freelancers as it is to traditional nine-to-five employees</li> </ul>
08/02/18	Namely	60.0	213.1	<ul style="list-style-type: none"> <li>▪ Altimeter Capital</li> <li>▪ Bullpen Capital</li> <li>▪ Four Rivers Group</li> <li>▪ <a href="#">GGV Capital</a></li> <li>▪ Greenspring Associates</li> <li>▪ Lerer Hippeau Ventures</li> <li>▪ <a href="#">Matrix Partners</a></li> <li>▪ <a href="#">Scale Venture Partners</a></li> <li>▪ <a href="#">Sequoia Capital</a></li> <li>▪ <a href="#">Tenaya Capital</a></li> <li>▪ <a href="#">True Ventures</a></li> <li>▪ Vayner RSE</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based provider of HR, payroll, time management and employee benefits via a cloud-based platform for midsized companies that have traditionally been underserved in the market</li> <li>▪ Namely recently expanded its offering via partnership with Vestwell to provide an all-in-one retirement experience for plan sponsors and their employees</li> <li>▪ Namely is used by over 1,000 businesses with over 175,000 employees globally</li> </ul>
08/07/18	Jamii Africa	---	1.0	<ul style="list-style-type: none"> <li>▪ Bill &amp; Melinda Gates Foundation</li> <li>▪ GSMA Ecosystem Accelerator Innovation Fund</li> <li>▪ <a href="#">Patrick Munis</a></li> <li>▪ Seedstars World</li> <li>▪ Tiphub</li> <li>▪ Undisclosed Investors</li> <li>▪ XL Africa</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tanzanian micro-health mobile policy management platform targeting low-income, informal-sector workers in Africa</li> <li>▪ Jamii Africa's platform performs all the administration activities of an insurer and allows its over 20,000 active users to access over 400 hospitals starting at \$1 per month from Jubilee Insurance Co.</li> </ul>

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# The Data Center

## Q3 2018 InsurTech Transactions – P&C

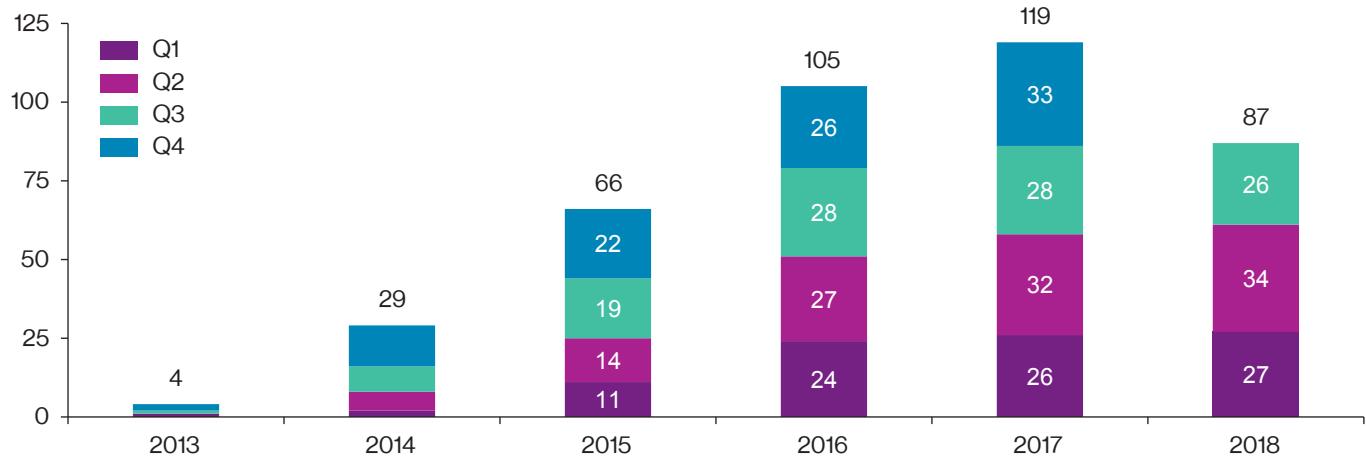
Funding (\$mm)					
Date	Company	Round	Total	Investor(s)	Description
08/14/18	Oscar Health	375.0	1,267.5	<ul style="list-style-type: none"> <li>▪ 8VC</li> <li>▪ <a href="#">Alphabet</a></li> <li>▪ BoxGroup</li> <li>▪ Brainchild Holdings</li> <li>▪ Breyer Capital</li> <li>▪ Brian Singerman</li> <li>▪ capitalG</li> <li>▪ Darwin Ventures</li> <li>▪ Fidelity Investments</li> <li>▪ Formation 8</li> <li>▪ Founders Fund</li> <li>▪ General Catalyst</li> <li>▪ Goldman Sachs</li> <li>▪ Google Ventures</li> <li>▪ Horizons Ventures</li> <li>▪ Khosla Ventures</li> <li>▪ Lakestar</li> <li>▪ Ping An Ventures</li> <li>▪ Red Swan Ventures</li> <li>▪ Stanley Druckenmiller</li> <li>▪ SV Angel</li> <li>▪ Thrive Capital</li> <li>▪ Undisclosed Angel Investors</li> <li>▪ Verily Life Sciences</li> <li>▪ Wellington Management</li> </ul>	<ul style="list-style-type: none"> <li>▪ New York-based technology-focused health insurance company that seeks to provide affordable and quality health care designed around the needs of the 21st century consumer</li> <li>▪ First-ever technology-driven health insurers, Oscar incorporates telemedicine and AI to engage members, deliver healthcare virtually and guide members along their journey to better health</li> </ul>
08/14/18	Suanni Insurance Plan	14.5	14.5	<ul style="list-style-type: none"> <li>▪ <a href="#">Undisclosed Investors</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Early stage life insurance platform with blockchain-enabled capabilities</li> </ul>
08/16/18	Baozhunnuu	---	18.5	<ul style="list-style-type: none"> <li>▪ <a href="#">China Merchants Capital</a></li> <li>▪ Denise Peng</li> <li>▪ Marathon Venture Partners</li> <li>▪ Matrix Partners China</li> <li>▪ NNFE</li> <li>▪ Zhongguancun Development Group</li> </ul>	<ul style="list-style-type: none"> <li>▪ China-based online distribution platform that leverages big data to customize and personalize group insurance products for small to midsized employers</li> </ul>
08/27/18	Goose Insurance Services	1.7	1.7	<ul style="list-style-type: none"> <li>▪ <a href="#">Impression Ventures</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Vancouver-based travel insurance provider looking to make travel insurance instantly accessible, easy and affordable</li> <li>▪ The company offers a variety of travel medical insurance coverage as well as trip cancellation, interruption and lost baggage coverage</li> </ul>
09/11/18	Equipsme	3.3	3.3	<ul style="list-style-type: none"> <li>▪ <a href="#">LivingBridge</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ UK-based online health and wellness provider that equips businesses with smart and cost-effective ways to provide health and wellbeing support for their employees</li> <li>▪ Products are catered toward companies with 2 – 249 employees and includes services such as 24/7 access, physio, personalized health check, diagnosis and stress support services</li> </ul>
09/26/18	Covr Financial Technologies	10.0	15.0	<ul style="list-style-type: none"> <li>▪ <a href="#">Allianz Life Ventures</a></li> <li>▪ <a href="#">Commerce Ventures</a></li> <li>▪ <a href="#">Connectivity Capital Partners</a></li> <li>▪ <a href="#">Contour Venture Partners</a></li> <li>▪ <a href="#">Nyca Partners</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ Idaho-based Covr is a digital platform partnering with financial institutions to provide life insurance via a fast, online process</li> <li>▪ Advisors can research, quote and purchase life insurance from well-known insurance companies for their customers</li> <li>▪ The platform is used by 20,000 financial advisers and over 8 million consumers</li> </ul>

Note: Blue font denotes current round investors.

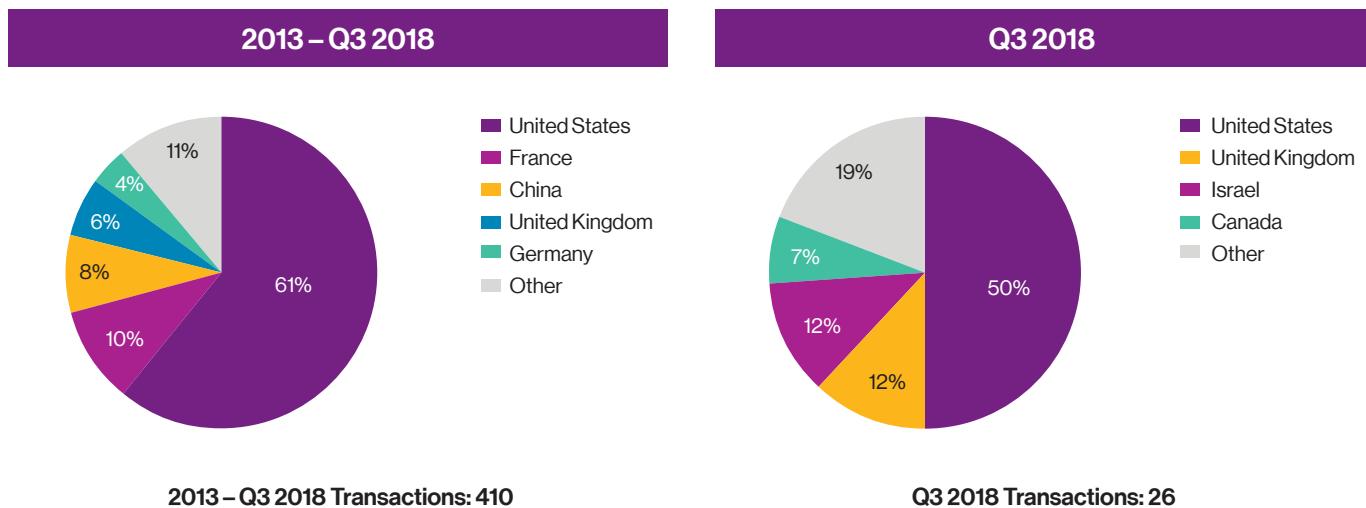
# The Data Center

## InsurTech by the Numbers

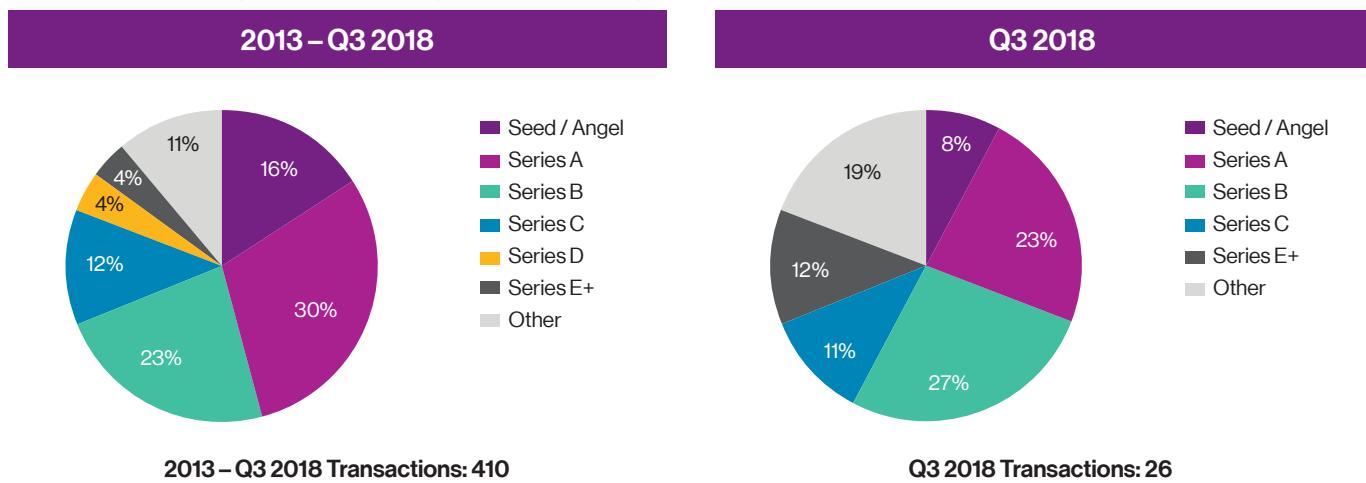
### Private Technology Investments by (Re)insurers



### Private Technology Investments by (Re)insurers by Target Country



### Private Technology Investments by (Re)insurers by Investment Stage



# The Data Center

## Q3 2018 Private Technology Investments by (Re)insurers

Date	Company	Funding (\$mm)			(Re)insurer Investor(s)	Description
		Round	Total	(Re)insurer Investor(s)		
07/02/18	Windward	16.5	32.3	▪ XL Innovate		<ul style="list-style-type: none"> <li>▪ Israel-based insurance broker developing technology for the maritime industry</li> <li>▪ Windward's proprietary data and machine learning technology analyzes 1,500 different variables from commercial shipping fleets to better understand risk in real time</li> </ul>
07/03/18	Bought By Many	19.8	29.3	▪ Munich Re/HSB Ventures		<ul style="list-style-type: none"> <li>▪ UK-based MGA that works to help consumers fill unmet insurance needs by creating groups to create and negotiate products and services with established insurers</li> <li>▪ Bought By Many has over half a million members across 300 insurance groups and has launched its own offerings across product lines covering pets, travel, sports and leisure, and phone and gadgets</li> </ul>
07/11/18	Next Insurance	83.0	131.0	▪ Munich Re/HSB Ventures		<ul style="list-style-type: none"> <li>▪ Palo Alto-based digital insurance distribution platform focused on insurance coverage for small businesses</li> <li>▪ Designs insurance plans for industries that are often overlooked by more general insurers (e.g., photographers, personal trainers)</li> </ul>
07/11/18	Next Insurance	83.0	131.0	▪ Munich Re/HSB Ventures		<ul style="list-style-type: none"> <li>▪ Palo Alto-based digital insurance distribution platform focused on insurance coverage for small businesses</li> <li>▪ Designs insurance plans for industries that are often overlooked by more general insurers (e.g., photographers, personal trainers)</li> </ul>
07/16/18	Digital Risks	3.0	3.0	▪ Beazley Investments		<ul style="list-style-type: none"> <li>▪ UK-based insurance for digital businesses (e.g., online media)</li> <li>▪ Offers monthly plans to cover new and evolving risks facing digital innovators</li> </ul>
07/17/18	American Well	75.4	506.9	▪ Allianz X		<ul style="list-style-type: none"> <li>▪ Boston-based telehealth platform that connects patients with remote access to doctors, specialists and other health care providers over a secure video feed</li> <li>▪ Through partnerships with the nation's largest health systems, insurers and employers, American Well connects millions of customers to doctors via live video visits</li> </ul>
07/18/18	Spruce Holdings	15.6	201	▪ Munich Re/HSB Ventures		<ul style="list-style-type: none"> <li>▪ New York-based Spruce Holdings is the first digital-native title company focused on the US title insurance industry</li> <li>▪ Technology integrates with real estate companies' existing platforms to improve processes and close property sales quicker</li> </ul>
07/24/18	MetroMile	90.0	295.5	▪ Tokio Marine Intact Financial		<ul style="list-style-type: none"> <li>▪ California-based car insurance platform for 'low mileage drivers' to pay based on their actual number of miles on the road</li> <li>▪ Metromile is revolutionizing car insurance through technology with its pay-per-mile insurance model</li> <li>▪ Uses a small free wireless device that plugs into a car's OBDII port to securely count miles and to determine monthly insurance bill</li> </ul>
07/25/18	Voyage	3.0	23.0	▪ Intact Ventures		<ul style="list-style-type: none"> <li>▪ California-based start-up operating on-demand self-driving cars for residents of private estates in Florida</li> <li>▪ Data can be extracted to create a risk profile in real time to better understand the driverless car environment and assess risks for insurance premiums in the future</li> </ul>
07/31/18	BlueVine	12.0	588.6	▪ Nationwide Ventures		<ul style="list-style-type: none"> <li>▪ California-based provider of flexible working capital financing to small and midsize businesses</li> <li>▪ BlueVine provides customers with quick access to funds needed to purchase inventory, cover expenses or expand operations</li> </ul>
08/01/18	MDLIVE	50.0	123.6	▪ Cigna		<ul style="list-style-type: none"> <li>▪ Florida-based online service allows customers remote access to doctors and pediatricians via online video, phone or app</li> <li>▪ MDLive has more than 27 million members, and partnerships with major health care systems and organizations, including Walgreens, which directs customers to MDLive's services via its new digital platform</li> </ul>
08/02/18	Grab	1,000	6,140	▪ Ping An Capital		<ul style="list-style-type: none"> <li>▪ Singapore-based Grab began as a taxi-hailing app in 2012, before expanding its platform to include private car services and a FinTech platform</li> <li>▪ Ping An Good Doctor (PADG) and Grab will provide a solution combining PADG's advanced medical AI tech with Grab's vast user base and experience in South East Asia to deliver health care services and improve medical conditions for local residents</li> </ul>

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## Q3 2018 Private Technology Investments by (Re)insurers

Date	Company	Funding (\$mm)			Description
		Round	Total	(Re)insurer Investor(s)	
08/16/18	Socialeads	0.8	0.8	▪ Northwestern Mutual Future Ventures	<ul style="list-style-type: none"> <li>Milwaukee-based AI network using advanced machine learning and natural language processing technology to provide insights derived from social media</li> <li>Helps financial services companies to better understand the size, depth and value of their networks to deliver quality growth in lead generation, network connections and trusted advisor relationships</li> </ul>
08/21/18	Robin Systems	17.0	39.0	▪ USAA ▪ USAA Ventures	<ul style="list-style-type: none"> <li>California-based Robin Systems transforms how enterprise applications drive infrastructure via advanced storage and application-aware servers into the cloud</li> <li>USAA utilizes Robin's platform to power its big data infrastructure</li> </ul>
08/27/18	Huixiadan	---	---	▪ Ping An Insurance	<ul style="list-style-type: none"> <li>Huixiadan is a mobile ordering app for retail stores</li> </ul>
08/27/18	One97 Communications	300.0	3,070.0	▪ Berkshire Hathaway	<ul style="list-style-type: none"> <li>India-based One97 runs the Paytm brand and is the leading player in India's booming digital-payments market</li> <li>Apart from SaaS and mobile platforms, Paytm has established insurance subsidiaries and is piloting lending operations</li> </ul>
08/30/18	IngeniousIO	4.0	4.0	▪ American Family Ventures	<ul style="list-style-type: none"> <li>IngeniousIO has developed an AI-driven platform that transforms documents into data intelligence for owners, builders, project managers, general contractors, engineers, architects and other professionals within the construction and building industry</li> </ul>
08/30/18	Pagaya Investments	14.0	90.3	▪ Clal Insurance	<ul style="list-style-type: none"> <li>Israel-based Pagaya is a FinTech company using machine learning and big data analytics to assist institutional money managers with a focus on fixed income and alternative credit sectors</li> </ul>
09/17/18	Shepper	5.4	5.4	▪ Aviva Ventures	<ul style="list-style-type: none"> <li>Performs on-demand tailored data collection and operational activities for businesses all around the world</li> </ul>
09/18/18	Enigma Technologies	95.0	129.7	▪ BB&T ▪ Third Point ▪ Two Sigma Ventures	<ul style="list-style-type: none"> <li>New York-based data-as-a-service company that transforms disparate, tabular data into rich representations of real-world relationships, offering a range of services, from evaluating insurance risk to combating money laundering</li> </ul>
09/19/18	Mojio	---	47.4	▪ Assurant Growth Investing	<ul style="list-style-type: none"> <li>Mojio is a cloud platform for the deployment of secure connected car apps and services</li> <li>It also provides a big data analytics framework that uses machine learning to generate actionable insights for companies throughout the automotive value chain</li> </ul>
09/20/18	MeMed	70.0	86.0	▪ Clal Insurance ▪ Ping An ▪ The Phoenix Insurance Company	<ul style="list-style-type: none"> <li>MeMed aims to improve patient care, empower physicians and lower health care costs through rapid and actionable diagnostics for infectious diseases, with a particular focus on preventing antibiotics misuse</li> </ul>
09/25/18	Tempo Assist	---	---	▪ Swiss Re	<ul style="list-style-type: none"> <li>Provider of specialized assistance services, offering tailored product and call center support through technological tools</li> </ul>
09/25/18	StartUp Health	31.0	58.7	▪ Ping An Insurance	<ul style="list-style-type: none"> <li>Launched in 2011 as a way to help connect digital health start-ups to resources, expertise and capital to foster innovation</li> <li>Built up a portfolio of more than 250 digital health companies across 21 countries</li> </ul>
09/25/18	BEACON	15.4	15.4	▪ Manulife Financial	<ul style="list-style-type: none"> <li>BEACON provides Cognitive Behavioral Therapy (CBT) to improve patients' mental wellbeing through its mobile application</li> </ul>
09/26/18	Futurae	2.1	2.2	▪ AXA Venture Partners	<ul style="list-style-type: none"> <li>Futurae offers IT security solutions and smart authentication software that provide a high degree of security and improve the customer experience while protecting user privacy</li> </ul>
09/26/18	Slice Labs	20.0	40.3	▪ Munich Re/HSB Ventures ▪ Sompo Holdings ▪ The Co-Operators ▪ XL Innovate	<ul style="list-style-type: none"> <li>New York-based technology start-up with a focus on servicing the on-demand, pay-per-use insurance economy (e.g., ride sharing, home share)</li> <li>In early 2018 Slice Labs launched ICS, a product to support insurers with rapid introduction, evaluation, adoption of new products, technologies and business models</li> </ul>

# The Data Center

## Q3 2018 Strategic (Re)insurer Partnerships

Date	Company	(Re)insurer Partner(s)	Description
07/12/18	Zego	▪ Builders Direct	<ul style="list-style-type: none"> <li>▪ Insurer Builders Direct has teamed up with Zego to provide public liability protection in a pay-as-you-go offering</li> <li>▪ Zego, a UK-based distribution platform offering hourly (and longer) insurance for commercial auto risks, primarily in the gig economy</li> </ul>
07/19/18	Slice	▪ The Co-operators	<ul style="list-style-type: none"> <li>▪ The Co-operators, together with Slice, have signed an agreement to leverage the Slice Insurance Cloud Services (ICS) platform to launch The Co-operators' new digital insurance brand in Canada</li> <li>▪ The Slice ICS product is geared towards the gig economy, is fully embeddable and includes pricing, rating, licensing, real-time and automated underwriting, servicing, and capacity capabilities</li> </ul>
07/23/18	Notion	▪ Travelers	<ul style="list-style-type: none"> <li>▪ Travelers will provide Notion's smart home monitoring system, used to help with water leaks, fire damage and theft, to customers in California</li> <li>▪ Notion provides complete home awareness through a multifunction sensor that can be accessed on Apple and Android mobile platforms</li> </ul>
07/24/18	Metromile	▪ Tokio Marine	<ul style="list-style-type: none"> <li>▪ Tokio Marine is partnering with Metromile to offer same-day insurance payouts for automobile claims</li> <li>▪ Metromile is a California-based car insurance platform focused on low mileage drivers whose premiums are based on the actual number of miles they drive</li> </ul>
07/24/18	Vitality	▪ Sumitomo Life	<ul style="list-style-type: none"> <li>▪ Sumitomo has partnered with Vitality to utilize digital technology in promote a healthy lifestyle for customers, which in turn reduces insurance premiums and claims</li> <li>▪ Vitality supports, guides and incentivizes people to improve their health, which can achieve savings for both insurers and the insured</li> </ul>
07/26/18	Voyage	▪ Intact	<ul style="list-style-type: none"> <li>▪ Intact has partnered with Voyage to access data and create a risk profile in real time from Voyage's fleet of driverless cars</li> <li>▪ Voyage is a California-based start-up operating on-demand self-driving cars for residents of private estates in Florida</li> </ul>
07/26/18	Caviar	▪ OneBeacon	<ul style="list-style-type: none"> <li>▪ OneBeacon has partnered with Caviar to offer specialized insurance products for Caviar's fleet of food delivery couriers</li> <li>▪ Caviar is an on-demand food delivery service with real-time GPS tracking</li> </ul>
07/26/18	Slice	▪ XL Catlin	<ul style="list-style-type: none"> <li>▪ XL Catlin is partnering with Slice to offer cloud-based on-demand cyber insurance for US small to medium businesses</li> <li>▪ Slice is a New York-based start-up focused on the on-demand and gig economies</li> </ul>
07/27/18	DynaRisk	▪ Chubb	<ul style="list-style-type: none"> <li>▪ Chubb is partnering with DynaRisk to offer a cyber loss mitigation service to its Cyber Enterprise policyholders in the UK and Ireland</li> <li>▪ DynaRisk helps protect customers from cyber crimes by providing services such as personalized cyber security reports, which highlight areas that are vulnerable to attacks</li> </ul>
08/01/18	Trupo	▪ RGA	<ul style="list-style-type: none"> <li>▪ RGA has entered into a partnership with Trupo, where RGA will reinsure Trupo's products for freelance workers in the US</li> <li>▪ Brooklyn-based Trupo brings short-term disability and health insurance products to the needs of freelance workers</li> </ul>
08/02/18	Babylon Health	▪ Prudential Asia	<ul style="list-style-type: none"> <li>▪ Prudential Asia signed a licensing deal with Babylon Health to exclusively use its AI-powered software that includes medical-knowledge graphs and simulation software</li> <li>▪ Babylon Health is a subscription health service provider that enables users to have virtual consultations with doctors through its mobile app</li> </ul>
08/08/18	Embroker	▪ Munich Re	<ul style="list-style-type: none"> <li>▪ Munich Re has partnered with Embroker to offer insurance products such as employment practices liability via its online distribution platform</li> <li>▪ Embroker is a full-service technology platform distributing small commercial insurance coverages and has a distribution partnerships with over 25 leading carriers</li> </ul>

# The Data Center

## Q3 2018 Strategic (Re)insurer Partnerships

Date	Company	(Re)insurer Partner(s)	Description
08/09/18	Eigen Technologies	▪ Hiscox	<ul style="list-style-type: none"> <li>▪ Hiscox has partnered with Eigen to implement a pilot program across its quoting and claims processes (currently manual data entry) to identify opportunities to improve speed, accuracy and the associated costs</li> <li>▪ Eigen is a research-led artificial intelligence company that specializes in neuro-linguistic programming for legal and financial services industries</li> </ul>
08/16/18	Cyence	▪ Zurich	<ul style="list-style-type: none"> <li>▪ Zurich has adopted Guidewire's Cyence Risk Analytics products to help it underwrite and price its cyber insurance offerings</li> <li>▪ Cyence provides risk modeling, cybersecurity and big data analytics to help insurers better manage cyber risk exposure</li> </ul>
08/16/18	Jupiter Intelligence	▪ QBE	<ul style="list-style-type: none"> <li>▪ QBE formed a partnership with Jupiter to strengthen the firm's climate risk management capabilities</li> <li>▪ Jupiter provides dynamic models and data analytics that help predict weather risk in a changing climate</li> </ul>
08/21/18	Dais	▪ EMC	<ul style="list-style-type: none"> <li>▪ EMC and Dais have partnered to further strengthen the agent's value proposition in an increasingly connected society</li> <li>▪ Dais platform links insurance carriers, agents and policyholders in one streamlined network to improve workplace efficiencies with workflow automation to billing and using data to quantify risk</li> </ul>
08/23/18	Bosch	▪ Selective	<ul style="list-style-type: none"> <li>▪ Selective has partnered with Bosch to develop sensor devices and a cloud-based application that allows its commercial auto clients to better monitor and encourage safe driving behaviors</li> <li>▪ A global leader in electronics, Bosch creates products, services and software that enable and assist new business models for global markets</li> </ul>
08/23/18	Blink	▪ Generali	<ul style="list-style-type: none"> <li>▪ Generali Hong Kong has partnered with Blink to expand its offerings to include travel disruption insurance solutions across the pan-Asia region</li> <li>▪ Blink is a UK-based provider of real-time resolution flight interruption insurance solutions by tracking, proactively alerting customers and rebooking flights at no cost if cancelled or delayed</li> </ul>
08/24/18	Clover Health	▪ Cathay Life	<ul style="list-style-type: none"> <li>▪ Clover has signed a strategic partnership with Cathay Life Insurance to leverage Clover's sophisticated AI platform</li> <li>▪ Clover Health is a data-driven health insurance start-up that aims to lower costs of health insurance and managed care for elderly / low-income members</li> </ul>
08/24/18	Zego	▪ RSA	<ul style="list-style-type: none"> <li>▪ In partnership with RSA, Zego brings a pay-as-you-go solution to the courier and transport market</li> <li>▪ Zego is a UK-based distribution platform offering hourly insurance for commercial auto risks, primarily in the gig economy</li> </ul>
08/29/18	Hi Marley	▪ Hiscox	<ul style="list-style-type: none"> <li>▪ Hiscox has partnered with Hi Marley to enable customer communication via text, to share photos and documents, receive proactive updates on a claim and get real-time answers to questions through AI</li> <li>▪ Hi Marley, the first intelligent conversation platform specifically designed for the insurance industry, enables insurance companies to communicate with their customers through messaging to deliver a fast and easy customer experience</li> </ul>
08/30/18	Human Longevity	▪ SCOR	<ul style="list-style-type: none"> <li>▪ SCOR Global Life has joined forces with Human Longevity (HLI) to offer data-driven health intelligence to life insurance customer</li> <li>▪ Human Longevity utilizes state-of-the-art DNA sequencing and expert analysis with machine learning to generate a personal health risk profile with an overlay of tests of genetic predisposition to assess 'actual' risk</li> </ul>
09/02/18	Habito	▪ AIG Life	<ul style="list-style-type: none"> <li>▪ AIG Life has partnered with Habito to underwrite a new life insurance product for existing Habito customers, which can be quoted swiftly online with existing customer information</li> <li>▪ Habito is an online mortgage broker and FinTech start-up servicing the UK, which created the world's first robo-adviser for regulated mortgage advice</li> </ul>

# The Data Center

## Q3 2018 Strategic (Re)insurer Partnerships

Date	Company	(Re)insurer Partner(s)	Description
09/05/18	Dinghy	▪ ARAG	<ul style="list-style-type: none"> <li>▪ ARAG has partnered with Dinghy to roll out 'Freelancer Assist', which consists of ARAG's online legal resources, advice and insurance and will be part of all Dinghy packages</li> <li>▪ Dinghy is a UK-based online platform offering liability coverages for freelancers with products including professional indemnity, public liability, cyber and business equipment insurance</li> </ul>
09/05/18	TrueMotion	▪ The Hanover	<ul style="list-style-type: none"> <li>▪ The Hanover has partnered with TrueMotion's patented platform to power its new digital program, 'SafeTeen', where teen drivers will receive an overall driving score and rewards based on behaviors such as speeding, harsh braking, distraction and acceleration</li> <li>▪ TrueMotion is a data analytics technology platform that enables insurers to distinguish between safe and risky drivers and reward safe drivers with discounts on their insurance through mobile app Mojo</li> </ul>
09/14/18	BMW	▪ Swiss Re	<ul style="list-style-type: none"> <li>▪ The partnership between Swiss Re and BMW aims to account for driver-assistance systems to develop vehicle-specific insurance rating that insurers can use to calculate car insurance premiums</li> <li>▪ BMW is a leader in intelligent and safety-relevant driver assistance systems</li> </ul>
09/19/18	Vitality	▪ John Hancock	<ul style="list-style-type: none"> <li>▪ John Hancock has partnered with Vitality to have all life insurance policies come with Vitality to support and encourage healthy living</li> <li>▪ Vitality supports, guides and incentivizes people to improve their health, which can achieve savings for both insurers and the insured</li> </ul>
09/19/18	Hokodo	▪ SCOR	<ul style="list-style-type: none"> <li>▪ SCOR has partnered with Hokodo to provide an invoice and credit risk protection to small and medium sized businesses</li> <li>▪ Hokodo develops insurance and financing solutions for B2B marketplaces, cloud accounting and e-invoicing platforms, allowing them to offer protection and financing to their customers</li> </ul>
09/20/18	ZhongAn International	▪ Sompo Japan	<ul style="list-style-type: none"> <li>▪ Sompo has partnered with ZhongAn to build Internet-based insurance products by leveraging the big data analysis and AI expertise of ZhongAn</li> <li>▪ ZhongAn International is an online-only insurance company in China that aims to explore international business development, collaboration and investment in FinTech and InsurTech in overseas market</li> </ul>
09/20/18	Namely	▪ Transamerica, Guardian	<ul style="list-style-type: none"> <li>▪ Guardian and Transamerica have partnered with Namely to offer critical illness, accident and hospital indemnity plans to complement existing benefits via a seamless tech experience to companies of all sizes</li> <li>▪ Namely is a cloud-based HR and employee benefits management platform that provides tech-enabled employee benefits administrative software</li> </ul>
09/20/18	Flywire	▪ Allianz Travel	<ul style="list-style-type: none"> <li>▪ Allianz has partnered with Flywire to offer customers the option to purchase Allianz's GradGuard Tuition Protection Plan, which protects non-refundable college tuition in the event that a student withdraws from school for health issues</li> <li>▪ Boston-based Flywire is a payment and receivables solutions, via bank transfer, credit card and e-wallet solutions, with billions processed in payments in over 120 different local currencies and connects over 1,400</li> </ul>

# Quarterly InsurTech Briefing

## Additional Information

The Quarterly InsurTech Briefing is a collaboration between Willis Towers Watson Securities, Willis Re and CB Insights. Production is led by the following the individuals. For more information, or to discuss the results of this report, please direct inquiries to [InsurTech@willistowerswatson.com](mailto:InsurTech@willistowerswatson.com).

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We have a deep understanding of risk – and all the ways it affects capital and your organization's financial performance. Our core focus is to provide you with a superior understanding of the risks you face, and then advise you on the best ways to manage extreme outcomes.

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# Quarterly InsurTech Briefing

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