

# Introduction

In the last two years, interest in and implementation of parametric insurance has grown. In 2020 we identified 54 companies to watch in parametric insurance. Today we are following over 150 companies in the space. We've talked to 85 insurers, brokers, and technology companies about how the parametric insurance market is changing and their future strategies.

Some of the start-ups from our previous report, Parametric Insurance: 2021 outlook and the companies to watch, are now scale-ups, with six companies each having raised over \$15 million in funding. Several incumbent insurers have increased their involvement in parametric insurance and others are now underwriting parametric products for the first time. A generation of start-ups focused on parametric insurance has been founded.

Meanwhile a handful of insurers have scaled back their operations in parametric. Some start-ups have changed their business model or abandoned parametric insurance after facing various challenges.

There are examples of success that others can learn from. There are also novel approaches being taken by companies in response to the challenges they have faced.

In this report, we discuss the latest trends in parametric insurance, informed by data, and give a full directory of the companies we know providing relevant and innovative solutions.

**Henry Gale** 



#### RECENT ENTRANTS INTO PARAMETRIC INSURANCE\*

INSURERS STARTING TO UNDERWRITE PARAMETRIC

START-UPS FOCUSED ON PARAMETRIC























































Source: InsTech

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\*A selection of companies profiled in "Parametric Insurance in 2022: the 150+ companies to watch", that were not profiled in InsTech's previous report into parametric insurance, published in 2020.

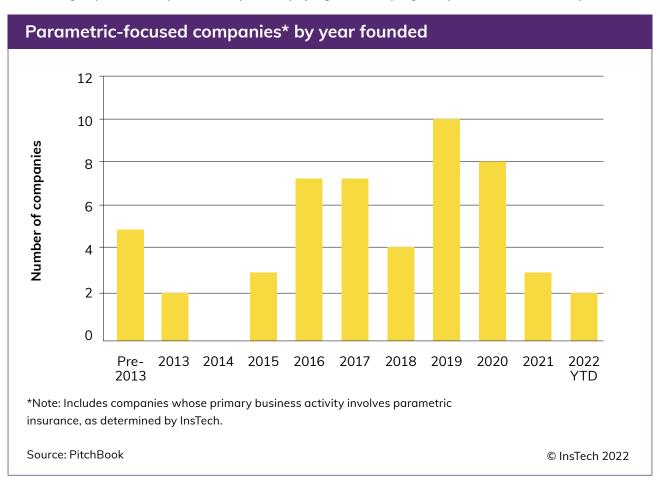
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# Why this matters

- Parametric insurance is proving to offer viable solutions for new coverage in areas where traditional insurance has failed.
- The parametric insurance market has grown in recent years and has seen increased confidence from investors. Many companies providing parametric solutions have been founded in recent years.
- InsTech believes that the gross written premiums for parametric insurance policies globally were between \$500 million and \$1 billion USD in 2021, with a central estimate of \$750 million.
- Not all parametric solutions will be successful. Understanding emerging trends and evidence will help identify where parametric insurance is likely to be the best solution, and where it is not.
- In particular, parametric insurance is increasingly recognised as an important tool for businesses and communities to build resilience against climate risks.
- Advancements in data and technology are improving existing parametric solutions and enabling new solutions to be offered.
- Having an effective way to distribute (sell) parametric policies is critical. Different distribution channels are being tested, and the best method of distribution will depend on the type of customer and product.
- Parametric products need to be structured so that they pay out predictably, only when there is a loss. Growing experience of parametric policies paying out is helping companies to refine their products.



# Companies surveyed working in parametric insurance

Traditional, indemnity-based insurance policies are designed to compensate policyholders for loss. Parametric (also known as event-based or index-based) insurance pays out claims based on event triggers.

# Indemnity-based insurance

Loss-causing event assesses loss Policyholder submits claim Claim Adjuster assesses claim Claim Claim Claim

#### Parametric insurance





Parametric triggers have been used in the weather derivatives market, insurance-linked securities (ILS) and industry loss warranties (ILWs) for more than 20 years. You can read more about the history of parametric insurance in InsTech's previous report, Parametric Insurance: 2021 outlook and the companies to watch.

In this report, we do not include weather derivatives, insurance-linked securities (ILS) or industry loss warranties (ILWs) in our general discussion of parametric insurance, although these concepts are mentioned at times.

Life, accident and health insurance have used a form of parametric insurance for many years. Pay-outs are triggered by events such as death, loss of a limb or a diagnosis. Prize indemnity insurance insures organisations for promotional contests, triggering pay-outs when someone wins a prize. We exclude life, accident, health and prize indemnity insurance from this report in all but a few newer applications (such as cover against IVF failure).

# The InsTech members - data, technology and distribution





































































# The InsTech members - insurers























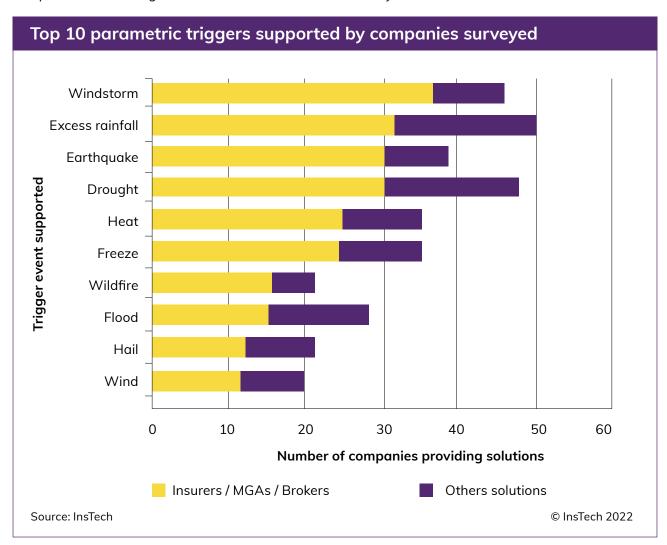
# The parametric insurance market in numbers

# Growing applications of parametric

Parametric insurance's most common application today is natural catastrophe coverage. All kinds of businesses and individuals suffer losses during catastrophes such as hurricanes and earthquakes.

Weather is another area where parametric insurance is being offered at scale. Changes in temperature, rainfall and wind affect the agriculture sector, from smallholder farmers to large food producers. Temperature also affects the revenues of the energy sector, another client of parametric weather coverage. Parametric weather insurance is being used on a smaller scale to cover outdoor events and holidays.

Windstorms, such as hurricanes, cyclones and typhoons, and earthquakes have been the most dominant areas of parametric catastrophe coverage since parametric covers started to be offered. There is also a range of parametric insurance products available for weather events such as drought, excess rainfall and temperature. Some natural perils have become more prominent in parametric coverage in recent years, notably flood, wildfire and hail, driven by new technologies to measure them. Newer triggers where a few companies are starting to offer solutions include terrorism, cyber downtime and transactional volume.



Parametric solutions are also being offered across many lines of business. Insurers and captive insurers can buy parametric reinsurance and risk transfer products such as ILS. Parametric insurance solutions are available for corporates, SMEs and individuals.

# Expanding geographical reach

Many of the most established companies in corporate parametric insurance provide coverage globally.

A majority of premiums paid for parametric coverage against natural catastrophe and weather events in 2021 were for the Americas, particularly the US (which we believe is the largest country by written parametric insurance premiums), Central America and the Caribbean. Europe has an established market for parametric weather insurance for agriculture and energy clients.



To follow how parametric insurance is being implemented for different use cases across the world, sign up to InsTech's dedicated parametric insurance newsletter. The Parametric Post provides parametric insurance news, insights and case studies to your inbox every two weeks.

Outside the established catastrophe insurance market of Japan, parametric insurance has not been as widely sold in East Asia. The region is seen as having high potential growth for parametric insurance by market participants because of its countries' exposure to natural perils. Many East and Southeast Asian countries are highly exposed to cyclones, earthquakes and floods.

#### Deal size

A majority of corporate parametric policies being underwritten today have limits between \$1 million and \$10 million USD.

A smaller number of larger deals are being done, with limits in the tens of millions or, less frequently, over \$100 million USD. These deals are often syndicated between a number of insurers. The growth in larger parametric deals has been slower than the growth in the overall parametric insurance market.

The largest known limit using a parametric trigger is the IBRD CAR 116 catastrophe bond. The bond provided \$500 million USD of earthquake coverage to the government of Chile between 2018 and 2021.

"A recent trend is that insurers without in-house expertise on parametric are beginning to give capacity as followers [participating in a syndicated risk transaction]."

Diego Monsalve, LAC HEAD Risk Consulting, Analytics,
 Catastrophe Modeling and Parametric Solutions, Lockton

# What companies say about the limits they can provide for corporate parametric insurance policies

Descartes Underwriting	"Descartes can provide \$200 million USD in capacity per policy"
FloodFlash	"The maximum payout that we offer with an instant quote is up to £5 million GBP per location. If additional cover is required there is a good chance we can help after referring through to our underwriters."
Munich Re	"One Storm (tropical cyclone cover) allows clients to pre-define triggers and payout amounts up to \$10 million USD (or higher on request) per location or defined area"
Munich Re	"One Quake (earthquake cover) allows clients to pre-define triggers and payout amounts up to \$5 million USD (or higher on request) per location or defined area"
New Paradigm Underwriters	"(Shake and Pay earthquake cover) Automated quoting and binding for limits between \$50,000 and \$5 million USD within a single coverage region. For higher limits or risks that include more than a single region, underwriting referrals are available."
Swiss Re Corporate Solutions	"Swiss Re Corporate Solutions regularly develops solutions for customers with limits ranging from \$1 million to \$40 million USD on average. Swiss Re can provide limits up to and in excess of \$100 million USD by using its reinsurance and capital markets capabilities."

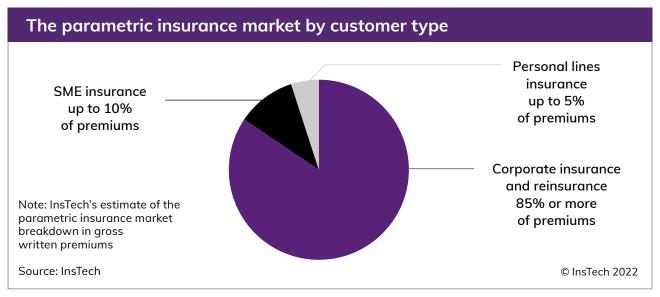
 $Source: Ins Tech, Descartes\ Underwriting, FloodFlash, Munich\ Re, New\ Paradigm\ Underwriters, Swiss\ Re$ 

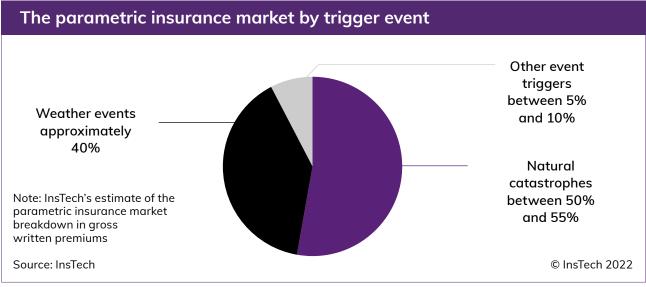
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#### Scale

Up until now, there has been no single source of data to define the market size for parametric insurance\*. From our discussions with market participants we believe that in 2021 the gross written premiums for parametric insurance policies globally were between \$500 million and \$1 billion USD, with a central estimate of \$750 million.

For comparison, gross written premiums for property and casualty insurance globally in 2020 were \$1.8 trillion USD according to Swiss Re.





"In 2021, we believe the gross written premiums for parametric insurance policies globally were between \$500 million and \$1 billion USD, with a central estimate of \$750 million."

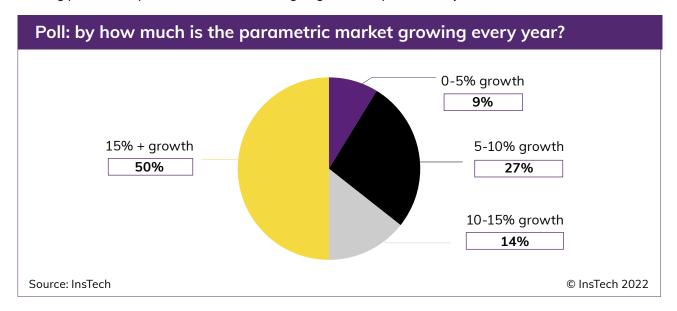
- InsTech

<sup>\*</sup>Because parametric is a way of structuring an insurance product rather than a specific line of business, we are not aware of any reliable data source that records the current parametric insurance market size (whilst many that data sources provide travel insurance or property insurance market sizes, for example). Most companies do not publish their premium incomes. Another challenge in calculating the market size is defining what counts as parametric. Our analysis of the market size does not include ILS, ILWs, weather derivatives or life, accident, health or prize indemnity insurance.

#### Growth

We polled the parametric insurance community on Linkedln in early 2022 asking about the year-on-year growth of parametric insurance premiums. Just over half of the 150 respondents believed it was growing by more than 15% per year. Known parametric insurance experts skewed more towards higher estimates of market growth than respondents overall.

Looking forward, many of the companies we interviewed, start-ups, scale-ups and incumbent insurers offering parametric products alike, are looking to grow their premiums by 50% or more from 2021 to 2022.



We see the growth in the parametric insurance market coming from three sources:

- 1. Covering new and previously uninsured risks. Some customers are buying parametric insurance to protect against risks for which they did not buy insurance previously, because existing coverage options were unavailable or inadequate. Examples include parametric microinsurance for farmers and cyber non-damage business interruption coverage.
- **2.** Climate change and the growing insurance protection gap. Climate change is making extreme weather events and climate-driven catastrophes such as hurricanes, floods and droughts more frequent and severe. This increases the need and demand for natural catastrophe insurance products.
- **3.** Parametric policies replacing existing indemnity-based coverage. In some cases, customers buy parametric insurance to protect against risks for which they bought indemnity-based coverage previously. The flight disruption cover included in travel insurance policies is increasingly delivered on a parametric basis as highlighted by Blink Parametric. Some corporations are replacing indemnity-based natural catastrophe insurance with parametric covers for specific perils.

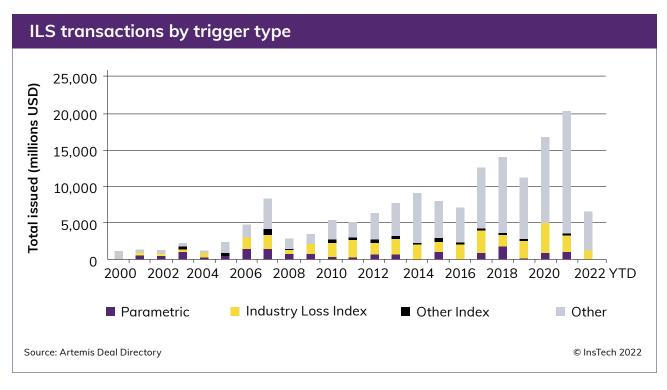
"In the past parametric insurance was mostly used to complement traditional insurance, but now more companies are replacing indemnity insurance with parametric insurance policies."

Sébastien Piguet, Co-founder and Head of Underwriting,
 Descartes Underwriting

## Insurance-linked securities (ILS)

The Artemis website provides a directory of ILS transactions. 6% of transactions since 2015 have used parametric triggers (most of which cover earthquake and windstorm risks). A further 18% of ILS transactions since 2015 have used an industry loss index trigger, and 2% used another index-related trigger, such as a mortality index.

In the last ten years, while the ILS market has grown by 15% a year on average, parametric and index-based ILS transactions have not shown any trend of growth. Issuers may prefer indemnity-based transactions to avoid basis risk, whilst capital providers like parametric transactions because there is less risk asymmetry.

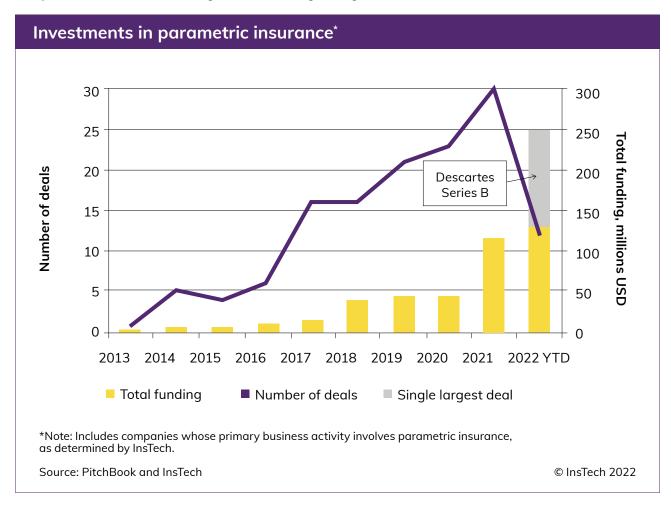


# Growing investment and M&A activity in parametric insurance

#### Investments

The first half of 2022 has seen nearly \$250 million USD of investment in parametric insurance-focused companies, already more than any other year. 2021 saw \$116 million USD of investment, more than double the \$43 million of 2020. The number of deals has increased year on year.

We do not expect investment to slow down over the remainder of 2022. A number of parametric-focused companies are or will be looking to raise funding during 2022.



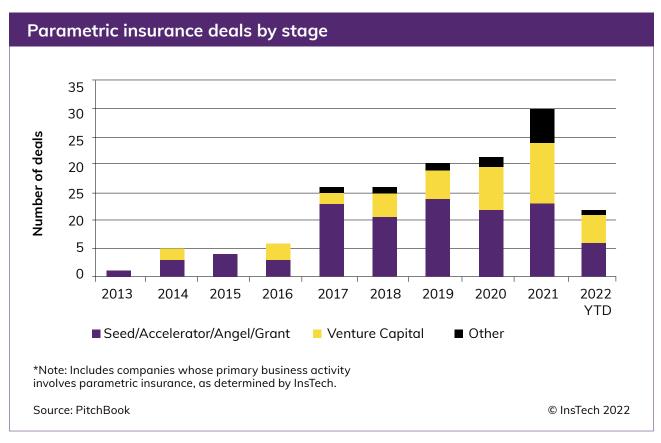
Five of the ten largest funding rounds ever in parametric insurance have happened in the first half of 2022. **Descartes Underwriting** raised \$120 million USD Series B funding in January, giving it the greatest publicly available valuation for a company specialised in parametric insurance, \$714 million according to PitchBook.

# Largest funding rounds in parametric insurance

Company	Funding (USD millions)	Туре	Date	Post-valuation (USD millions)
Descartes Underwriting	120	Series B	Jan-22	714
Stable	60	Series B	May-22	Unknown
Stable	47	Series A	Oct-21	Unknown
Parsyl	25	Series B	Jan-22	110
Gaia	20	Series A	Feb-22	Unknown
Descartes Underwriting	19	Series A	Sep-20	84
Parametrix Insurance	18	Series A	May-21	Unknown
FloodFlash	17	Series A	Feb-22	Unknown
Parsyl	16	Series A	Jul-19	61
Pattern Insurance	10	Seed	Apr-20	11

Source: PitchBook © InsTech 2022

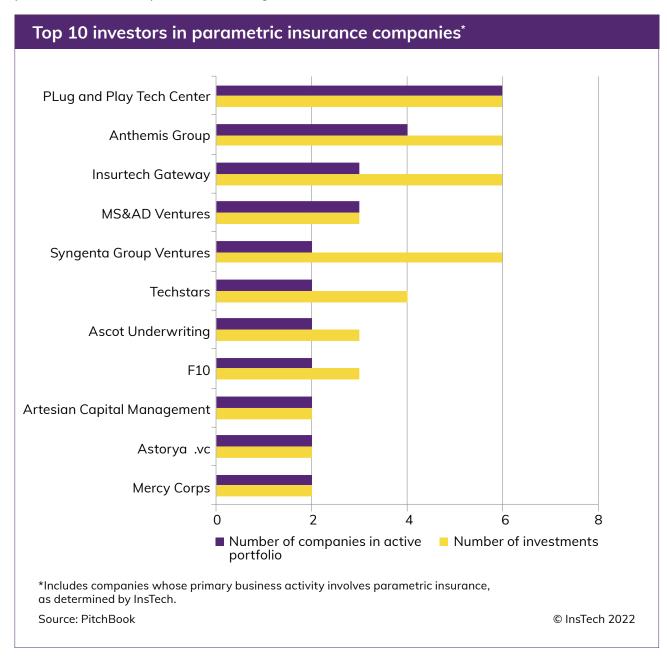
We see a continuing stream of new entries into the parametric insurance market being supported by early-stage investors. Meanwhile, the average funding per deal is also increasing, driven by larger, later-stage rounds from earlier entrants which are now scaling up.



The rise in total funding into parametric insurance accelerated in 2021 and will continue into 2022, indicating investor confidence and more interest and awareness from investors new to parametric.

The investors in parametric insurance companies include venture capital firms specialised in insurance innovation, such as Anthemis Group, Insurtech Gateway and Astorya.vc, and venture arms of (re)insurers such as MS&AD Ventures. Much of parametric insurance investment comes from generalist technology venture capital firms and accelerators. These include some of the most active technology investors such as Techstars and Plug and Play Tech Center. Y Combinator recently made its first parametric insurance investment in Plover Parametrics.

Other funding sources include investors specialised in sectors to which parametric start-ups sell insurance. Agriculture-focused VC Syngenta Group Ventures has invested in Stable and S4 Agtech, which provide parametric insurance products for the agriculture sector.



# Strategic investments from insurers

Several insurance industry incumbents are among the investors in parametric-focused companies. All are insurers or reinsurers (there are no brokers or insurance technology or data companies) and some are known to be providing insurance capacity for the company they have invested in.

(Re)insurer investor	Lead/ participant	Funding round (USD)	Date	Company	Investor also providing capacity
Ascot Underwriting	led	\$6m Seed	Jun 2018	Stable	Yes
onder writing	led	\$16m Series A	Jul 2019	Parsyl	Yes
MS&AD Ventures	participated in	\$10m Seed	Apr 2020	Pattern Insurance	Unknown
	participated in	\$5.5m Later Stage VC	Apr 2021	Understory	Unknown
	participated in	\$17m Series A	Feb 2022	FloodFlash	Unknown
Munich Re Ventures	led	\$17m Series A	Feb 2022	FloodFlash	Yes
QBE Ventures	led	\$9m Series A	Dec 2021	Demex	Unknown
UNIQA Ventures	participated in	\$2m Seed	Jul 2021	Anansi	Unknown
Baloise	led	\$6m Seed	Jun 2018	Stable	Unknown
Insurance	led	\$0.7m Series A	Mar 2019	InvestSure	Yes
Hannover Re	led	Undisclosed corporate financing	Aug 2021	InQlusiv	Unknown
MS Amlin	led	\$3.7m corporate financing	Oct 2021	Parameter Climate	Yes
SiriusPoint TransRe	led	Undisclosed corporate financing	Nov 2018	New Paradigm Underwriters	Unknown

Source: PitchBook © InsTech 2022

Insurers' choices of companies to invest in suggest that they see the greatest potential in commercial lines parametric insurance. Only Pattern Insurance and InvestSure on this list offer personal lines parametric insurance.

Most of the insurers on this list do not underwrite parametric insurance directly at scale (some provide capacity to MGAs). Munich Re is the main exception. (Re)insurers that are not already involved in parametric insurance are using strategic investments to take advantage of the growth of the parametric insurance market. Investment from a (re)insurer may be combined with provision of capacity.

# Mergers and acquisitions (M&A)

There have been four acquisitions of companies specialised in parametric insurance since 2017.

Acquirer	Acquired	At valuation	Date
CPP Group	Blink Parametric	Estimated €1 million	Mar 2017
Cooper Gay (part of Ed Broking Group)	Meteo Protect	Undisclosed	Apr 2020
Pattern Insurance	Setoo	Undisclosed	Jul 2021
Neptune Flood	Jumpstart	Undisclosed	Sept 2021

Source: PitchBook © InsTech 2022

There are 3 observable trends from the parametric insurance M&A activity:

- All the acquirers are MGAs or MGA/broker groups. Consolidation is common in the wider insurance MGA and broker market, where companies that specialise in niche covers are absorbed into larger groups. It is possible that more specialist parametric MGAs will be acquired by such groups.
- None of the acquirers are parametric insurance specialists. We have not yet seen one parametric
  company acquiring another. Few companies specialised in parametric have achieved sufficient scale
  to acquire others. Meanwhile companies or groups that see opportunity in parametric but lack inhouse expertise can purchase a parametric specialist company to become the group's parametric
  division.
- Some companies facing distribution challenges have turned to being acquired. Distribution has been a challenge for many parametric products, as we discuss later in the report. A larger parent company can provide strategic investment and access to potential clients. Blink Parametric, Meteo Protect and Jumpstart were acquired by companies with existing relationships with potential customers or distribution partners to support the scaling of their products.

"Because CPP is already partnered with banks, financial institutions and travel insurers globally, we already have strong access to those distribution partners for Blink's parametric solutions."

- Carl Carter, UK Country CEO, CPP Group

#### "Incumbent insurtechs"

In the InsTech report Algorithmic Underwriting in Specialty Insurance: An implementation guide in six case studies, we discuss the trend of "an incumbent insurance player giving birth to its own insurtech start-up". A similar phenomenon has occurred in parametric insurance, where industry incumbents establish a subsidiary focused on parametric.

AXA established AXA Global Parametrics (now AXA Climate) in March 2017 as a dedicated parametric insurance MGA using insurance capacity from AXA XL. K2 Parametric was founded in 2021 as part of K2 Insurance Services, a group of brokers and MGAs. Insurance groups that see an opportunity in underwriting parametric insurance may take this 'build' approach rather than the 'buy' approach taken by companies like Cooper Gay in its acquisition of Meteo Protect.

# The value chain

The implementation of parametric insurance involves multiple organisations providing different services. We describe these services as part of the **underwriting value chain** and the **claims value chain**.

# The underwriting value chain

Creating and selling parametric insurance involves five services: distribution, product structuring, risk modelling, underwriting and (re)insurance capacity.

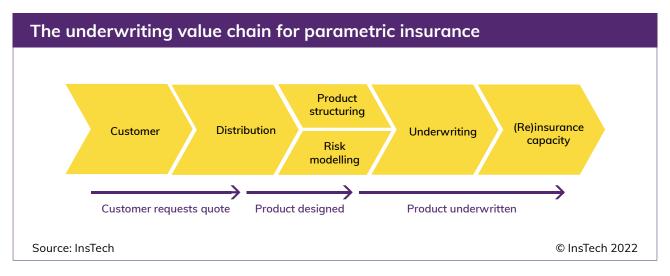
The **distribution** of parametric insurance products is engaging with potential customers to sell policies. Depending on the product and customer type, this is done by brokers, agents, through a website or using an 'embedded insurance' model where insurance is sold within the customer experience of another product.

**Product structuring** is defining the terms of the policy. What event or events will trigger a pay-out? How will each event be measured? How much will be paid for what type of event? For simple and high-volume products like flight cancellation cover, customers can purchase an off-the-shelf product, already structured. For complex policies with high limits, product structuring involves discussions between multiple parties such as risk managers, brokers, underwriters and specialist advisory organisations.

**Risk modelling** will be used to determine how to design a policy that suits the customer's needs and how the product is priced.

The policy is **underwritten** by an insurer or an organisation licensed to underwrite on an insurer's behalf, known as a managing general agent (MGA).

One organisation, or a syndicate of organisations, provides the capital required to underwrite the policy, known as **capacity**. This is usually an insurer or reinsurer, but 'alternative' sources of capacity include pension funds, hedge funds, mutual funds and sovereign wealth funds.

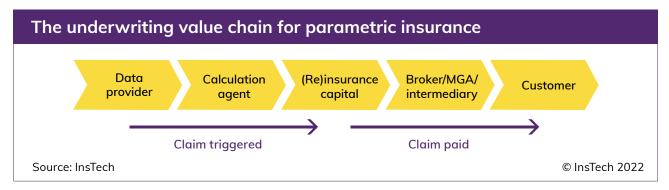


#### The claims value chain

Multiple organisations are also involved in the claims process for parametric insurance policies. One or multiple data providers collect information on metrics related to the trigger event. Trigger **data providers** include public entities such as the US National Hurricane Center and private data companies using sensors, satellites or other technology.

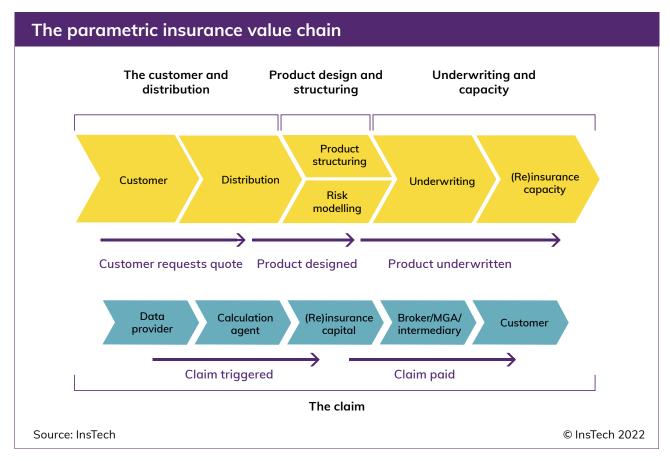
The **calculation agent** determines whether an event triggers a pay-out. It collects information from data providers and may use analytics to transform the data. The calculation agent reports on the parameters set out in the policy (such as hurricane wind speed at a particular location) and its conclusion determines whether a pay-out is made, and how much.

If the policy's trigger has been met according to the calculation agent, the money for the pay-out is released by the organisation holding the insurance capital. Then the claim is paid to the customer, sometimes through a broker, MGA or other intermediary.



#### The full value chain

The remainder of this report looks at trends in parametric insurance through the value chain, starting with the customer and finishing with the claims payment.



## The changing competitive landscape

The different roles in the value chain are usually provided by at least three and up to six parties. Many of the companies profiled in this report provide a combination of services to fill more than one role in the value chain.

Many start-ups began with a single initial use case. Now these companies are expanding their operations. Some are selling their existing products in new locations, others have broadened the scope of customers they sell to and many have created new types of products for different perils.

Several newer start-ups, such as Raincoat and Plover Parametrics, also envision providing technology to support many types of parametric products. More companies are competing to help insurers design and deploy capital for parametric products.

# The customer and distribution

Experience of the last five years has shown that having an effective way to distribute (sell) parametric insurance is critical to success.

Indemnity-based insurance is sold at scale in most parts of the world, but parametric insurance can face unique distribution challenges.

There are four methods of distribution being used for parametric insurance.

- **1. Direct distribution** insurers or MGAs sell insurance directly to a customer without an intermediary. This most commonly is offered through websites or mobile applications.
- 2. Brokers and agents a broker or agent acts as an intermediary between the customer and the underwriter. Brokers and agents advise their customers on what coverage they need and what insurance options are available.
- **3. Embedded insurance** insurance is sold as part of the purchase of another product or service. Insurance can be an add-on option or included within the purchase price.
- **4. Hybrid parametric/indemnity insurance** parametric coverage is included within an indemnity-based insurance product.

Different distribution methods are suited to different types of customers. We divide the customers of parametric insurance into five categories.

	Individuals	Buying insurance for themselves or their households, and smallholder farmers insuring their crops. Insurance for individuals is known as personal lines insurance and insurance with very small limits is microinsurance.
# <u> </u>	Small and medium enterprises (SMEs)	Buying insurance for their business activities. These organisations do not usually have dedicated risk managers.
	Corporate businesses	Buying insurance for their business activities and public entities such as local governments and government agencies. These organisations may have dedicated risk managers, operate in multiple locations and require millions of dollars of coverage.
	Captive insurers	Some large corporations own captive insurers. A captive insurer is a subsidiary wholly owned by its parent company. The captive provides insurance for its parent company and companies within its group. A captive may buy reinsurance against catastrophic and other risks which affect its portfolio.
	Insurers	Buying reinsurance.

#### Parametric: replacing or complementing indemnity insurance?

Parametric insurance is rarely used alone. It usually complements indemnity insurance coverage. Businesses may purchase parametric coverage against one risk such as earthquakes, but retain indemnity coverage for other risks. Alternatively, part of a business' earthquake coverage can be parametric while another part is indemnity-based. We write about the different ways to combine parametric and indemnity-based coverage, including supplementing existing limits and 'deductible buy-downs' in this article.

Personal lines insurance				
SME insurance				
Corporate insurance				
<u>Key</u> :	Direct distribution	Brokers and agents	Embedded insurance	Hybrid parametric /
No success				indemnity
Limited success				
Some applications showing potential				
Most promising but challenges remain				
Untested				

#### Personal lines

#### **Direct distribution**

More than 20 companies are offering personal lines parametric insurance, most of which began with a direct distribution model, selling through websites or mobile applications. This approach is expensive. Direct distribution requires substantial advertising to encourage potential customers to visit a website or download an app.

Companies that have spent heavily on advertising have found that it fails to attract as many customers as expected. Customers need to be convinced that they need insurance before buying it. Parametric insurance is unfamiliar and may be confusing at first to people familiar with indemnity-based insurance.

Parametric products often cover risks for which people did not buy standalone insurance products before. Homeowners may not be prepared to buy insurance against a peril they are highly exposed to, such as hurricanes, because they believe they are already covered by property insurance. Smallholder farmers who have never insured their crops before may be interested in parametric weather insurance, but want to discuss their options with a representative of the insurer, which increases the cost of distribution.

Some of the personal lines parametric insurance products using direct distribution have gained customers, but at high customer acquisition cost. The direct distribution approach is falling out of favour with several companies and different approaches such as embedded insurance or community-based distribution are being tried.

#### Retail brokers and agents

In some countries, personal lines insurance is sold through retail brokers or agents. Various companies have attempted to use this distribution channel for personal lines parametric products, but we have seen no examples of success with this approach.

Many brokers and agents have never sold parametric insurance products. The initial challenge is getting them motivated to learn about it and giving them the confidence to sell it. Customers are also likely to be unfamiliar with parametric coverage, so agents need to spend time explaining parametric products to their customers.

Because commissions payments are low, brokers and agents may not have sufficient incentive to sell single-peril parametric insurance products.

#### **Embedded insurance**

Several companies with experience struggling to sell parametric products to consumers directly and through brokers now see embedded insurance as an area of potential.

For embedded insurance to succeed, insurance needs to be embedded into the right product. Some embedded distribution channels are a clear fit for parametric insurance products, such as selling flight delay or cancellation insurance at the point of a customer buying flight tickets.

Financial products such as loans are seen as a good distribution channel for catastrophe-based insurance. The insurance product may be structured to link to the financial product in some way. For example, an earthquake of a certain magnitude could trigger a pay-out equivalent to six months of loan payments.

Other, less obvious distribution channels are also being tried. On InsTech podcast episode 183, Raincoat's Jonathan Gonzalez explains how Raincoat ran a pilot programme with car dealerships in Puerto Rico, embedding parametric hurricane insurance in the sale of new cars.



The potential and attraction for "embedding" insurance products into the value chains and distribution capabilities of others has made embedded insurance one of the key emerging themes in insurance. Our Insurance: to Embed, or not to Embed report takes a detailed look at what embedded means in practice and the opportunities it offers insurtechs and incumbents.

#### Hybrid parametric/indemnity insurance

Hybrid insurance policies that include parametric and indemnity-based coverage are being used in travel insurance. Blink Parametric has partnered with several travel insurers to include parametric flight disruption cover within comprehensive travel insurance policies.

The hybrid parametric/indemnity model is yet to be tested for other types of coverage, but is seen as an approach with high potential. Súper plans to launch a home contents insurance product in Mexico in 2022 with parametric earthquake cover included.

Other companies offering parametric catastrophe coverage for individuals have investigated partnering with insurers on hybrid policies. This would involve offering parametric coverage against a specific event as an add-on to existing policies. This approach has the greatest potential to scale quickly, because it does not involve building a customer base from scratch.

"In the future, the word 'parametric' will be like 'deductible' or 'excess'.

It will be a tool used across different insurance policies."

– Laurent Sabatié, Co-founder and Executive Director, Skyline Partners

#### **Community-based distribution**

An emerging type of parametric insurance does not make payments to individuals directly, but provides coverage to an organisation that passes on the benefits of any pay-out to individuals. Each individual is a beneficiary of the parametric insurance policy, but the policyholder is a community group, financial institution, charity or government entity.

This approach is increasingly being used for catastrophe and weather coverage. It suits risks that affect all people in a geographical area, or all those with a certain occupation (usually farmers) within an area.

For example, Skyline Partners, Howden and Munich Re have developed a parametric policy protecting farmers in Jamaica against hurricane risk. The policyholder is the Jamaican Co-operative Credit Union League (JCCUL), which many farmers rely upon for micro-loans. In the event of a hurricane, many farmers might default on their loans, putting at risk JCCUL's ability to remain operational. Extreme hurricanes trigger a parametric pay-out to JCCUL, allowing it to continue to support local farmers even if many cannot repay their loans.

Other examples include parametric policies which pay out to humanitarian agencies or governments, to help them provide support to people affected by a catastrophe such as a flood or a drought.

#### SME insurance

#### Direct distribution

It is very expensive to sell SME insurance products directly to consumers. Some companies that sell personal lines parametric catastrophe insurance through direct channels also offer coverage to small businesses, but have had low uptake.

#### **Brokers**

Brokers are the main distribution channel for SME insurance, so parametric SME products have mainly been sold through brokers.

Whilst wholesale brokers and London Market brokers have more experience with parametric insurance, awareness is lower among retail brokers, who deal directly with business customers. Making retail brokers sufficiently confident with parametric products is a challenge and a priority for companies that sell parametric insurance through brokers.

The companies that have achieved the most scale selling SME parametric products have been successful at influencing retail brokers. In many cases, a retail brokerage operates in a local geographical area. If this area is highly exposed to a particular peril such as flood, the broker is more likely to want to sell parametric coverage for that peril.

Distribution through brokers is a greater challenge for parametric coverage that does not relate to catastrophes or weather. Brokers have to spend time persuading customers that they need this type of coverage and explaining how parametric works, which may not be justified by their commission on a low-premium product.

Partnership with wholesale brokers could make it easier to bring parametric SME products to market through retail brokers. Parametric start-up Machine Cover has partnered with CRC Group to sell non-damage business interruption insurance (NDBI) to SMEs in the US. CRC Group is a wholesale broker with a network of retail brokers across the US.

"Once retail brokers are aware of a parametric product, it is important to have an example ready which shows how a product works and what the price is."

- Siddhartha Jha, Founder, Chairman and CEO, Arbol

#### **Embedded insurance**

Some SME parametric insurance products are being embedded into the sale of other products. One example is Heat Stress Protect, a product launched by Skyline Partners in France with capacity from SCOR. The product covers dairy farmers against heat waves which decrease milk production and quality. The insurance coverage is embedded within a herd monitoring system sold by ITK, an agriculture technology company. As of May 2022, the product is being used for more than 75,000 cows.

The success of embedded distribution depends on how suitable the distribution channel is. Most applications of embedded SME parametric have been in the agriculture sector, where insurance can be embedded into seed purchases or agriculture technology products.

#### Hybrid parametric/indemnity insurance

In 2022 Vave, an MGA and part of Canopius Group, launched the first publicly disclosed hybrid parametric/indemnity SME product. Vave's commercial property insurance product in the US includes parametric extreme temperature coverage. There is another product soon to come to market that will include parametric coverage against adverse weather within an event insurance policy.

Hybrid policies may be a quick way to scale the distribution of SME parametric covers. Certain types of parametric coverage, especially those that protect against non-damage business interruption, can become an add-on to differentiate business insurance policies.

#### Corporate insurance

Corporate insurance, parametric and indemnity-based, is almost exclusively sold through brokers. Most corporate parametric insurance is sold as a standalone product through brokers.

The only publicly disclosed hybrid parametric/indemnity insurance product for corporates is Parsyl's cargo insurance, which includes a parametric temperature trigger.

The amount of engagement with parametric insurance from insurers has historically exceeded brokers' ability to develop it as a core offering they provide to clients. This is changing.

New technology and data sources are reducing the basis risk in parametric products. Insurers and MGAs are automating processes to provide quotes more quickly to brokers, streamlining the process of selling parametric products. Most importantly, the customer need for parametric insurance has become clearer after large catastrophe losses in recent years.

"It was a challenge to get brokers even to pay attention before 2017.After that, we noticed a significant change in interest following hurricanes Harvey, Irma and Maria. The limitations of traditional insurance, and the claims process which can frustrate policyholders, led to an increase in demand."

- Evan Glassman, Co-founder, New Paradigm Underwriters

The companies underwriting corporate parametric insurance at the greatest scale are working collaboratively with brokers to tailor policies to their clients' needs. The growing distribution of parametric policies through brokers reflects increasing awareness of parametric insurance in corporate risk management.

In InsTech podcast episode 165, Descartes Underwriting's Sébastien Piguet observes that risk managers of some of the largest companies are familiar with some types of parametric coverage. The full scope of perils that parametric products can cover is not yet well known, and risk managers of smaller corporates may still be unaware of parametric insurance.

#### Captive insurers

For corporations that own captive insurers, parametric insurance has two use cases.

One is for captive insurers to purchase parametric reinsurance to protect the group of companies against catastrophic losses. This is an increasing area of interest for captives because it allows them to continue to provide comprehensive coverage to the rest of the group, while transferring large risks to reinsurers.

The other use case is for captive insurers to provide parametric insurance coverage for its parent company or other companies within the group. This has not been widely used yet. In 2021, Arbol launched Captive+Parametric, a solution which gives corporations access to Arbol's data, models and pricing in order to transfer weather risks into captive insurers.

#### Different broker approaches

The biggest global brokers organise their teams working on parametric insurance in different ways. Companies underwriting parametric products tell us that brokers with teams focused on parametric are most active in placing parametric coverage.

Aon's 'Innovation and Solutions' team specialises in parametric insurance.

WTW's 'Alternative Risk Transfer' team places parametric and other risk transfer solutions for corporates, while its 'Climate and Resilience Hub' has worked on parametric solutions for development and disaster risk financing.

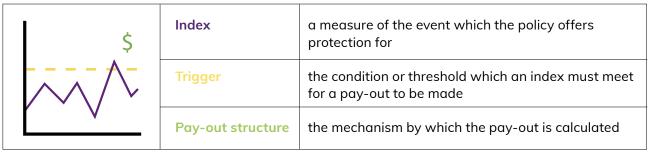
Howden's 'Climate Risk and Resilience' team, established in 2021, is responsible for parametric solutions.

In 2021, Marsh began to convene brokers working on parametric transactions globally in its 'Parametric Solutions Center of Excellence'.

In most other global brokers, there are individuals working on parametric insurance across different departments and locations, not organised within a centralised team.

# Product design and structuring

The design of parametric insurance products consists of three elements: the index, the trigger and the pay-out structure. These three elements are important tools in reducing the basis risk of a parametric insurance policy.



Source: InsTech © InsTech 2022

#### The index

In the last two years, a wider range of indices have been used for parametric insurance coverage. New indices are being used for existing types of coverage like drought and for new types of coverage like terrorism and transaction-based non-damage business interruption insurance.

The index can be a material characteristic (such as temperature, wind speed or flood depth) or an artificial measure of something more abstract like reputation. Sometimes the index simply measures the occurrence or non-occurrence of an event like a terror attack or a flight cancellation.

For many perils there are multiple characteristics which can be used as indices. For hurricanes, wind speed and central pressure could both be used as indices. We know five different indices are currently being used for parametric drought coverage.

Newer indices are being used for parametric non-damage business interruption coverage that measure relative changes in spending habits in a local area or across a sector. Mastercard is now providing insights from transactional data which can be used for structuring and triggering parametric insurance policies. OTT Risk is offering parametric products which use indices based on transactional data, footfall, occupancy rates (for hotels) and other metrics which correlate to revenue.

Artificial indices used for parametric insurance include commodity price indices, reputation indices, indices measuring average agriculture yield across an area and (for reinsurance) insurance industry loss indices. Modelling firms are developing artificial indices that model the loss caused by perils where there is no physical characteristic that adequately correlates to loss, such as tornadoes.

"New data sources can enable personal or small business insurance policies to be triggered by artificial indices, which could make coverage personalised and more affordable."

- Andrew Collins, Head of Business Solutions Insurance, Earnix

As well as indices that measure the size of an event, some indices are based on forecast events. This means policyholders could receive a pay-out before or during a loss event to fund emergency expenses. For example, the B-Ready project is a parametric insurance partnership between Global Parametrics and humanitarian organisations to support disaster recovery. It pays out based on forecasts and was triggered by Typhoon Rai in December 2021. 1,698 vulnerable households in the Philippines received a pay-out before the typhoon made landfall. Swiss Re Corporate Solutions offers a parametric insurance product for Hong Kong businesses that is triggered by typhoon warnings from the Hong Kong Observatory.

#### Parametric indices and risk modelling

To underwrite a parametric product, insurers need to understand the risk of the index reaching the trigger threshold and causing a pay-out. Historical index data is needed to develop a risk model for a parametric policy. This data may be available from public or proprietary sources.

Vendors such as CoreLogic, RMS and Verisk provide risk models measuring the likelihood of hurricane, earthquake and other weather and catastrophe events. Most of the companies providing parametric solutions use historical index data to create their own risk models, which they use exclusively or alongside vendor risk models for underwriting. New standards and tools such as those developed by the Oasis Loss Modelling Framework are enabling more organisations to design risk models.

For some indices, a lack of historical data makes risk modelling more challenging. CyberCube is using advanced analytics, cybersecurity research and artificial intelligence to model the risk of cyber threats, including cloud downtime. For agriculture yield indices, there may be no historical data because a crop is being grown in a new area, or a new type of fertiliser is being used that affects yield.

The Insurance Development Forum is a public-private partnership which includes over 100 insurance organisations from the private sector, government institutions and others. It was launched in 2015 to help vulnerable people build resilience to disasters. It is currently developing a research tool aimed at emerging economies, to help the public sector become familiar with risk modelling concepts for the design of parametric insurance policies. This is intended to make parametric insurance more accessible for people in parts of the world where historical data is lacking.

# What to consider when choosing a parametric index What will correlate closely with the policyholder's loss What is a transparent measure of the event that the policyholder can trust What data sources will measure the index What existing risk models are available and what historical data is available for risk modelling

Source: InsTech © InsTech 2022

#### OTT Risk: Non-damage business interruption cover for a UK retailer

#### The problem:

The UK high street experienced significant business interruption in 2020 and 2021. Early 2022 saw a gradual return of appetite for 'visiting the shops'. One large UK retailer sought to understand and minimise the impact of its exposure to customer volume shocks from infectious disease events like COVID-19 and other potential non-damage perils like terrorism, war and strikes, riots & civil commotion. With the majority of its sales coming from brick-and-mortar shops, the retailer did not have a significant e-commerce business to soften the blow of lockdowns, social distancing and reduced high street footfall. As was typical, the retailer had seen its infectious disease cover excluded by the insurance market.

#### The solution:

OTT Risk offers two approaches to help retailers manage shocks to their custom. One is named peril policies where specific 'events' such as pandemics trigger a pay-out based on key metrics such as customer footfall, transaction volumes or industry sales statistics. The second is an 'all-risk' policy where the same metrics are used to drive the pay-out but no event certification is required. The former provides a targeted "value for money" approach while the latter enables a 'peace of mind' all risk cover.

Whilst the unpredictable risk landscape made the all-risk policies an attractive proposition for the retailer, the exclusion of infectious disease cover within its comprehensive insurance programme made discrete cover for COVID-19 resurgence and future infectious disease events the priority.

OTT Risk uses a few core datasets to underwrite the risk of diminished customer presence. These datasets are provided by third parties known and trusted by the insurance market and the client's industry (such as Springboard and Mastercard). They reference data on footfall, card transaction volumes and sales. Various COVID-19 triggers were considered as well as the different datasets that could be used as a proxy for the retailer's experience of lost custom.

#### The result: Parametric business interruption cover

OTT Risk designed and priced a proposal which met a a gap in the retailer's insurance program. An intuitive and recognisable pandemic trigger must be met before an economic impact index (a proxy for client's loss of sales) drives the payout.

#### Structure:

- UK-wide cover for COVID-19 resurgence, covering a network of locations
- A primary trigger based on UK COVID Alert Levels (with back-up methodologies in place)
- A secondary trigger based on UK Government quarterly sales statistics for relevant sub-industry
- Pay-outs are triggered by severe and shock deviation from an agreed benchmark
- Variable quarterly limits accounting for highly seasonal sales cycles

#### The trigger

Different triggers can be used for parametric policies depending on the availability of index data and the nature of the losses that are being covered.

#### Cat in the box

The most common trigger for parametric catastrophe insurance policies is 'cat in the box'. The policy pays out when a catastrophe event ('cat') that reaches a certain threshold on the index occurs within a predefined area ('the box').

Cat in the box triggers are also an effective way of providing coverage for non-damage business interruption losses. For example, the intensity of an earthquake may be low enough at a business' location not to cause damage to a building. If the earthquake is intense enough to damage power cables in the surrounding area and cause an outage, the business may still suffer from business interruption losses as it remains closed until the power supply is fixed.

#### **Intensity at location**

The alternative to cat in the box is using an 'intensity at location' trigger. Instead of paying out based on whether an event occurred at some point within an area, 'intensity at location' policies pay out based on the characteristics of the event at one specific location.

Intensity at location triggers have become more widely used in recent years with the availability of new localised datasets providing information about events at specific locations.

The advantage of intensity at location triggers is that the pay-out is based on how an event affected a policyholder at their exact location. This may reduce basis risk because the intensity of an event at a policyholder's location is likely to correlate closely with physical damage incurred.

#### Multiple triggers

Some parametric policies will have multiple triggers. Either more than one threshold has to be met for a pay-out, or a pay-out is triggered if at any one of multiple thresholds is met.

Multiple triggers may be required to offer coverage against complex events like pandemics. For most types of coverage, one or two triggers are best. A key element of the appeal of parametric insurance to policyholders is that it is easy to understand what will trigger a pay-out.

"Parametric insurance only works when it relies on a simple and transparent trigger."

- Rachel Hillier, Partner, Capital Law

# The pay-out structure

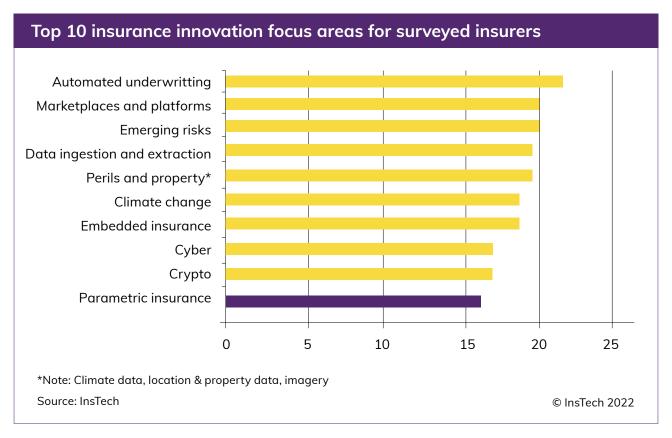
There are three types of pay-out structures used in parametric insurance policies.

Parametric pay-out structures				
	One pay-out of the full limit when a policy is triggered	Example:  Skyline Partners' active assailant coverage with AEGIS London pays policyholder businesses their full coverage limit when an active assailant attack happens in their area.		
<u></u>	Staggered pay-out	Example:  An earthquake insurance policy from <b>Súper</b> with a limit of \$500,000 MXN (\$25,000 USD) pays out either \$1,250, \$75,000, \$250,000 or \$500,000 MXN depending on the intensity of the earthquake.		
	Incremental pay-out	Example:  When the trigger is met on <b>Arbol</b> 's excess rainfall contracts, the pay-out the policyholder receives directly corresponds to the amount of rainfall.		

Source: InsTech © InsTech 2022

# Underwriting and capacity

In InsTech's 2021 member survey, 67% of insurers identified parametric insurance as an area of interest. 46% of surveyed insurers are underwriting parametric policies. We have profiled 28 insurers in this report that are among the most active in underwriting parametric coverage. Some insurers, however, have scaled back their involvement in parametric insurance.



As the corporate parametric insurance market has begun to mature, insurers have made more capacity available for larger limits. Historically, the limits available for corporate parametric insurance have been in the millions. Now, more deals are being placed with limits in the tens of millions and even hundreds of millions, often backed by a syndicate of insurers. Insurers with less in-house parametric expertise are starting to participate in parametric programmes as follow capacity in syndicated risk transactions.

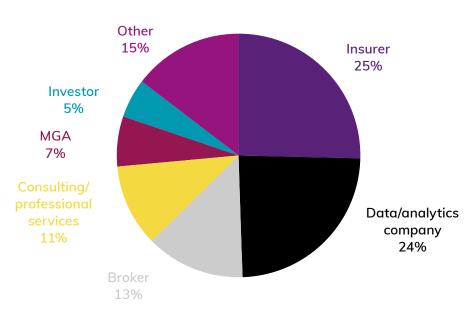
We regularly speak to insurers who are looking to provide capacity for parametric products. There is a willingness to experiment with new types of coverage especially when there are historic datasets available for the index.

For certain types of risk that insurers are less comfortable with, alternative capacity sources are also available and being used by companies such as Arbol. Nephila Capital is among the investment managers providing alternative capacity for parametric risk transfer.

"For insurance-linked securities investors, parametric insurance is attractive because any losses are clearly defined, quickly settled and do not need to be blocked as collateral during the months after an event."

- Mark Rueegg, Founder and CEO, CelsiusPro

#### Who is interested in parametric insurance\*?



\*Note: A breakdown of the audience of InsTech's Parametric Post newsletter

Source: InsTech © InsTech 2022

#### Parametric insurance and the MGA business model

The MGA business model is used by many companies in parametric insurance, most of which have been founded since 2017.

The rise of technology-enabled MGAs is a trend across the insurance industry, but there are some reasons why MGAs are particularly suited to the parametric insurance market.

MGAs work well in specialist areas of coverage. Insurers without in-house parametric expertise can enter the parametric insurance market by providing capacity to MGAs. Traditionally MGAs thrive where insurers want to test out a market before hiring expensive specialists.

**MGAs work with multiple insurers**. While an insurer can only underwrite policies within its own risk appetite, an MGA can underwrite policies within the risk appetite of any insurer it works with. MGAs are not limited by the risk appetite of any one insurer.

MGAs do not need to diversify their portfolio in the same way as insurers. For example, Bounce is a parametric MGA which insures against earthquakes in New Zealand. As an insurer, Bounce would struggle to build a diversified portfolio; if a major earthquake hit New Zealand, many of its policies would pay out at once. As an MGA, it relies on the portfolio diversification of its insurance capacity partner, Munich Re Innovation Syndicate 1840, which underwrites many risks uncorrelated with earthquakes in New Zealand.

You can learn more about how MGAs are becoming a more powerful force across insurance in our article "MGAs: the fast track to insurance innovation?".

# Ensuro: providing capacity for MGAs using blockchain technology

#### Problem:

Start-up MGAs face a large upfront cost to offer new insurance products. After creating a risk model and obtaining an MGA licence, companies often spend months securing insurance capacity before taking a product to market.

"In other industries the concept of fast launch and iteration has existed for a long time. This concept needs to move into insurance to allow companies to innovate with new parametric products."

- Marco Mirabella, Founder & CEO, Ensuro

#### Ensuro's aim:

**Ensuro** is a Bermuda-based reinsurer. It aims to enable MGAs to launch and adapt parametric insurance products quickly by providing capacity more quickly and at a low cost. To do this, Ensuro is piloting an alternative source of insurance capital: using cryptocurrency funds from investors, locked in smart contracts on a blockchain, to underwrite policies.

#### Ensuro's collaboration with Koala:

Ensuro is deploying its technology in collaboration with Koala, an MGA offering travel insurance and protection products. Ensuro provides capacity for Koala Flex, a protection policy that allows customers to cancel their flight for any reason and be refunded 80% of the cost of their ticket. The product is sold through travel search engines and price comparison websites including Kayak and Vola.ro.

There were three steps for Koala to integrate with Ensuro:

- 1. Provide Ensuro with historical flight data and Koala's risk model for Ensuro's quantitative team to analyse
- 2. Connect its system with an API that sends Ensuro details of each new policy
- 3. Connect the pay-out trigger with another Ensuro API that releases funds when a policy is triggered

Ensuro validated Koala's historical data and risk model. The outcome of the validation was the "margin of conservatism" (a factor that aims to mitigate any shortcomings in risk estimation) and the solvency capital required on an individual policy basis. The results defined the ultimate pricing parameters, subsequently programmed into Ensuro's smart contracts to automate the underwriting process after the APIs were set up. Ensuro monitors the performance of policies in real time and can adjust the margin of conservatism to account for more or less expected losses.

When a policy is sold, policy information including start date, end date, premium, pay-out amount and capital locked is recorded on a blockchain. When pay-outs are made, this is also recorded on the blockchain.

#### Ensuro's value proposition:

Ensuro's investors, who provide capital for the policies, diversify their portfolios with insurance-like assets; exposures that offer transparent and attractive yields not correlated to the capital market. Ensuro's partner, like Koala, can promptly start underwriting, and collect data about its portfolio to refine its product and attract more capital to grow further.

# The claim

# Data and calculation

In the last two years, more companies have started providing data that can be used to trigger parametric insurance policies.

Many parametric insurance policies are based on publicly available data from organisations such as the US National Hurricane Center, US Geological Survey or Japan Meteorological Agency. The advantages of publicly available data include cost, credibility and transparency; the customer can see when the policy is triggered.

Technology is enabling more accurate and higher resolution data for locations or perils where data was previously insufficient or unavailable.

ICEYE uses synthetic aperture radar satellites combined with other sources of data to produce high water mark estimates 24 hours after a flood. Reask, RMS HWind and Liberty Mutual use modelling and analytics to produce high-resolution wind speed estimates after a tropical cyclone.

FloodFlash, Hailios and Understory are among the companies installing sensors at policyholders' properties to measure the intensity of natural perils at their location. Safehub is also investigating using its compact earthquake sensors in buildings to trigger parametric insurance policies.

Some new data providers including ICEYE, Hailios and VanderSat (recently acquired by Planet) have become established in the last two years and are being used by several of the companies underwriting corporate parametric insurance.

# The role of the calculation agent

For parametric catastrophe bonds, the calculation agent is the organisation that determines whether an event triggers a pay-out. The calculation agent needs to be independent from the bond's sponsor (i.e. policyholder) and the bond's investors.

A calculation agent is particularly important when the index cannot be calculated as expected for some reason. Reasons that data may be unavailable include situations when a sensor has malfunctioned or data from third-party sources is unavailable, but a decision still needs to be made on whether an event triggered a pay-out. This is the role of the calculation agent.

Parametric insurance policies may name an independent calculation agent. In other cases, the insurer or MGA may act as the calculation agent themselves, but rely on independent third-party data from companies like RMS that can be calculation agents in their own right.

## Blockchain and parametric insurance

A blockchain is a form of database. Blockchains are shared ledgers that record transactions and can be used to store pieces of information. Smart contracts are blockchain-based contracts written in code that automatically execute transactions based on a trigger.

Blockchains cannot connect directly to external data sources. A blockchain 'oracle' service from a provider like **Chainlink** is required to bridge the gap. For parametric insurance policies using blockchain, the oracle acts as the calculation agent. Chainlink's decentralised oracle networks collect data points from multiple sources and verify them before sending data to the smart contract, which triggers a pay-out.

Parametric insurance applications using blockchain have increased in the last two years. Among companies using blockchain for parametric insurance, Arbol is the largest. Arbol reported \$70 million USD in gross written premium across parametric insurance and weather derivatives it transacted in 2021. Other applications of blockchain have been for small-limit policies such as crop microinsurance and travel disruption.

## Blockchain-enabled parametric insurance with Otonomi and Chainlink

The global supply chain crisis of 2021 has spilled over into 2022, highlighting dysfunction in the logistics sector and challenges finding insurance cover. In particular, shipping delays have been hampering operations globally. New solutions are necessary to protect freight forwarders and shippers against delays and supply chain disruptions.

Otonomi is a blockchain-enabled parametric insurance MGA. It offers fully automated insurance policies to the marine and cargo industry using smart contracts. Its first product is a parametric air freight insurance solution.

The solution consists of air shipment delay and interruption coverage. Otonomi's parametric insurance policies trigger pay-outs automatically when air freight flights are disrupted, using aviation data supplied by logistics data provider OAG. Claims are settled within 24 hours.

Otonomi uses smart contracts and blockchain oracles to offer parametric insurance for the marine and logistics sectors. Its access to logistics endpoints allows it to accurately determine shipment delays and calculate the most accurate pricing for its clients based on real-time market fluctuations.

As part of Otonomi's vision to bring transparency to the supply chain insurance market, Otonomi's data and analytics team created and launched the first smart contract-powered air freight insurance index, OTO-USA-1. The index is available on global platforms such as Nasdaq, Bloomberg, and MSN Money.

Otonomi automates its insurance policies with smart contracts to mitigate human error, prevent fraudulent transactions and minimise manual processes.

Otonomi has formed an ongoing collaboration with blockchain oracle solution Chainlink to bring real-world data into its policy contracts. Chainlink is an oracle solution that enables smart contract applications to access off-chain data, such as air freight logistics information, and computation services, acting as a bridge between blockchain-based smart contracts and the external world.

Data integrity is important to Otonomi's air freight product because the air cargo data that its smart contracts receive are used to determine whether claim compensation pay-outs are made. Chainlink oracles help ensure that Otonomi's smart contracts execute automatically based on secure, accurate and reliable data triggers. With Chainlink, it's also possible for Otonomi to connect with other sources of data for different parametric products in the future.

Otonomi's air freight insurance product has been running in beta for over six months. The team is currently incubated in the UK in the cohort 8 of the Lloyd's Innovation Lab to launch its product in the London markets.

Its key performance indicators so far:

- The **expense ratio**—the costs of doing business relative to the premium earned—is sustained around the 10% mark. This metric is typically around 35-40% with traditional insurance products.
- The **loss ratio**—the claim losses from cargo delays over the premium earned—has actively managed to stay within a 20% range. This metric is typically around 40-50% with traditional insurance products.

By using blockchain and oracles to create insurance products, Otonomi is able to deliver automated insurance policies at lower cost. Otonomi's long-term vision is to bring automated insurance solutions at scale not only to the air cargo sector but also to the ocean freight, inland marine, trucking, rail, climate mitigation and cybersecurity industries. These solutions will be supported by data delivered by Chainlink's oracle solution.

# The payment

Parametric insurance products are a promise to pay the policyholder when an event happens. For many customers, speed of payment is an important part of the value parametric insurance provides. The speed of a parametric pay-out depends on how quickly the index is calculated and the trigger verified, and how the payment is made.

Pay-outs to corporates or governments worth millions of dollars inevitably take longer than pay-outs to individuals worth hundreds of dollars. Different types of customers also have different needs and expectations for pay-out time. Small businesses may need a pay-out within days to remain solvent during business interruption events. Individuals expect near-instant payments.

Some parametric insurance contracts make guarantees or assurances about the length of time between a trigger event and a payment, or the length of time between calculation and payment. For SME policies, the market standard is 14 days; for corporates, it is 30 days. Parsyl and FloodFlash have announced that they have paid parametric commercial insurance pay-outs in less than 12 hours. CCRIF SPC's ability to pay multi-million-dollar claims within 14 days shows that this is an achievable target for nearly all parametric policies.

# How (not) to pay your policyholders

We have heard about parametric policies paying out through cheques. Because the cheque is sent by post and needs to be redeemed at a bank, it can take days between the insurer releasing the funds and the policyholder gaining access to them. In the event of a catastrophe, postal services may be disrupted and the pay-out could take longer.

An example of a better payment experience is **Blink Parametric**'s parametric flight delay solution. If a policyholder's flight is delayed by 6 hours, they receive either a deposit into their bank account or a paid-for hotel room booking.

On a larger scale, the World Bank issued a parametric hurricane and earthquake catastrophe bond for the Philippines government in 2019. When it was issued, the World Bank said it would "[enable] the authorities to respond quickly to the needs of citizens when calamities strike." Typhoon Rai struck the Philippines between 16 and 18 December 2021. A pay-out of \$52.5 million USD was first confirmed on 24 January 2022, long after emergency response expenses were incurred. The final calculation, which determined there would be no further pay-out, did not conclude until May 2022.

In contrast, CCRIF SPC, which insures governments in the Caribbean and Central America against disasters, has paid out 54 claims, all within 14 days of the trigger event. Its largest pay-out to date was \$40 million USD to the government of Haiti after an earthquake in June 2021. To support emergency response, CCRIF paid \$15 million USD within 7 days and the remaining \$25 million USD within 14 days of the earthquake.

New technologies are available to insurers to facilitate fast payment of claims.

Blockchain-based smart contracts transfer funds immediately when the trigger is met. The length of time between the event and pay-out depends on how quickly the oracle receives and validates trigger data. This approach to payments is low cost and requires no manual intervention. It may not be suited to claims where some manual oversight is required.

New payments technologies also allow conventional payments methods to be automated. Companies can use APIs from technology providers such as Stripe to automate the claims payment process when a calculation is received.

# "Companies that use APIs to automate claims payments can make that a core part of the parametric insurance proposition."

- Calogero Scibetta, UK Enterprise Sales - Insurance and Insurtech, Stripe

Another factor which can affect the speed and type of payment is regulation. To be regulated as insurance rather than a derivative, parametric insurance products in some jurisdictions need a mechanism to ensure that the policyholder is not receiving a payment which exceeds the financial loss incurred.

The most common approach is to require the policyholder to declare (rather than prove) that they have suffered a loss at least as great as the triggered pay-out. Jumpstart sends a text message to policyholders after an earthquake. If the policyholder responds to confirm they will incur extra expenses as a result of the earthquake, a payment is processed. For commercial parametric insurance policies, policyholders may sign a declaration of loss document. Swiss Re Corporate Solutions requires its policyholders to confirm within a year after a parametric pay-out that the funds were used for costs or losses related to the triggering event.

Another approach which has been piloted but is not yet known to be operating at scale is using technology to monitor or restrict how policyholders use the funds from a pay-out. Policyholders can be sent a prepaid card onto which pay-outs are deposited. The card may only be used for certain emergency expenses or repairs.

# Parametric insurance - the InsTech members

The companies listed below are amongst the leaders in underwriting parametric insurance or providing data, technology or distribution solutions for parametric insurance. Examples of InsTech engagement with these companies can be found at the end of each individual company profile.

## Data, technology and distribution

- AkinovA
- Aon
- Arbol
- Blink Parametric
- BMS Group
- CelsiusPro
- Chainlink Labs
- CoreLogic
- CRC Group
- CyberCube
- Descartes Underwriting
- Fathom
- Gaia
- Howden
- ICEYE
- JBA Risk Management
- Marsh
- Mastercard
- McKenzie Intelligence Services
- Miller Insurance
- New Paradigm Underwriters
- OTT Risk
- Parsyl
- Plover Parametrics
- Raincoat
- Reask
- RMS
- S&P Global
- Safehub
- Skyline Partners
- Súper
- Vave
- Verisk
- Vesttoo

## **Insurers**

- AEGIS London
- Beazley
- Chaucer
- Ensuro
- Hannover Re
- Liberty Mutual
- MIC Global
- Nephila Capital
- RenaissanceRe
- Swiss Re
- Wakam

The following information in the profiles of InsTech members has been sourced from PitchBook and checked with the relevant company profiled: funding status; total funds raised; market capitalisation; and active investors.

# Data, technology and distribution

AkinovA AKINOVA

Founded: 2017	Head Office: London, UK	Locations served: Global
Funding status: Series B	Total funds raised: \$9.6 million USD	Size (no. of employees): 11-50
Active investors: XTX Ventures, Hise	cox, MS&AD Ventures, FinTLV Ventures, Pl	lug and Play Tech Center among others
Relevant activities: marketplace		
Triggers: cyber downtime heat	freeze wind earthquake excess rain	nfall drought epidemic other
Policyholder types: corporate ir	nsurer captive	

#### InsTech Overview

AkinovA aims to provide an electronic marketplace for the transfer and trading of insurance risks. It operates a capital markets grade, industry-regulated trading platform and clearing house. AkinovA is regulated as a marketplace by the Bermuda Monetary Authority and is authorised to trade insurance, reinsurance and insurance-linked securities in 42 countries. Its investors include insurer Hiscox and the investment arm of insurer MS&AD Group.

#### Parametric insurance solutions offered

AkinovA supports insurance, reinsurance and insurance-linked securities transactions with parametric triggers in addition to conventional indemnity transactions. In December 2019 AkinovA performed a parametric cyber risk transfer transaction for an asset manager exposed to the risk of outages affecting US power stations. The solution was structured by broker Guy Carpenter and insurer Hiscox, which provided capacity. Verisk Property Claims Services was the risk modelling and calculation agent.

In January 2020 a parametric cloud downtime transaction for an Asian technology company was carried out on AkinovA's marketplace, structured by Guy Carpenter and Hiscox and using Verisk PCS as a calculation agent. In May 2020 AkinovA completed its first parametric wind trade with RKH Reinsurance Brokers and Descartes Underwriting.

In November 2021 AkinovA announced a partnership with weather forecasting company Benchmark Labs to support parametric weather transactions on AkinovA's marketplace. Benchmark Labs models weather conditions at specific locations. This allows parametric insurance policies on AkinovA's marketplace to be triggered by the modelled weather conditions at a policyholder's location rather than the conditions recorded by the nearest weather station, which may differ.

Partners	InsTech member since
Benchmark Labs; Guy Carpenter; Hiscox; Verisk	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Henri Winand:     Co-founder and CEO, AkinovA:     The e-placing platform driving new insurance solutions	E-Trading Platforms: Challenges, Opportunities and Imperative	

Aon



Founded: 1982	Head Office: London, UK	Locations served: Global
Funding status: Publicly held (NYS: AON	l) <b>Market capitalisation:</b> \$57 billion USD	Size (no. of employees): 1001+
Triggers: windstorm earthquake will snow water level solar rad		heat freeze hail wind
Policyholder types: SME corporate	captive insurer government	
Policyholder industries: hospitality & aviation f	leisure agriculture transport e orestry infrastructure automotive	nergy construction marine real estate

## InsTech Overview

Aon is a global insurance broker providing commercial risk, reinsurance, health and wealth solutions. Aon operates in over 120 countries.

## Parametric insurance solutions offered

Aon's Innovation and Solutions team specialises in parametric insurance. It sells parametric corporate insurance, reinsurance and derivatives for natural catastrophe and weather risks.

Partners	InsTech member since
-	2019

Related InsTech content			
Events	Podcast	Reports	Other content
E Trading and the Future of Complex Insurance:     Does London Hold the Key?     Plugging the gaps: How well do you understand your flood exposure?	Podcast – Predictions for Insurance in 2022	Parametric Insurance - 2021 outlook and the companies to watch	

Arbol



Founded: 2018	Head Office: New York, New York	Locations served: Global	
Funding status: Series A	Total funds raised: \$9.2 million USD	Size (no. of employees): 11-50	
Active investors: Marc Bell Capital Partners, Space Capital, Ascend Venture Capital, Finch Finance, Space Whale Capital among others			
Relevant activities: underwriting	MGA risk modelling product struc	cturing calculation agent	
Triggers: excess rainfall drought	agriculture yield snow heat free	eze wind solar radiation	
Policyholder types: SME corporate insurer captive			
Policyholder industries: agricultu	re energy marine hospitality & leis	sure	

#### InsTech Overview

Arbol provides parametric climate and weather risk management solutions for the agriculture, energy, maritime and hospitality sectors. The co-founders and principal executive officers of Arbol have also built and launched dClimate, a decentralised network for climate data, models and forecasts.

#### Parametric insurance solutions offered

Arbol underwrites parametric commercial insurance, reinsurance and derivatives. Its triggers include excess and lack of rainfall, snow, temperature, wind, crop yield and solar radiation. The company has access to non-traditional insurance capacity. Arbol sells policies through brokers and direct to customers, through its online automated quoting engine. Its policies are smart contracts on a blockchain. Arbol says it transacted \$70 million in gross written premium across parametric insurance and weather derivatives in 2021.

In 2021, Arbol established Arbol Underwriters, a parametric reinsurance MGU based in Bermuda, with capacity from reinsurer SIG Re.

Arbol also provides Captive+Parametric, a solution that gives corporations access to Arbol's data, models and pricing to transfer weather risks into the corporation's own captive insurer.

dClimate is the calculation agent for Arbol's coverage and can be used for other parametric products. dClimate hosts free and paid datasets which span weather, energy, crops and carbon. Data providers can publish and monetise data, models and forecasts through dClimate.

(Re)insurance capacity	Partners	InsTech member since
SIG Re	Chainlink	2022

Related InsTech content			
Events	Podcast	Reports	Other content
		Parametric Insurance - 2021 outlook and the companies to watch	• Insight – Four challenges facing parametric insurance: why isn't parametric more widespread?

# Blink Parametric



Founded: 2016 Head Office: Dublin, Ireland Locations served: Global

Funding status: Part of CPP Group Size (no. of employees): 11-50

Relevant activities: product structuring

Triggers: travel disruption

Policyholder types: personal

#### InsTech Overview

Blink Parametric provides customisable parametric software solutions, available through APIs, to enable insurers, brand partners and other product providers to embed parametric insurance products for consumers and SMEs into their brand's propositions. Blink was founded in 2016 and acquired by CPP Group in 2017. Blink Parametric is insureragnostic and able to deliver both 'technology only' parametric solutions for insurers or technology solutions that are backed by insurance for brands. Blink Parametric works on a global basis providing real-time parametric assistance and insurance solutions in a range of insurance classes on a multi-region, multi-lingual, multi-currency basis.

#### Parametric insurance solutions offered

Blink Parametric's core specialism is providing global white-label parametric travel insurance solutions for insurers and brand partners. The solutions provide real-time assistance for travelling consumers in the event of flight disruption and/or delayed or lost checked luggage. Blink's parametric engine can deliver tailor-made parametric solutions with a range of insured events, triggers and resolutions quickly and easily.

Blink's flight delay solution tracks flights in real time, notifies customers when flights are delayed or cancelled and provides real-time resolutions such as a cash pay-out or an airport lounge pass with additional options for flight rebooking or hotel booking.

Blink's global parametric insurance solution for delayed or lost checked-in luggage launched in 2021. Customers receive a real-time cash pay-out of £50 GBP if their checked luggage cannot be located at their destination after 30 minutes, and a further £500 GBP if it is not located after 48 hours. Pay-out amounts and trigger durations are flexible.

Blink is also developing other white-label parametric insurance solutions including Blink Climate, Blink Energy and Blink Interruption. Blink Climate will cover individuals and small businesses against losses caused by weather or natural perils, such as 'rainy day' cover for loss of enjoyment of summer holidays, hurricane cover for homeowners or drought insurance for farmers. Blink Energy will use IoT (internet-of-things) connectivity to cover high personal energy usage caused by extreme temperature. Blink Interruption will provide non-damage business interruption coverage for small businesses affected by cyber outages or disasters, using open banking data.

Blink Parametric also provides digital products and resolutions that help protect and scan for consumer's personal data online as a result of a data breach or risk of being traded on the dark or deep web.

Partners	InsTech member since
Blue Cross Canada; Allianz Home and Legacy; TuGo; ManuLife; Zurich; AwayCare; MNK Re; Terrawind; Just Travel Cover; BAOBA; Hannover Re	2020

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Paul Prendergast: CEO and Co-founder, Blink Parametric: Parametric, payments and protection	Insurance: to Embed, or not to Embed     Parametric Insurance - 2021 outlook and the companies to watch	• Insight – Member Spotlight: CPP Group

**BMS** Group



Founded: 1980	Head Office: London, UK	<b>Locations served</b> : Global
,	Preservation Capital Partners and mbia Investment Management	Size (no. of employees): 501-1000
Relevant activities: distrib	ution	
Triggers: hail		
Policyholder types: corpore	ate	

### InsTech Overview

BMS Group is a broker providing specialty insurance, reinsurance and capital markets advisory services globally. It has 27 offices across US, Canada, Latin America, Australia, Europe and Asia.

## Parametric insurance solutions offered

BMS Group is conducting a research project with Understory to improve data availability for insuring solar farms against hail, including developing parametric products. BMS Group has installed Understory's hail sensors at the solar farms of indemnity insurance clients in West Texas. It collects data from the sensors to improve the understanding of how hail storm parameters such as maximum hail size and wind direction correlate with damage to solar farms. BMS Group intends to use this data to develop parametric hail insurance products for solar farms.

Partners	InsTech member since
Understory	2020

CelsiusPro \*CelsiusPro

Founded: 2008	Head Office: Zürich, Switzerland	Locations served: Global
Funding status: Undisclosed	Total funds raised: Undisclosed	Size (no. of employees): 11-50
Active investors: Undisclosed		
Relevant activities: underwriting MGA risk modelling product structuring calculation agent		
Triggers: windstorm earthquake drought excess rainfall heat freeze		
Policyholder types: SME corporate insurer government		
Policyholder industries: hospitality & leisure agriculture construction real estate infrastructure		

#### InsTech Overview

CelsiusPro provides climate risk, technology and parametric insurance solutions. CelsiusPro has worked in parametric weather, agriculture, and natural catastrophe insurance for over a decade. It serves clients with solutions and online platforms for risk modelling, pricing, operations and reporting. CelsiusPro's subsidiary NatCatPro was recently launched as an MGA underwriting parametric hurricane insurance in the Atlantic basin.

#### Parametric insurance solutions offered

CelsiusPro aims to educate and enhance the insurance market to use parametric insurance for climate risk protection. It provides four services in the climate, agriculture and natural catastrophe insurance space: technology solutions, risk consulting, weather derivatives and settlement services.

CelsiusPro's technology solutions are a white label platform for managing parametric insurance policies and an environmental monitoring system for data access and modelling. CelsiusPro offers risk consulting for disaster risk financing and TCFD (Task Force on Climate-related Financial Disclosures) reporting. CelsiusPro offers weather derivatives and also provides settlement services for parametric insurance transactions.

CelsiusPro's MGA subsidiary NatCatPro, launched in 2022, underwrites parametric SME and corporate insurance and reinsurance in the US, the Caribbean and Mexico. It currently offers coverage against hurricanes and plans to launch earthquake and wildfire coverage in the near future. NatCatPro offers parametric insurance exclusively through brokers.

Partners	InsTech member since
-	2021

Related InsTech content			
Events	Podcast	Reports	Other content
		Climate Change Risk Regulation and Measurement: 22 companies to know Parametric Insurance - 2021 outlook and the companies to watch	• Insight – Member Spotlight: CelsiusPro

# Chainlink Labs



Founded: 2017	Head Office: Undisclosed	Locations served: Global
Funding status: Undisclosed	Funding status: Undisclosed Total funds raised: Undisclosed	
Active investors: Undisclosed		
Relevant activities: calculation agent		
Triggers: excess rainfall droug	ht heat freeze travel disruption	

#### InsTech Overview

Chainlink Labs provides open-source blockchain oracle solutions, enhancing smart contracts by connecting them to a wide range of off-chain data sources and computations, such as asset prices, web APIs, IoT devices, payment systems, and more. Chainlink is used for building, accessing, and selling oracle services needed to power hybrid smart contracts on any blockchain.

One challenge with using blockchains is that they are isolated databases, meaning they cannot interact with information that does not already exist "on-chain." Chainlink oracle networks connect blockchains to "off-chain" data, enabling blockchain-based parametric insurance contracts to be triggered by real-world inputs such as weather data.

#### Parametric insurance solutions offered

Chainlink is a decentralized oracle network that provides a wide range of data sources that are used to trigger smart contracts. AccuWeather and Google Cloud are among the enterprises that provide weather data to the Chainlink Network.

Insurers, MGAs and brokers use real-world data from the Chainlink Network to trigger blockchain-based parametric insurance smart contracts. Temperature, rainfall and flight disruption data are currently available via the Chainlink Network for multiple parametric insurance use cases. The Chainlink Network can support many types of data and data providers have near-term plans to cover other perils such as hurricanes and floods.

Organizations using Chainlink to enable blockchain-based parametric insurance include Arbol, Ensuro, Etherisc, OTONOMI, and the Lemonade Foundation.

Partners	InsTech member since
Arbol; Ensuro; Etherisc; OTONOMI; Lemonade Foundation	2022

Related InsTech content			
Events	Podcast	Reports	Other content
		Demystifying Crypto: the insurance opportunities and challenges	Insight – Member Spotlight: Chainlink Labs     Newsletter – Smart parametric insurance contracts - The Parametric Post Issue 8

# CoreLogic



Founded: 2010		Head Office: Irvine, California		Locations served: Global
Funding status: Own	Funding status: Owned by Stone Point Capital and Insight Partners			Size (no. of employees): 1001+
Active investors: Stone Point Capital; Insight Partners				
Relevant activities: risk modelling calculation agent data provider				
Triggers: hail				

#### InsTech Overview

CoreLogic is a provider of consumer, financial and property information, analytics, technology and software services to businesses and governments. The company combines public and proprietary data and technology to develop predictive decision analytics to support underwriting, investment and marketing decisions, prevent fraud and improve business performance. CoreLogic's insurance portfolio includes solutions for underwriting & risk assessment, hazard & location intelligence and claims management. The company has acquired and built a portfolio of companies that use and sell public and proprietary data.

## Parametric insurance solutions offered

CoreLogic provides catastrophe risk models for more than 180 peril regions for natural hazards including earthquakes, windstorms, floods, hail and wildfires on its RQE™ platform. With these models it has provided modelling and calculation services on parametric catastrophe bonds including the \$50 million USD Power Protective Re 2020-1 bond for wildfires in California.

CoreLogic's most active area in parametric insurance is the risk modelling and calculation agent services it provides for hail in the US. It has used historic hail size data to model the maximum hail size on a particular day at a given location. CoreLogic's ReactorTM platform ingests data from several sources including radar, in-place sensors and social media streams and applies proprietary technology to provide near-real-time reporting on hail events. With this platform, CoreLogic is able to deliver initial hail size estimates within four hours, finalised within 48 hours.

CoreLogic data triggers parametric hail insurance policies offered by AXA Climate and Swiss Re Corporate Solutions. The company intends to expand the coverage of its hail risk models and reporting to other countries such as Australia, Germany and Canada.

Partners	InsTech member since
AXA Climate; Swiss Re; Hailios; Hailsure	2021

Related InsTech content			
Events	Podcast	Reports	Other content
<ul> <li>Earthquake Risk: a Global Challenge</li> <li>There Must Be an Easier Way: Extracting the Property Data Underwriters Need</li> </ul>	Podcast – Mick Noland: Executive, General Manager, Insurance Solutions at CoreLogic: The digital hub for property data	<ul> <li>Property Remote Claims         Assessment: the 40 Companies to Watch     </li> <li>Location Intelligence 2021 - the Companies to Watch</li> </ul>	

# **CRC Group**



Founded: 1982	Head Office: Birmingham, Alabama	Locations served: US
Funding status: Owned by Truist F	inancial	Size (no. of employees): 1001+
Relevant activities: distribution		
Triggers: transactions		
Policyholder types: SME corpo	prate	

## InsTech Overview

CRC Group is one of the largest wholesale insurance brokers in the US. Its insurance offerings and practice groups include commercial property, casualty, professional lines, construction, energy, healthcare and hospitality. CRC Group consists of three divisions: Commercial Solutions, Group & Individual Solutions, and Specialty Programs.

## Parametric insurance solutions offered

In one example, CRC Group has partnered with technology start-up Machine Cover to distribute parametric non-damage business interruption solutions to US small and medium-sized businesses. The product uses local transaction volume data as an index. The policy is triggered by a drop in transaction volume in a local area over eight weeks, provided it is significantly worse than transaction trends in the overall country and is not caused by seasonal factors.

The product covers against non-damage business interruption caused by any event, such as extreme weather, terrorism, local disease outbreaks or a major employer shutting operations. CRC plans to start selling the product later in 2022 through its network of retail brokers.

Partners	InsTech member since
Machine Cover	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Garrett Koehn:     President, CRC Brokerage:     Wholesale broking, innovation and investment		

# CyberCube



Founded: 2015 Head Office: San Francisco, California Locations served: Global

Funding status: Series B Total funds raised: \$55 million USD Size (no. of employees): 101-250

Active investors: Forgepoint Capital, Hudson Structured Capital Management, Symantec Ventures, Stone Point Capital among others

Relevant activities: risk modelling calculation agent

Triggers: cyber downtime

### InsTech Overview

CyberCube offers cyber risk analytics and modelling. It supports insurers, reinsurers and brokers with risk selection, pricing and portfolio management using proprietary data and analytics. Its clients include Munich Re, Chubb, Fermat, Gallagher, Guy Carpenter and Aon. The company spun out of cybersecurity software company Symantec (now known as NortonLifeLock).

## Parametric insurance solutions offered

Cybercube does not currently support any parametric insurance products, but its cyber risk modelling and analytic capabilities can be used for parametric insurance and risk transfer.

CyberCube helps insurers understand their aggregate exposure to cyber perils such as cloud outages, ransomware and malware. It can use its risk models to support a parametric catastrophe bond transaction to transfer those cyber risks to capital markets. CyberCube could also validate when a catastrophe bond's trigger is met, as the bond's calculation agent.

The insurance-linked securities (ILS) market is dominated by natural catastrophe coverage and there have been few cyber ILS transactions so far. CyberCube is advising insurers and capital markets about possible structures for parametric cyber catastrophe bonds using its risk modelling and analytics. CyberCube's investors include ILS asset manager Hudson Structured Capital Management.

Clients	InsTech member since
Beazley; Hiscox; Tokio Marine; Chubb; Aon; Woodruff Sawyer; Munich Re; Guy Capenter; Cooper Gay; Ariel Re; Gallagher Re; Fermat Capital Management	2019

Related InsTech content			
Events	Podcast	Reports	Other content
<ul> <li>From Start up to Scale up: the Founders' Stories: Past, Present and Future</li> <li>Crafting the Samurai Sword: Advancing Your Cyber Data Strategy</li> </ul>	Podcast – The founders' stories - start-up to scale-up     Podcast – Pascal Millaire: CEO, CyberCube: Powering profitable cyber insurance growth		

# **Descartes Underwriting**

## DESCARTES

Founded: 2018	Head Office: Paris, France	Locations served: Global	
Funding status: Series B	Total funds raised: \$141 million USD	Size (no. of employees): 51-100	
Active investors: BlackFin Capital Partners, Highland Europe, Cathay Innovation, Serena Capital, Eurazeo, Seaya, Alma Mundi Ventures among othersCapital among others			
Relevant activities: MGA	elevant activities: MGA underwriting product structuring risk modelling		
Triggers: drought excess wildfire tornac	rainfall heat freeze earthquake windo agriculture yield tsunami water leve		
Policyholder types: corpor	ate government insurer captive		
	ality & leisure agriculture transport er	nergy construction forestry	

#### InsTech Overview

Descartes Underwriting is an MGA selling parametric natural catastrophe and weather insurance solutions to corporates and governments through brokers. The company is headquartered in Paris with offices in London, New York, Houston, Denver, Atlanta, Singapore, Sydney and Hong Kong. Descartes develops its own proprietary risk models with an in-house team of data scientists.

## Parametric insurance solutions offered

Descartes offers parametric coverage for all major natural catastrophe and weather perils including hurricane, earthquake, flood, temperature, rainfall, wind and hail. It also provides yield-based coverage for agriculture clients.

Descartes also designs policies using niche triggers. One example is coverage against high concentration of sargassum, a type of algae, on a beach. Pay-outs, triggered by satellite imagery, can be used to fund the removal of sargassum or compensate for business interruption losses when resorts close their beaches.

Descartes partners with Generali Global Corporate & Commercial (GC&C) to improve corporate uptake of parametric risk transfer solutions globally. Descartes' data provider partners include ICEYE and Reask. Descartes has also partnered with the African Risk Capacity (ARC). Descartes has over 200 corporate clients including many Fortune 500 companies. It is able to provide up to \$200 million USD in capacity per policy.

(Re)insurance capacity	Partners	InsTech member since
Undisclosed	Generali Global Corporate & Commercial; ICEYE, Reask, Global Earthquake Model Foundation, African Risk Capacity	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Sébastien Piguet: Co- founder & Head of Underwriting, Descartes Underwriting: Going global – delivering parametric insurance at scale	Parametric Insurance - 2021 outlook and the companies to watch	• Insight – Member Spotlight: Descartes Underwriting

## **Fathom**



Founded: 2013	Head Office: Bristol, UK	Locations served: Global	
Funding status: Undisclosed	Total funds raised: Undisclosed	Size (no. of employees): 11-50	
Active investors: Moody Capital Solutions			
Relevant activities: risk modelling calculation agent			
Triggers: flood			

## InsTech Overview

Fathom provides flood models for portfolio modelling and underwriting. Fathom data covers the whole planet, with bespoke models and data for the US, Japan and the UK. The company was founded by Andrew Smith, Christopher Sampson and other hydrology researchers from the University of Bristol.

## Parametric insurance solutions offered

Fathom's global flood hazard map incorporates terrain and hydrology data and proprietary risk models, at up to 30-metre resolution. Fathom indicates the probability and magnitude of flooding at any location and is used by insurers for underwriting and pricing flood risk. Fathom offers higher-resolution maps for the US, Japan and the UK.

Insurers can also use Fathom's hydraulic models alongside local gauge data to produce a footprint of an event alongside estimations of depths. After a flood, local gauge and rainfall data can be input into Fathom's flood hazard maps to estimate flood depth at specific locations, given the elevation of the location. This can be used to validate flood depth readings from sensors or satellite imagery, or as a stand alone trigger.

Fathom's flood hazard maps are used by Global Parametrics to underwrite parametric flood insurance policies globally.

Partners	InsTech member since
Oasis Loss Modelling Framework; Global Parametrics	2021

Related InsTech content			
Events	Podcast	Reports	Other content
Climate Change Regulation and Measurement  The Steelyard Edition: Real Time Hazard Data - Around Us and Above Us  Future Flood Risk and the PRA Climate Change Stress Tests  Plugging the gaps: How well do you understand your flood exposure?	Podcast – Near real time hazard data – around us and above us     Podcast – Dr Andrew Smith & Dr Oliver Wing: COO & CRO, Fathom: Understanding flood – from research to risk assessment	Climate Change Risk Regulation and Measurement: 22 companies to know     Location Intelligence 2021 - the Companies to Watch	

Gaia gaia

Founded: 2019	Head Office: London, UK	Locations served: UK	
Funding status: Series A	Total funds raised: \$23 million USD	Size (no. of employees): 11-50	
Active investors: Clocktower Technology Ventures, Kindred Capital, Seedcamp, Atomico			
Relevant activities: MGA underwriting product structuring risk modelling			
Triggers: other			
Policyholder types: personal			

#### InsTech Overview

Gaia uses medical data to offer personalised financial plans to remove the financial barriers from accessing fertility care. It is the world's first IVF (in vitro fertilisation) insurance product that predicts fertility outcomes and insures against the risk of failure. The product is an embedded insurance, financing and payment solution integrated into UK fertility clinics. The online quote and bind system allows patients to build and choose insurance coverage at the point of sale. Gaia handles all the billing and payments to various vendors, with the clinic paid upfront for treatment by Gaia, on behalf of its members. The company also offers members access to qualified medical and counselling support.

#### Parametric insurance solutions offered

Gaia's parametric insurance product is triggered by a 'no live birth' outcome of IVF treatment. Patients pay a premium before each round, across up to six rounds of IVF treatment. If after six rounds there is no live birth, patients do not pay any costs for the treatment. If the patient is successful and becomes pregnant and has a baby, they pay for the rounds of IVF treatment they have completed in monthly instalments.

A machine learning IVF predictive model assesses the risk of no live birth for pricing policies. Gaia's predictive model uses historic data from over 1.3 million treatments spanning 30 years. Gaia also offers members personalised insights into their fertility data, including a suggested optimal number of IVF rounds.

Insurance capacity	Partners	InsTech member since
Beazley; Chaucer	Fertility Network UK; The Fertility Show	2022

Related InsTech content			
Events	Podcast	Reports	Other content
		• Insurance: to Embed, or not to Embed	

## Howden



Founded: 1994	Head Office: London, UK	Locations served: Global
Funding status: Privately held		Size (no. of employees): 1001+
Active investors: HG Capital, Ge	neral Atlantic and Caisse de dépôt et plac	rement du Québec
Relevant activities: distribution	product structuring	
Triggers: windstorm earthqua	ake wildfire volcano	
Policyholder types: corporate	government insurer captive	
Policyholder industries: agricul	ture	

#### InsTech Overview

Howden provides insurance and reinsurance broking, risk management and claims consulting services, globally. It places over \$14.5 billion USD of annual premium. Howden has offices in over 40 countries and, through partners, operates in more than 90 territories worldwide.

## Parametric insurance solutions offered

In 2021, Howden launched its Climate Risk and Resilience division, focused on creating solutions that help to accelerate and de-risk the move towards a low-carbon future, and to mitigate the impact of climate change. One way in which the division is doing this is by structuring and placing parametric catastrophe insurance and reinsurance solutions for clients.

Howden, along with other industry partners, was involved in bringing the first volcanic eruption catastrophe bond to the ILS market in 2021. The \$3 million USD bond is for the Danish Red Cross to fund humanitarian aid after an eruption. It uses parametric triggers based on ash column plume heights and wind direction.

Howden worked with industry partners to structure a parametric hurricane insurance product for Jamaican farmers in 2022. The Jamaica Co-operative Credit Union League (JCCUL), which provides loans to around 100,000 smallholder farmers, is the policyholder. In the event of a severe hurricane, the JCCUL receives a pay-out to replace funds lost from farmers defaulting on loans.

In 2021 Howden announced a partnership with Everbridge, a software company, for critical event management and public warning systems. The partnership aims to combine parametric insurance and public safety technology for governments, non-governmental organisations, corporates and charities.

Partners	InsTech member since
Danish Red Cross, JCCUL, Everbridge	2022

Related InsTech content			
Events	Podcast	Reports	Other content
• Technology for Commercial Property: The Future Has Arrived			

ICEYE

Founded: 2012	Head Office: Espoo, Finland	Locations served: Global	
Funding status: Series D	<b>Total funds raised:</b> \$304 million USD*	Size (no. of employees): 251-500	
Active investors: BAE Systems, C16 Ventures, Kajima Ventures, National Security Strategic Investment Fund, Seraphim Space Investment amongst others			
Relevant activities: data prov	rider calculation agent		
Triggers: flood			

<sup>\*</sup>Sourced from ICEYE

#### InsTech Overview

ICEYE delivers what it calls "persistent monitoring capabilities for any location on earth". Owning the world's largest synthetic aperture radar (SAR) satellite constellation, the company enables data-driven decisions for its customers in sectors such as insurance, natural catastrophe response and recovery, security, maritime monitoring and finance. ICEYE's data can be collected day or night and through cloud cover.

#### Parametric insurance solutions offered

ICEYE's Flood Insights product combines SAR imagery with third-party data, algorithms and machine learning, supported by a team of experts from fields of meteorology and advanced geospatial analytics. ICEYE provides flood extent and depth data within 24 hours of a given flood peak. Swiss Re, AXA Climate and Descartes Underwriting use ICEYE's flood depth data to trigger parametric flood insurance policies.

ICEYE is also developing persistent monitoring solutions for wildfires, earthquakes, tsunamis and hail.

Partners	InsTech member since
Aon; AXA Climate; Descartes Underwriting; EigenRisk; Fermat Capital Management; McKenzie Intelligence Services; Neptune Flood; Tokio Marine HCC; Swiss Re	2021

Related InsTech content			
Events	Podcast	Reports	Other content
<ul> <li>A Case Study in Collecting Actionable Data in the Era of Extreme Floods</li> <li>The Steelyard Edition: Real Time Hazard Data - Around Us and Above Us</li> </ul>	Podcast – Near real time hazard data – around us and above us     Podcast – Charles Blanchet:     VP of Solutions, ICEYE: Your satellite will be with you shortly: Rapid flood loss assessment	<ul> <li>Property Remote Claims         Assessment: the 40 Companies to Watch     </li> <li>Location Intelligence 2021 - the Companies to Watch</li> </ul>	Newsletter – A new data source for parametric flood insurance - The Parametric Post Issue 13
• Driving Claims Excellence with Technology for Flooding Events			
• Location Intelligence 2021 – Where, What and How Risky?			





Founded: 2011	Head Office: Skipton, UK	<b>Locations served</b> : Global
Funding status: Part of JBA Group		Size (no. of employees): 101-250
Relevant activities: risk mod	delling calculation agent	
Triggers: flood		

## InsTech Overview

JBA Risk Management provides catastrophe models, flood maps and analytics worldwide to the insurance, financial, property and international development sectors.

## Parametric insurance solutions offered

JBA offers global flood maps and event sets that can be used to assess the long-term hazard or risk exceedance probability for any location.

JBA can also monitor flood conditions globally and determine whether trigger thresholds have been met. The company can provide probabilistic daily flood extent and depth maps at 30m resolution from real-time up to nine days in advance. Global Parametrics uses this to determine if the parametric triggers have been reached for its Myanmar flood product aimed at farmers.

Partners	InsTech member since
FloodFlash, Global Parametrics	2021

Related InsTech content			
Events	Podcast	Reports	Other content
Plugging the gaps: How well do you understand your flood exposure?	Jane Toothill & Matt Reid: JBA Risk Management: US flood - lessons learnt from the UK	Climate Change Risk Regulation and Measurement: 22 companies to know Location Intelligence 2021 - the Companies to Watch Parametric Insurance - 2021 outlook and the companies to watch	

## Marsh



Founded: 1871	Head Office: New York, New York	Locations served: Global
Funding status: Publicly held (NYS	S: MMC)	Size (no. of employees): 1001+
Relevant activities: distribution	product structuring risk modelling	
Triggers: windstorm earthqua  tornado volcano tsu  agriculture yield epide	ınami snow ground movement wo	rainfall heat freeze hail wind ater level solar radiation
Policyholder types: corporate	government SME captive	
Policyholder industries: hospita aviation	lity and leisure agriculture transport n forestry infrastructure automot	

## InsTech Overview

Marsh is a global insurance broker and risk advisor. With over 45,000 colleagues operating in 130 countries, Marsh provides its commercial and individual clients with insights, advice, and support in the local markets in which they operate or where their business may face risks. Marsh helps its clients understand coverage nuances, regulatory developments, and risk trends. And works together with clients on placement, mitigating risk, and optimising their risk spend.

## Parametric insurance solutions offered

Marsh structures and places parametric insurance for clients for natural catastrophe, weather, non-damage business interruption, and other risks.

In 2018, Marsh developed PathogenRX in collaboration with health data provider Metabiota and Munich Re. PathogenRX protects businesses against non-damage business interruption risks caused by disease outbreaks. No policies were underwritten before 2020, but the product has since seen increased demand caused by the COVID-19 pandemic.

In 2021, Marsh brought together colleagues working on parametric transactions globally in its "Parametric Solutions Center of Excellence".

Partners	InsTech member since
Metabiota	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Predictions for Insurance in 2022		

## Mastercard



Founded: 1966	Head Office: Purchase, New York	Locations served: Global
Funding status: Publicly held (NYS: MA)	Market capitalisation: \$348 billion USD	Size (no. of employees): 1001+
Relevant activities: distributi	on product structuring data provider	
Triggers: transactions		

#### InsTech Overview

Mastercard is a global technology company in the payments industry, with over 70 billion transactions per year on its network. Through its network, partnerships and payment technologies, Mastercard provides innovations and solutions for individuals, financial institutions, governments and businesses. It also creates business insights from its access to real-time, anonymised and aggregated transaction data.

## Parametric insurance solutions offered

Mastercard provides insights from transactional data which can be used for structuring and triggering parametric insurance policies. One way to make non-damage business interruption insurance more transparent is to use transactional data insights to calculate the business interruption loss.

Mastercard can also use its payments capabilities to change how parametric pay-outs are made. For example, pay-outs could be issued via virtual credit cards where controls can be configured to determine how, where or when funds may be spent. Alternatively, funds can be pushed to policyholder's cards or accounts near-instantaneously.

Mastercard has a number of parametric insurance partnerships relating to business interruption, financial inclusion and building resilience in cities.

Partners	InsTech member since
Swiss Re; Exante; OTT Risk; Gallagher; Global Parametrics; Skyline Partners; Blink Parametric	2021

Related InsTech content			
Events	Podcast	Reports	Other content
Making Payments Pay:     Making the Most of Payments     Technologies     New Data for a New Future     Future of Payments in Insurance	Podcast – The Future of Payments in Insurance - Mastercard & Davies Group		Insight – Member Spotlight: Mastercard

# McKenzie Intelligence Services



Founded: 2011	Head Office: London, UK	Locations served: Global
Funding status: Undisclosed	<b>Total funds raised:</b> \$1.9 million USD	Size (no. of employees): 11-50
Active investors: Eden Rock Grou	лb	
Relevant activities: calculation of	agent	
Triggers: drought excess rainfo	all heat freeze earthquake tsu	unami wind windstorm flood
hail tornado volca	no terrorism	

#### InsTech Overview

McKenzie Intelligence Services (MIS) helps accelerate disaster relief and economic recovery for insurers. The company provides estimates of losses from insured events to assist insurers with the aggregation of exposure data and post claims loss analysis. The company processes satellite imagery and other data sources such as drones and on the ground "human intelligence" with machine-learning algorithms. This intelligence is provided to clients through its platform, Global Events Observer (GEO). MIS has partnered with Lloyd's of London to provide access to its platform across the market.

GEO blends machine learning and expert analysis to deliver detailed digital representation of global perils. It provides answers to what was damaged, when and by what. This enables decisions in the immediate aftermath of a catastrophe at portfolio, policy and location level. GEO covers both natural hazards such as wind, fire, flood and earthquake as well as wider catastrophes such as the conflict in Ukraine or riots in South Africa. MIS states that insurers can expect to reduce internal claims cost allocation by up to 40%.

### Parametric insurance solutions offered

MIS provides near-real-time data on major natural catastrophes and weather perils globally which can be used to trigger parametric insurance policies. Proprietary data providers are utilised alongside multiple other data sources.

Less than 24 hours after an event, MIS identifies the most likely impacted locations and estimates potential damage. Within 72 hours, detailed damage assessments are produced which can be used for a range of parametric triggers, including individual properties or local impacts, to assessments over entire municipalities or countries.

MIS is also partnered with Yokahu, an MGA offering parametric hurricane insurance in the Caribbean. The calculation agent is MIS, verifying through its GEO platform when the wind speed thresholds in Yokahu's policies are met, and pay-outs should be triggered.

Partners	InsTech member since
ICEYE; Yokahu; Lloyd's of London	2020

Related InsTech content			
Events	Podcast	Reports	Other content
<ul> <li>A Case Study in Collecting         Actionable Data in the Era of         Extreme Floods</li> <li>The Steelyard Edition: Real Time         Hazard Data - Around Us and         Above Us</li> </ul>	Podcast – Near real time hazard data - around us and above us     Podcast – Forbes McKenzie:     CEO of McKenzie Intelligence     Services: Data driven intelligence	<ul> <li>Property Remote Claims         Assessment: the 40 Companies         to Watch</li> <li>Location Intelligence 2021 -         the Companies to Watch</li> </ul>	Insight – To manage is to measure: observations on the recent European floods

# Miller Insurance



Founded: 1902	Head Office: London, UK	Locations served: Global
Funding status: Owned by Cinven and Government of Singapore Investment Corporation (GIC)		Size (no. of employees): 501-1000
Relevant activities: distribution	product structuring risk modell	ing
		ground movement solar radiation change reputation agriculture yield
	ality & leisure agriculture transp	oort energy construction marine

## InsTech Overview

Miller Insurance is a specialty insurance and reinsurance broker. It operates through Lloyd's, the London Market and internationally.

## Parametric insurance solutions offered

Miller Insurance places parametric insurance solutions for clients. It provides weather-based covers for a range of industry sector clients as well as natural catastrophe and business interruption coverage.

Partners	InsTech member since
FloodFlash	2017

Related InsTech content			
Events	Podcast	Reports	Other content
	•Podcast – The Friends' Forecasts 2021 - 20 People's Predictions		• Insight – The Friends' Forecast 2021 – Five more themes, 20 people, Part Two

# **New Paradigm Underwriters**



Founded: 2013	Head Office: Fort Lauderdale, Florida	Locations served: US
Funding status: Undisclosed	Total funds raised: Undisclosed	Size (no. of employees): 1-10
Active investors: TransRe		
Relevant activities: MGA unde	erwriting product structuring	
Triggers: earthquake windstor	m war & terrorism	
Policyholder type: SME corpor	rate government captive insurer	
Policyholder industries: hospito	lity & leisure agriculture transport er	nergy construction
infrastr	real estate	

#### InsTech Overview

New Paradigm Underwriters is an MGA providing parametric commercial insurance and reinsurance coverage against hurricanes, earthquakes and terrorism in the US. Its products are designed to cover exclusions, deductibles and risks not covered by commercial property insurance such as business interruption and extraordinary expenses in the wake of a disaster. New Paradigm sells its products through brokers. Insurance capacity is provided by a panel of insurers, including Allianz, and insurance-linked securities investors.

#### Parametric insurance solutions offered

New Paradigm offers a parametric hurricane insurance product called Hurricane PM, which uses wind speed as an index. It uses data from WeatherFlow's network of hurricane-hardened anemometers on the US east coast to trigger policies. New Paradigm also offers Industry Parametric Protection, a parametric hurricane reinsurance product triggered by wind speeds or storm surge heights. Industry Parametric Protection is designed to be an alternative to industry loss warranties (contracts that cover insurers against catastrophe events that cause significant industry losses) to protect insurers against large hurricane losses as an alternative to industry loss warranties.

Shake and Pay is New Paradigm's earthquake insurance product, using peak ground acceleration at the policyholder's location as the index, as measured by the US Geological Survey.

In 2021, New Paradigm began providing parametric terrorism coverage. It can structure solutions which pay out to businesses when a terror attack occurs within a certain radius of the business, when an attack affects a location in a company's supply chain or when terrorism affects the electrical power grid. New Paradigm is also developing a parametric flood insurance product.

New Paradigm can underwrite policies with limits of up to hundreds of millions of dollars. It provides automated quoting and binding for hurricane and earthquake policies with limits between \$50,000 and \$5 million. RMS is the calculation agent for New Paradigm's policies.

Insurance capacity	Partners		InsTech member since
Allianz	RMS; WeatherFlow		2021
Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Evan Glassman: Co-founder, New Paradigm Underwriters: Parametric insurance - delivering US hurricane & quake cover since 2013	Parametric Insurance - 2021 outlook and the companies to watch	

## **OTT Risk**



Founded: 2020	Head Office: San Francisco, California	<b>Locations served</b> : UK, US, Europe, Asia-Pacific
Funding status: Undisclosed	Total funds raised: Undisclosed	Size (no. of employees): 1-10
Relevant activities: MGA und	erwriting (re)insurance capacity risk r	modelling product structuring
Triggers: footfall transactions	guests and passenger volumes epide	emic other
Policyholder type: corporate	SME	
Policyholder industries: hospito	ality & leisure transport aviation re	tail marine

## InsTech Overview

OTT Risk offers parametric insurance products for business interruption. Instead of offering coverage based on a predefined event, OTT Risk's insurance products pay out based on economic indices or industry metrics that correlate with business interruption losses, such as transaction volume data and footfall.

#### Parametric insurance solutions offered

In 2022, OTT Risk launched its parametric business interruption insurance offering to corporates in the UK, US and select countries in Europe and Asia-Pacific. Alongside a partner broker it is launching an SME business interruption product later this year. OTT Risk has access to \$500 million USD insurance capacity.

OTT Risk offers two approaches to policies. Its 'all-risk' parametric policies are designed to cover against business interruption losses caused by any type of event. OTT Risk's 'named peril' policies depend on the occurrence of an event such as a natural catastrophe or pandemic. Pay-outs are triggered by an economic index, calibrated to the insured, dropping below a certain threshold. The amount paid depends on how far the index drops.

OTT Risk uses different economic indices to underwrite business interruption risks. These are based on datasets from third parties such as Springboard and Mastercard. They reference data on footfall, card transaction volumes, industry sales and other measurements correlated to revenue or operations.

(Re)insurance capacity	Partners	InsTech member since
Undisclosed	Mastercard; Springboard; Skytra	2022

Related InsTech content			
Events	Podcast	Reports	Other content
• Parametric Insurance in 2022: the 150+ Companies to Watch			

# Parsyl



Founded: 2018	Head Office: Denver, Colorado	Locations served: Global
Funding status: Series B	Total funds raised: \$50 million USD	Size (no. of employees): 51-100
Active investors: HSCM Ventures,	Lineage Ventures, Flexport Ventures, GL	P Capital Partners
Relevant activities: data provider capacityunde		
Triggers: heat freeze		
Policyholder types: SME corporate insurer captive		
Policyholder industries: marine transport		

## InsTech Overview

Parsyl is an integrated risk management and insurance solution for essential supply chains in food and health. Using supply chain data from sensors and other data sources, Parsyl helps customers gain a more comprehensive understanding of what is happening to their goods in transit and in storage.

Parsyl underwrites policies globally via its managing general underwriter in the US, its Lloyd's coverholder and its Lloyd's syndicate (Syndicate 1796). Parsyl's Syndicate 1796 supports cargo insurance for the perishables industry and the Global Health Risk Facility (GHRF), which insures the storage and distribution of health products globally. Parsyl designs and manufactures its own hardware solutions for data collection.

## Parametric insurance solutions offered

Parsyl offers a suite of cargo insurance policies. Parsyl's temperature-related parametric product is an elective option to its 'All Risks' policies. If Parsyl's sensors indicate that the cargo temperature has exceeded a predefined threshold (often caused by failure of refrigeration devices or equipment), an alert is sent and a claim is triggered. Insurance customers who integrate Parsyl's risk management solution also qualify for discounts on Parsyl devices and insurance premiums.

Parysl provides limits of up to \$20 million USD with sub-limited parametric limits typically of \$500,000 USD.

(Re)insurance capacity	Partners	InsTech member since
AIG, Ascot, AXA XL, QBE, Aegis, Beazley, Chubb, Tokio Marine, Liberty, Talbot, Lancashire, Munich Re, IQUW	Lloyd's of London	2022

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Ben Hubbard: CEO & Co-founder, Parsyl: Cold chains, Covid & parametric insurance	Parametric Insurance - 2021 outlook and the companies to watch	Newsletter – Embedding parametric insurance - The Parametric Post Issue 5

## **Plover Parametrics**



Founded: 2022	Head Office: New York, New York	Locations served: Global
Funding status: Seed	Total funds raised: \$5.3 million USD	Size (no. of employees): 1-10
Active investors: Y Combinator	I	
Relevant activities: risk modellin	g product structuring calculation age	ent

## InsTech Overview

Plover Parametrics provides software to insurers that aims to lower the cost of designing and managing parametric insurance products and help insurers and brokers access new sources of premium more quickly. It was founded in 2022 and was part of Y Combinator's Winter 2022 start-up programme. The founders previously worked at analytics company Palantir Technologies.

#### Parametric insurance solutions offered

Plover Parametrics integrates data from different open-source and third-party sources, combines it with insurers' data and designs parametric covers. Plover provides these capabilities through a software-as-a-service model, enabling insurance companies to underwrite and structure new parametric insurance products. It works with public and proprietary data from satellites, sensors and other sources. A key area of focus is enhancing insurers' existing indemnity-based insurance policies with parametric triggers to create hybrid parametric/indemnity insurance products.

Insurers can use the software to create pricing models using existing risk models or Plover can create a risk model. Once a policy is underwritten, Plover acts as the calculation agent. It monitors data sources to detect when a claim is triggered and manages the payment to the customer.

Plover's software solutions can integrate with existing policy administration systems or be used separately. Plover's software is peril agnostic, accommodating all types of event-based insurance coverages and is not specific to one type of peril or policyholder type.

Plover is currently working with insurers on projects relating to three areas of focus. One is creating 'deductible buy-downs' (using parametric insurance to compensate policyholders for costs not covered by an indemnity-based policy because of the deductible). Another is insuring carbon commitments using satellite, internet-of-things (IoT) and climate disclosure reporting data. The third is insuring intangible risks relating to reputation and intellectual property.

Partners	InsTech member since
-	2022

Raincoat

Founded: 2019	<b>Head Office</b> : San Juan, Puerto Rico, US	Locations served: Latin America, US
Funding status: Seed	Total funds raised: Undisclosed	Size (no. of employees): 11-50
Active investors: Undiscl	osed	
Relevant activities: distrib	oution product structuring risk modelling	calculation agent
Policyholder types: pers	onal SME government	

#### InsTech Overview

Raincoat develops embedded parametric insurance products for individuals and businesses in partnership with distribution channels. It provides software and helps connect insurers with distribution partners.

## Parametric insurance solutions offered

Raincoat designs parametric products using its own risk models. It provides software for policy administration and acts as the calculation agent. It helps companies embed parametric products into their existing product offerings and works with them to source insurance capacity. Raincoat is currently focused on parametric catastrophic and weather covers but its solutions may apply to any peril.

Among its deployments, Raincoat has worked with the Insurance Development Forum and Agroasemex in Mexico with the aim to insure more than 200,000 farmers against catastrophic weather events. The product is supported by Munich Re, Swiss Re, AXA, and Guy Carpenter.

Raincoat has also embedded personal hurricane covers for homeowners, with capacity from Munich Re and insurer Óptima Seguros in Puerto Rico. This product was the first fully admitted parametric microinsurance product in a US territory.

Partners	InsTech member since
Insurance Development Forum; Munich Re; AXA, Swiss Re; Guy Carpenter	2022

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Jonathan Gonzalez: CEO & Co-founder, Raincoat: The parametric company solving the protection gap at scale		

## Reask



Founded: 2018	Head Office: Sydney, Australia	<b>Locations served</b> : Latin America, US
Funding status: Seed	Total funds raised: Undisclosed	Size (no. of employees): 1-10
Active investors: Hawkto	ail, SV Angel, Tencent Holdings	
Relevant activities: risk modelling calculation agent		
Triggers: windstorm		

#### InsTech Overview

Reask provides models to support the assessment of natural catastrophe risk around the world. The company's tools are intended to be used independently or to augment other third-party catastrophe models, and give guidance for seasonal forecasting of tropical cyclones and real-time event response.

#### Parametric insurance solutions offered

Reask set out to build natural catastrophe models that are explicitly connected to available global climate data, taking into account the future impacts of climate change. The company offers DeepCyc, a global probabilistic model of tropical cyclone risk with a horizontal resolution of 1 kilometre. Reask also offers tools to model the impacts of climate variability on a monthly or seasonal basis so that insurers can determine changes to their risk appetite, portfolio structure and pricing. For further into the future, Reask can provide an outlook for how climate change may affect tropical cyclone risk up to the year 2100.

Reask also offers Metryc, a calculation agent product for parametric insurance. Metryc delivers wind hazard intensity metrics days after a tropical cyclone event with a horizontal resolution of 1 kilometre globally. These metrics can be used to trigger parametric insurance policies. Metryc is used by Descartes Underwriting and Swiss Re Corporate Solutions.

Partners	InsTech member since
Descartes Underwriting; Swiss Re Corporate Solutions	2020

Related InsTech content			
Events	Podcast	Reports	Other content
Climate Change Regulation and Measurement Climate Variability – Understanding Your Changes in Risk for 2021	Podcast – Thomas Loridan & Nick Hassam: CEO & CCO, reask: Short term climate variability - forecasting with confidence	Climate Change Risk Regulation and Measurement: 22 companies to know     Location Intelligence 2021 - the Companies to Watch	

# **RMS**



Founded: 1988	Head Office: Newark, California	Locations served: Global
Funding status: Owned by Moody's Corporation Size (no. of employees): 100		
Relevant activities: risk modelling calculation agent		
Triggers: windstorm earthquak	e wildfire flood drought exce	ss rainfall heat freeze hail wind
epidemic terrorism agriculture yield		

#### InsTech Overview

For more than 30 years, RMS has been one of the companies leading how catastrophe risk has been assessed and managed through providing probabilistic models. RMS solutions enable insurers to make decisions related to extreme weather, climate change and other catastrophes. RMS models, data and software are predominantly used for underwriting, managing portfolio risk, defining capital requirements and determining reinsurance costs. RMS was acquired by Moody's Corporation in 2021.

## Parametric insurance solutions offered

RMS provides risk models for crop yield, weather, cyber, tropical storm, earthquake, flood, wildfire, severe convective storm and terrorism-related perils. These models are available in various regions across Europe, the US, Latin America and Asia-Pacific.

HWind, which provides observation-based tropical cyclone data for both real-time and historical events, was acquired by RMS in 2015. The product provides snapshots of a storm's wind field every six hours. Swiss Re Corporate Solutions uses HWind to trigger its parametric hurricane insurance in the US & Caribbean.

RMS has provided risk modelling and calculation agent services for more than 30% of parametric catastrophe bonds since 2015, according to the Artemis Deal Directory.

Partners	InsTech member since
RMS analytics and data is being used by major insurers, reinsurers and brokers.	2019

Related InsTech content			
Events	Podcast	Reports	Other content
Climate Change Stress Tests: Implications for Insurers & Catastrophe Models		Climate Change Risk Regulation and Measurement: 22 companies to know  Data Extraction and Ingestion: The 40 companies to watch in 2021  Location Intelligence 2021 - the Companies to Watch  Parametric Insurance - 2021 outlook and the companies to watch	

S&P Global S&P Global

Founded: 1859	Head Office: New York, New York	Locations served: Global
Funding status: Publicly held (NYS: SPGI)	Market capitalisation: \$118 billion USD	Size (no. of employees): 1001+
Relevant activities: data provid	er	
Triggers: terrorism		

## InsTech Overview

S&P Global provides data, news and insights to companies, governments and individuals for decision-making. The company acquired IHS Markit in 2022.

#### Parametric insurance solutions offered

S&P Global provides data and analytics to insurers for modelling terrorism and political violence risks. It collates structured data on attacks and violent crime globally with a global team of analysts. It is working with insurers to help them develop indices and triggers which can be used for parametric coverage against perils such as active shooter attacks.

Existing parametric terrorism products use data from local authorities such as police departments to trigger policies. Data from a provider such as S&P Global is independent from government and is recorded consistently in different parts of the world.

Partners	InsTech member since
-	2021

Related InsTech content				
Events	Podcast	Reports	Other content	
InsTech in London: Climate Change Risks and Opportunities Today - What This Means for You	Podcast – George Devereese & Turloch Mooney: IHS Markit: Revealing the risks: inside shipping and containers      Podcast – Climate Change Risks and Opportunities Today	Climate Change Risk Regulation and Measurement: 22 companies to know		

Safehub <u>safehub</u>

Founded: 2015	Head Office: San Francisco, California	<b>Locations served</b> : Global	
Funding status: Series A	Total funds raised: \$14 million USD	Size (no. of employees): 11-50	
Active investors: A/O PropTech, Fusion Fund, Ubiquity Ventures, Hannover Digital Investments, JLL Spark among others			
Relevant activities: data provider			
Triggers: earthquake			

### InsTech Overview

Safehub's proprietary sensors measure the immediate impact of an earthquake on a building, providing organisations with insights into the damage caused in real time. Through alerts and cloud-based dashboard analytics, business continuity, risk and resilience managers can prioritise building assessments and resources and get advice to help decide where normal operations can be resumed without delay. Its investors include Hannover Digital Investments, part of HDI Group.

#### Parametric insurance solutions offered

Safehub's sensors measure ground movement during an earthquake and subsequent shaking of the building itself. This allows the company to provide building-specific damage information in minutes, predicting the likelihood of structural damage and estimating financial loss. Safehub uses its own building-specific vulnerability information, however the technology can also be used in conjunction with third-party catastrophe models such as RMS and Verisk.

Safehub's current customers, including Amazon and FedEx, use data from Safehub to help manage their response after an earthquake affects one or more of their buildings. The company is looking to work with insurers to use its sensor readings as parametric triggers. This would allow pay-outs to be based on the estimated damage to specific buildings rather than on the earthquake's intensity in the general vicinity. This could result in less basis risk for the insured.

Partners	InsTech member since
-	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Andy Thompson: Co-founder & CEO, Safehub: Sensors and sensitivity - Real time property earthquake risk assessment	Location Intelligence 2021 - the Companies to Watch     Parametric Insurance - 2021 outlook and the companies to watch	

# Skyline Partners



Founded:2017	Head Office: London, UK	Locations served: Global	
Funding status: Seed	Total funds raised: \$3.5 million USD	Size (no. of employees): 1-10	
Active investors: West Hill Cap	ital, OneAdvent		
Relevant activities: MGA ur	derwriting product structuring calcula	tion agent risk modelling	
Triggers: windstorm earthquake flood drought excess rainfall heat freeze wind terrorism wildfire other			
Policyholder types: corporate	s captive insurer government SM	IE I	

### InsTech Overview

Skyline Partners specialises in parametric insurance solutions, through three distinct offerings to brokers, (re)insurers and affinity partners. Each offering uses data and analytics to create innovative parametric insurance solutions. Skyline acts as a regulated, specialist MGA offering parametric insurance through brokers. It is a parametric structuring agent and calculation agent for complex risks on behalf of brokers, insurers and affinity partners. Skyline is also a software provider for parametric solutions, with its INSDEX platform, a proprietary geospatial intelligence technology.

#### Parametric insurance solutions offered

Skyline develops and delivers parametric solutions designed to cover the uncovered, to plug protection gaps. It has successfully developed and launched several parametric products for its clients across a wide range of applications, including Natural Disasters for Financial Institutions, Climate Risks for Agriculture, and Cost of Violence for SMEs, with more innovative products in the pipeline.

As an MGA, Skyline offers 'INSDEX Active Response', a parametric active assailant insurance product backed by capacity from AEGIS London. The product, launched in 2021, is designed to protect SMEs in Texas against business interruption caused by attacks, such as shootings, in their area. The index was developed using data from local police departments and pay-out is triggered by an active assailant attack, defined as murder or assault with a weapon, occurring within a defined area near the policyholder's location.

With capacity provider SCOR and in partnership with agriculture services and technology provider ITK, Skyline created 'Heat Stress Protect', a parametric insurance product protecting dairy farms in France against losses relating to heat stress. The product, launched in 2021, is embedded within ITK's herd monitoring system and is now covering 75,000 cows in France for the 2022 summer season. It is expected to be launched in the UK and Latin America later in 2022.

As a parametric structuring and calculation agent, Skyline structured a parametric hurricane insurance product with broker Howden and capacity from Munich Re. The Jamaica Co-operative Credit Union League (JCCUL), which provides loans to around 100,000 smallholder farmers, is the policyholder. After a hurricane event, they receive a pay-out to cover losses relating loan defaults.

(Re)insurance capacity	Partners	InsTech member since
Munich Re, SCOR, AEGIS London	ITK, EarthDaily Agro, eOdyn, Gisaïa, WaveForce IES	2021

Related InsTech content					
Events	Podcast	Reports	Other content		
The Steelyard Edition: Real Time Hazard Data - Around Us and Above Us	Podcast – Gethin Jones, Skyline Partners & Calum Williams, AEGIS London: The parametric platform delivering new insurance solutions     Podcast – Near real time hazard data - around us and above us	Location Intelligence 2021 - the Companies to Watch     Parametric Insurance - 2021 outlook and the companies to watch	Insight – Best of both: bundling parametric with indemnity insurance		

# Súper



Founded:2019	Head Office: Mexico City, Mexico	Locations served: Mexico			
Funding status: Seed	Total funds raised: \$9.5 million USD	Size (no. of employees): 11-50			
Active investors: ALLVP, Better Ventures, Anthemis Group, Better Tomorrow Ventures, Broadhaven Capital Partners among others					
Relevant activities: MGA un	derwriting product structuring distribu	ition			
Triggers: earthquake					
Policyholder type: personal					

## InsTech Overview

Súper is the first digital MGA in Mexico, backed by Seguros Atlas and Munich Re for catastrophe parametric insurance, and General de Seguros for life and health products. It sells and services digital insurance products directly to consumers online under its own brand, and is looking to build partnerships with fintechs and other companies in Latin America to embed its insurance products in digital consumer experiences.

## Parametric insurance solutions offered

In 2020 Súper launched parametric earthquake insurance for homeowners and renters in Mexico City, offering coverage limits of up to 500,000 pesos (\$25,000 USD). In 2021 the product became available across Mexico. Payouts are determined by the ground movement at the location and are a function of building type, as calculated by modelling company ERN. Seguros Atlas provides insurance capacity and Munich Re provides reinsurance capacity.

Súper is currently working with ERN, Seguros Atlas and Munich Re to develop a parametric hurricane insurance product, which it plans to launch in 2022. Súper is also developing a comprehensive homeowners' and renters' insurance policies to be launched in 2022, which will include parametric earthquake coverage as well as traditional indemnity covers such as fire, responsibility and theft.

In 2020 and 2021 Súper also offered a life insurance product, backed by General de Seguros, that included a parametric trigger paying policyholders 70,000 pesos (\$3,500 USD) if they were hospitalised with COVID-19 or pneumonia.

(Re)insurance capacity	Partners	InsTech member since
Munich Re; Seguros Atlas; General de Seguros	ERN	2021

Related InsTech content				
Events	Podcast	Reports	Other content	
		Parametric Insurance - 2021 outlook and the companies to watch	<ul> <li>Insight – Best of both: bundling parametric with indemnity insurance</li> <li>Insight – Member Spotlight: Súper</li> </ul>	

Vave



Founded:2019	Head Office: London, UK	Locations served: US
Funding status: Part of Canopius Group	)	Size (no. of employees): 11-50
Relevant activities: MGA		
Triggers: freeze		
Policyholder type: SME		

#### InsTech Overview

Vave is an MGA offering algorithmically underwritten commercial property, homeowners property and flood insurance in the United States with instant quote-and-bind decisions. It is majority-owned by Canopius. Vave only underwrites business where it is the lead and distributes through brokers. Vave's insurance capacity was initially provided exclusively by Canopius, but the company is taking on additional capacity sources as it grows.

### Parametric insurance solutions offered

Vave will be including parametric extreme temperature cover, in partnership with Demex, on its commercial property insurance policies. During extreme temperature events, it pays out up to \$1,000 USD of immediate cash to policyholders. A claim is triggered when the temperature passes a predefined threshold, for example, below 20°F (-7°C) in winter. The February 2021 cold snap in Texas would have triggered policy pay-outs to insured businesses in Houston.

Vave is examining whether parametric triggers could be integrated with its homeowners' property insurance product in a similar way to its commercial property product, and will consider how to apply parametric coverage to perils other than temperature in future.

(Re)insurance capacity	Partners	InsTech member since
Canopius	Demex	2021

Related InsTech content			
Events	Podcast	Reports	Other content
Algorithmic Underwriting in Specialty Insurance: An Implementation Guide		Insight – Algorithmic Underwriting in Specialty Insurance: An implementation guide in six case studies	• Insight – Best of both: bundling parametric with indemnity insurance

## Verisk



Locations served: Global Founded: 2012 (AIR Worldwide **Head Office**: Jersey City, New Jersey founded in 1987) Funding status: Publicly held Market capitalisation: \$33 billion USD Size (no. of employees): 1001+ (NAS: VRSK) Relevant activities: risk modelling calculation agent **Triggers**: excess rainfall drought heat freeze wind windstorm earthquake agriculture yield flood wildfire terrorism epidemic cyber

#### InsTech Overview

Verisk works with insurance, energy and financial services companies around the world. The company has been acquiring analytics and data businesses to support the full value chain within insurance, including purchasing catastrophe modelling company AIR Worldwide (now Verisk Extreme Event Solutions) in 2002. Verisk Specialty Business Solutions offers SaaS products to the insurance market, including Sequel Underwriting, Sequel Broking, Sequel Claims and Sequel MGA. Verisk also offers a suite of claims management applications for insurers to use to speed up the claims process.

#### Parametric insurance solutions offered

Verisk Extreme Event Solutions provides risk models for weather, crop yield, earthquakes, windstorms, flood, wildfire, terrorism, pandemics and cyber perils. It also offers software solutions for extreme event modelling and analytics, including modelling software Touchstone and Touchstone Re, analytics software Analyze Re and Model Builder, which allows companies to develop custom risk models.

Verisk Property Claim Services (PCS) provides near-real-time data on extreme weather and natural catastrophes, which can be used as a calculation agent for parametric insurance policies.

Verisk has provided risk modelling and calculation agent services for more than 30% of parametric catastrophe bonds since 2015 according to the Artemis Deal Directory.

Partners	InsTech member since
Verisk analytics and data is being used by all major insurers, reinsurers and brokers either directly or indirectly.	2021

Related InsTech content			
Events	Podcast	Reports	Other content
Insurance Ecosystems:     From Buzzword to Reality	Podcast – Mark Anquillare: COO, Verisk Analytics: Making the World Better, Safer, and Stronger	Property Remote Claims     Assessment: the 40 Companies     to Watch     Data Extraction and Ingestion:     The 40 companies to watch in     2021     Location Intelligence 2021 -     the Companies to Watch     Parametric Insurance - 2021     outlook and the companies     to watch	Insight – In conversation with Verisk: Address-level risk assessment     Insight – To manage is to measure: observations on the recent European floods





Founded: 2018	Head Office: Tel Aviv, Israel	Locations served: Global		
Funding status: Series B	Total funds raised: \$25 million USD	Size (no. of employees): 51-100		
Active investors: Mouro Capital, Hanaco Venture Capital, Sure-Tech Investments, Plug and Play Tech Cer MS&AD Ventures among others				
Relevant activities: marketplace	e risk modelling product structuring			
Triggers: epidemic other				
Policyholder type: insurer captive				

## InsTech Overview

Vesttoo is a marketplace for non-catastrophe insurance-linked risk transfer and investments. It provides insurance-linked investments to investors and enables insurers to transfer risks such as mortality risk, longevity risk, motor liabilities and cyber risk. It can facilitate portfolio-specific and parametric risk transfer transactions.

#### Parametric insurance solutions offered

Vesttoo facilitates parametric reinsurance and retrocession transactions using its proprietary risk models and indices.

Vesttoo's parametric mortality hedges use an index based on US aggregate deaths data from the Centers for Disease Control. Contracts are triggered by the change in relative mortality, which is one way to quantify the effects of a pandemic. Parametric mortality hedges can protect cedents against pandemic-induced losses across multiple lines of insurance such as event cancellation, business interruption, life and health. Vesttoo also offers parametric longevity hedges based on a longevity index and parametric motor liability hedges based on motor claims indices.

The company continues to develop indices to facilitate parametric transactions in new areas. The coverage limits for Vesttoo's parametric transactions are in the tens of millions of USD.

Partners	InsTech member since
-	2021

# **Insurers**

## **AEGIS London**



Founded: 1999	Head Office: London, UK	Locations served: Global	
Funding status: Owned by A	EGIS	Size (no. of employees): 101-250	
Relevant activities: underwi	riting (re)insurance capacity		
Triggers: terrorism			
Policyholder type: SME			
Policyholder industries: hos	pitality and leisure real estate		

#### InsTech Overview

AEGIS London is a Lloyd's of London syndicate and part of AEGIS, a mutual insurance company based in the US. AEGIS London underwrites property, marine, casualty and specialty insurance.

## Parametric insurance solutions offered

AEGIS London has partnered with Skyline Partners to provide a parametric active assailant insurance product, INSDEX Active Response. The product, launched in 2021, is designed to protect small and medium-sized businesses against business interruption caused by attacks such as shootings in their area.

Pay-out is triggered by an active assailant attack, defined as murder or assault with a weapon, occurring within a defined area around the policyholder's location. AEGIS London currently offers INSDEX Active Response in selected cities in Texas, where data on attacks is provided by local police departments. AEGIS London plans to offer this product in other US states in the future. It is providing limits of up to \$50,000 and pays claims within 14 days of an insured event.

This is the first parametric product AEGIS London has offered and it plans to provide more parametric coverage in the future.

Partners	InsTech member since
Skyline Partners	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Gethin Jones, Skyline Partners & Calum Williams, AEGIS London: The parametric platform delivering new insurance solutions		

Beazley



#### InsTech Overview

Beazley is an insurance business specialising in marine, property, data breach and life insurance. It operates globally and manages six Lloyd's syndicates.

## Parametric insurance solutions offered

Beazley offers Weather Guard, an event cancellation insurance policy that triggers pay-outs to event organisers based on weather triggers such as snow, temperature, rainfall, wind and lightning. Beazley is partnered with Weather Decision Technologies, now part of data provider DTN, which provides near-real-time data on global weather conditions.

Through its Lloyd's syndicates, Beazley provides capacity to parametric insurance MGAs including Redicova, which offers parametric cyclone insurance in northern Australia, and Gaia, which covers failure of IVF (in vitro fertilisation) treatment.

Partners	InsTech member since
Redicova; Gaia; Weather Decision Technologies	2021

Related InsTech content			
Events	Podcast	Reports	Other content
InsTech in London: Climate Change Risks and Opportunities Today - What This Means for You	Podcast – Climate Change Risks and Opportunities Today     Podcast – Near real time hazard data - around us and above us		• Insight – Member Spotlight: Beazley Digital

## Chaucer



Founded: 1922	Head Office: London, UK	Locations served: Global
Funding status: Part of 0	China Re Group	Size (no. of employees): 251-500
Relevant activities: (re)insurance capacity underwriting		
Triggers: cyber downtime terrorism windstorm epidemic		
Policyholder type: personal SME		

#### InsTech Overview

Chaucer is a specialty (re)insurance group working with brokers, coverholders and clients to protect and support business activities around the world. Its services are accessed both through Lloyd's of London and company markets. It manages two Lloyd's of London syndicates, composite Syndicate 1084 and Syndicate 1176 for nuclear risks. In 2018 Chaucer became part of the China Re Group, one of the largest reinsurance groups in the world.

#### Parametric insurance solutions offered

Chaucer currently provides insurance capacity for parametric insurance products offered by MGAs QOMPLX Underwriting and Yokahu. It also provides capacity for other natural catastrophe and weather parametric insurance programmes.

With QOMPLX Underwriting, Chaucer provides a parametric cyber and terrorism coverage product, WonderCover, for small and medium-sized businesses in the UK. There are three triggers: the company filing a data breach notification to the Information Commissioner's Office (the UK's data protection authority) as a result of a cyber attack; outages of third-party electronic services for more than 48 hours; and terrorism events occurring within the company's postal code zone. Chaucer is offering limits for WonderCover between £5,000 and £100,000 GBP.

In partnership with Yokahu, Chaucer insures individuals in Jamaica, the Bahamas, St. Lucia and the US Virgin Islands against hurricanes using a parametric wind speed trigger. Pay-outs are based on US National Oceanic and Atmospheric Administration (NOAA) data. The available limits are between \$600 and \$10,000 USD.

Chaucer provides leading capacity to the Totten Group's 'Pandemic Revenue Protector' product which was developed to protect Canadian businesses in the hospitality sector with exposure to forced closure by a government authority. Each policy has an excess period of 14 days, which applies per pandemic (not per-lockdown). In the event of both a Public Health Emergency of International Concern, as declared by the WHO, (excluding SARS-CoV-2 and associated mutations of SARS-Cov-2 disease) and a federal or local provincial authority lockdown, the customer receives a preagreed amount until the limit of cover is reached (either \$25,000 or \$50,000 or \$100,000 CAD).

Partners	InsTech member since
Yokahu; QOMPLX; Totten Group	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	<ul> <li>Podcast – Climate Change Risks and Opportunities Today</li> </ul>		• Insight – The Friends' Forecast 2021 – Five more themes, 20 people, Part Two

## Ensuro



Founded: 2021	Head Office: Singapore	Locations served: Global		
Funding status: Seed	Total funds raised: Undisclosed	Size (no. of employees): 1-10		
Activities: underwriting	(re)insurance capacity risk modelling	marketplace		
Triggers: travel disruption agriculture yield other				
Policyholder type: persor	nal SME			

#### InsTech Overview

Ensuro is a Bermuda domiciled reinsurer. It aims to make capacity more accessible and cheaper to MGAs launching parametric and similar, insurance products. To do this, Ensuro underwrites risk with an alternative capital source: digital assets from investors locked in smart contracts.

## Parametric insurance solutions offered

Ensuro provides capacity to MGAs and risk model providers who want to create parametric insurance products. It currently focuses on high-volume insurance products, such as those for individuals and small businesses, but intends to provide capacity for parametric insurance products across all customer types and possible triggers in the future.

Ensuro integrates with partners through APIs and uses smart contracts to enable automatic pay-outs when a trigger event occurs. The risk capital is in the form of USDC, a prominent cryptocurrency stablecoin, provided by Ensuro's investors.

Ensuro currently provides capacity for Koala Flex, a protection policy that allows customers to cancel their flight for any reason and be refunded 80% of the cost of their ticket.

Ensuro has also announced that it will provide \$11.5 million USD (re)insurance capacity to OTONOMI, launching a parametric air freight disruption insurance product later in 2022.

Partners	InsTech member since
OTONOMI, Koala, Reem Re, Chainlink, Verso Finance	2021

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Marco Mirabella: Founder & CEO, Ensuro: Crypto capital for insurance start-ups	Demystifying Crypto: the insurance opportunities and challenges	<ul> <li>Insight – Cryptocurrency - the next capital pool for parametric insurance?</li> </ul>

Hannover Re



Founded: 1966	Head Office: Hanover, Germany	Locations served: Global
Funding status: Publicly held (ETR: HNR1)	Market capitalisation: \$18 billion USD	Size (no. of employees): 1-10
Relevant activities: underwritin	g (re)insurance capacity	
Triggers:windstormearthquatravel disruptionother		at freeze cyber downtime
Policyholder type: personal government		

## InsTech Overview

Hannover Re is the third largest global reinsurer. It transacts most lines of property & casualty and life & health reinsurance. Hannover Re was one of the first companies to issue catastrophe bonds.

## Parametric insurance solutions offered

Hannover Re underwrites parametric risks globally and has partnered with a number of insurtech companies.

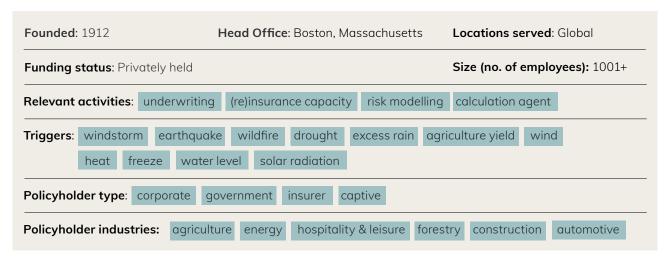
Hannover Re has provided risk capital for several of Global Parametrics' parametric insurance programmes for disaster recovery. In 2019 it committed \$50 million USD of insurance capacity to Global Parametrics' natural disaster fund.

Partners	InsTech member since
-	2020

Related InsTech content			
Events	Podcast	Reports	Other content
Parametric Solutions: A Global Perspective		Parametric Insurance - 2021 outlook and the companies to watch	• Insight – Member Spotlight: Hannover Re

# Liberty Mutual





## InsTech Overview

Liberty Mutual delivers insurance products for home, auto and property-casualty, as well as global mid-to-large-size commercial and specialty insurance, surety and reinsurance operations.

#### Parametric insurance solutions offered

Liberty Mutual underwrites parametric corporate insurance and reinsurance products through its 'Agriculture & Parametrics' team based in Paris. It offers its own parametric weather and natural catastrophe solutions to corporate clients. It also provides reinsurance capacity to insurers, MGAs and sovereign risk pools such as CCRIF, PCRIC and ARC.

Liberty Mutual has created parametric products for hail, windstorm, earthquake and wildfire coverage. It has developed its own proprietary technology to calculate modelled wind speed at a location, which it can use as an index for parametric windstorm policies to reduce basis risk.

Partners	InsTech member since
-	2020

Related InsTech content			
Events	Podcast	Reports	Other content
	Podcast – Predictions for Insurance in 2022     Podcast – Brendan Smyth & Premal Gohil: Liberty Mutual Insurance: Embracing innovation - lessons from a global insurer		Insight – 2022 predictions for insurance - crowdsourced from the frontline     Insight – Accelerating innovation at Liberty Mutual Insurance

# MIC Global



Founded: 2020	Head Office: New York, New Yor	k <b>Locations served</b> : Global
Funding status: Ow	ned by STP Group Holdings	Size (no. of employees): 101-250
Relevant activities:	product structuring (re)insurance capacity	underwriting risk modelling
Triggers: drought	excess rainfall	
Policyholder types:	personal	

## InsTech Overview

MIC Global (formerly Micro Insurance Company) provides insurance to online platforms, micro and small businesses and unserved communities across the world. It underwrites insurance in 17 countries through its Anguilla-based insurer and Lloyd's syndicate 5183. In 2020, MIC Global acquired MicroEnsure, a technology provider and MGA founded in 2002 that provided insurance for low-income communities in Africa and Asia. MIC Global wrote \$12 million USD in gross written premium in 2021.

## Parametric insurance solutions offered

MIC Global has provided parametric microinsurance solutions for natural catastrophes such as typhoons and weather risks such as drought in Africa and Asia. The products are sold to smallholder farmers as embedded insurance bundled with loans or crop supplies or other products.

Partners	InsTech member since
One Acre Fund	2021

Related InsTech content				
Events	Podcast	Reports	Other content	
• InsTech in London: From MGA to Full Stack Insurer - Everything You Need to Know			Insight – Member Spotlight:     Micro Insurance Company	

# Nephila Capital



Founded: 1998	Head Office: Hamilton, Bermuda	Locations served: Global
Funding status: Owned by Mo	arkel Corporation	Size (no. of employees): 51-100
Relevant activities: (re)insurc	ance capacity underwriting product s	tructuring
Triggers: earthquake winds	torm flood drought excess rainfall	heat freeze wind snow
Policyholder type: insurer	government	

## InsTech Overview

Nephila Capital is one of the largest investment managers specialising in reinsurance risk. It offers investment products focusing on instruments such as insurance-linked securities (ILS), catastrophe bonds, insurance swaps, and weather derivatives. Nephila Capital was acquired by insurer Markel Corporation in 2018. As of 2022, Markel has shifted all its property catastrophe reinsurance underwriting to Nephila Capital. According to Artemis, Nephila Capital has \$8.6 billion USD assets under management as of March 2022. Nephila has been the managing agent of Lloyd's Syndicate 2357 since 2013 and established Syndicate 2358 in 2022.

#### Parametric insurance solutions offered

Nephila offers alternative capacity for weather and catastrophe reinsurance, both parametric and indemnity-based. Its line sizes (coverage limits) range from \$100,000 to over \$1 billion USD.

Nephila Climate is the weather and climate risk-focused business unit of Nephila Capital. It focuses on structuring and providing capacity for climate resilience-linked transactions, energy and agriculture, some of which are parametric.

Nephila is partnered with Demex to offer capacity for Demex's parametric weather insurance products. It also provides parametric drought reinsurance to the African Risk Capacity, a parametric risk pool, through Lloyd's Syndicate 2357.

Partners	InsTech member since
African Risk Capacity; Demex	2022

Related InsTech content				
Events	Podcast	Reports	Other content	
		Parametric Insurance - 2021 outlook and the companies to watch		

## RenaissanceRe



Founded: 1993	Head Office: Hamilton, Bermuda	Locations served: Global	
Funding status: Publicly held (NYS: RNR)	Market capitalisation: \$6.7 billion USD	Size (no. of employees): 501-1000	
Relevant activities: (re)insuranc	e capacity underwriting product stru	ucturing risk modelling	
Triggers: windstorm drought	flood heat cyber downtime		
Policyholder type: personal S	ME corporate insurer government		

#### InsTech Overview

RenaissanceRe is a provider of reinsurance, insurance and other related business services. It specialises in property, casualty, credit and specialty insurance and reinsurance. RenaissanceRe manages Lloyd's Syndicate 1458.

## Parametric insurance solutions offered

RenaissanceRe provides technical risk analytics advice to the Start Ready humanitarian financing facility. Start Ready is a parametric risk pool which directs funding to aid agencies when a crisis is predicted. It uses data modelling to anticipate predictable events such as droughts, floods and heatwaves. Pay-outs will be directed to aid agencies based on pre-agreed parametric triggers.

RenaissanceRe also provides capacity through its Lloyd's syndicate to parametric insurance MGAs including Redicova, which offers parametric cyclone insurance in northern Australia, and Parametrix, which covers business interruption caused by cloud downtime.

RenaissanceRe also participates in the insurance-linked securities market through RenaissanceRe Capital Partners. According to Artemis, RenaissanceRe Capital Partners has \$6.8 billion USD assets under management as of April 2022.

Partners	InsTech member since
Start Network; Redicova; Parametrix	2022

Related InsTech content					
Events	Podcast	Reports	Other content		
Podcast – Part Two of the Insurers Reverse Pitch - Allianz and Renaissance Re		Parametric Insurance - 2021 outlook and the companies to watch			

## Swiss Re



Founded:	1863			Head Office: Zurich, Switzerland		Locat	Locations served: Global		l	
Funding s		blicly X: SRI		Market capitalisation: \$28 billion USD Size (no. of employees): 1,001+			1,001+			
Relevant	activities:	(re)i	nsurance	capacity	underwritii	ng product stru	ucturing	risk mod	dis dis	tribution
Triggers:	windsto	rm	earthqua	ke flood	drought	excess rainfall	flood ex	tent w	rater level	heat
	freeze	hail	wind	volcano	tsunami	solar radiation	snow	travel	disruption	
agriculture yield soil moisture epidemic other										
Policyholo	ler type:	corp	orate in:	surer cap	otive gove	rnment				
Policyholo	der indust	ries:	hospitali	ty & leisure	agricultu	re transport	energy	constru	uction mo	arine
			aviation	forestry	infrastru	cture automoti	ve real	estate	public se	ctor

## InsTech Overview

Swiss Re is one of the world's leading providers of reinsurance, insurance and other forms of insurance-based risk transfer. It covers property & casualty, life & health and commercial insurance. It also provides B2B2C embedded insurance propositions with IPTQ.

#### Parametric insurance solutions offered

Swiss Re offers parametric products from both Swiss Re Reinsurance and Swiss Re Corporate Solutions sides. Swiss Re Reinsurance Solutions offer pricing, risk monitoring, policy administration, automated claims pay out and real-time reporting capabilities for earthquake and tropical cyclone. Swiss Re's Public Sector Solutions are launching parametric products globally with governments and organisations, for instance, with the federal and regional governments of Mexico.

Swiss Re's commercial insurance division Swiss Re Corporate Solutions offers parametric insurance to corporate clients. It covers natural perils such as earthquake, windstorm and hail. It provides weather insurance mainly for clients in the energy sector.

Swiss Re Corporate Solutions also structures bespoke parametric covers for other perils such as volcanic eruptions, flood and haze. It further offers parametric solutions using indices as benchmarks for the financial loss of the insured, for example revenue per available rooms for hotels or even outflow data expressed by the volumes of production.

Swiss Re Corporate Solutions regularly develops solutions for customers with limits ranging from \$1 million to \$40 million USD on average. Swiss Re can provide limits up to and in excess of \$100 million USD by using its reinsurance and capital markets capabilities.

In the wake of global flooding disasters Swiss Re recently expanded its parametric product suit. With its ICEYE partnership Swiss Re can now provide satellite-based parametric flood insurance. Radar technology, augmented with complementary data sources, offers customised and timely pay-outs to corporates and the public sector, thereby strengthening their recovery efforts.

Partners	InsTech member since
Reask, VanderSat/Planet, CoreLogic, RMS, ICEYE, Chubb, App in the Air, Flightglobal, kWh Analytics, more	2020

Related InsTech content				
Events	Podcast	Reports	Other content	
	Podcast – Predictions for Insurance in 2022     Podcast – Gianni Biason: Head Property & Specialty Solutions, Swiss Re: Insurance product innovation at scale	Parametric Insurance - 2021 outlook and the companies to watch	Insight – Behavioural economics and underwriting – how science can back expert judgement     Insight – Insights into innovation at Swiss Re	

Wakam



Founded: 1828	Head Office: Paris, France	Locations served: Europe
Funding status: Privately	held	Size (no. of employees): 501-1000
Relevant activities: und	erwriting (re)insurance capacity risk mode	elling
Triggers: travel disruption	on drought excess rainfall other	
Policyholder type: perso	onal SME	

#### InsTech Overview

Wakam is an insurance company that creates white-label, tailor-made and embedded insurance solutions for its distributor partners - brokers, insurtechs, e-commerce players and retailers - and clients via its "Plug & Play" technology platform. Wakam operates in 32 European countries. It had a turnover of €455 million EUR in 2021 with over 400 distributor partnerships.

### Parametric insurance solutions offered

Wakam works with start-up and scale-up partners to develop parametric insurance products for individuals and small businesses, providing insurance capacity for the distributors.

One of Wakam's parametric offerings is the partnership it developed with GoodsID, by creating a parametric embedded insurance product protecting engagement rings against aggravated theft. Two years of insurance protection is included when people purchase an engagement ring from the luxury brand Courbet. GoodsID provides blockchain-based traceability and certification for the ring. If a client logs a theft within two years and the report is validated, Courbet automatically makes an identical replacement for the customer.

Another example of Wakam's portfolio of parametric products is its partnership with Anansi that insures e-commerce businesses against delivery delays in the UK. If an item's delivery is delayed by more than 24 hours, the business receives an automatic pay-out equivalent to the costs of shipping up to £20 GBP. A delay of more than five days triggers a pay-out of the item's value up to £5,000 GBP.

Wakam also provides parametric insurance for travel disruption through its partners Koala, offering flight delay and cancellation insurance in France, and Pattern Insurance (formerly Setoo), offering ferry delay insurance in Greece.

Wakam is working with Wetterheld to offer two parametric weather insurance products in Germany. It provides drought coverage for farmers and excess rainfall coverage for outdoor events. The products are triggered by a rainfall index.

Partners	InsTech member since
Anansi; Wetterheld; GoodsID; Koala; Pattern Insurance	2020

Related InsTech content			
Events	Podcast	Reports	Other content
Insurance: to Embed, or not to Embed	Podcast – Predictions for Insurance in 2022	Insurance: to Embed, or not to Embed	Insight – Wakam's embedded parametric solutions for travel insurance     Insight – Insurer as a digital partner: Serge Corel, Wakam

# Parametric insurance - non-members

The companies listed below are other companies that we are aware of working in parametric insurance. We are in contact with some of these companies.

## Data, technology and distribution

- Agri Risk Transfer
- Aqvesto
- Anansi
- Assured Risk Cover
- Atekka
- AXA Climate
- Baoba
- Benchmark Labs
- BirdsEyeView Technologies
- Blue Marble
- Bounce
- Cerchia
- ChAl Predict
- Climatica
- Cloud to Street
- Cover Genius
- Demex
- EarthDaily Agro
- eLEAF
- ERN
- Etherisc
- Exante
- Epsilon Underwriting
- Farmers Edge
- FloodFlash
- Gisaïa
- Global Ag Risk Solutions
- Global Parametrics
- GreenTriangle
- Hailios
- Hillridge Technology
- Hohonu
- IBISA Network
- Innovatrix Capital
- InQlusiv
- Insurion
- InsurWiz Technology
- Intangic
- InvestSure
- Jumpstart
- K2 Parametric
- Kettle
- Koala
- kWh Analytics
- Lite

- Luxelare
- Machine Cover
- Mainstay Underwriting
- Metabiota
- MeteoControl
- Meteo Protect
- MiCRO
- MistEO
- Mitiga Solutions
- Moonshot Insurance
- Oko
- Otonomi
- OYO Corporation
- Pattern Insurance
- Parachute
- Parameter Climate
- Parametriks
- Parametrix Insurance
- Paratus Group
- PERILS
- Planet
- Praedictus Climate Solutions
- Pulc
- QOMPLX Underwriting
- Recoop Disaster Insurance
- Redicova
- REVO-SPAC
- Riskwolf
- Ryskex
- S4 Agtech
- SatSure
- Sola
- Speedwell Weather
- Springboard
- Stable
- Steel City Re
- Totten Group
- Tremor
- Understory
- We2Sure
- Weather Risk Management Services
- Wetterheld
- Yokahu

## **Insurers**

- African Risk Capacity
- Africa Specialty Risks
- Allianz
- Berkshire Hathaway Specialty Insurance
- CCRIF SPC
- China Re
- First Insurance Company of Hawaii
- Generali
- Lemonade
- Lloyd's of London
- Mitsui Sumitomo
- Munich Re
- PCRIC
- SCOR
- Sompo International
- SEADRIF
- Tokio Marine Group
- United Surety and Indemnity Company
- Zurich

# Data, technology and distribution

# Agri Risk Transfer



Founded: 2021	Head Office: Zurich, Switzerland
Locations served: Europe	Size (no. of employees): 1-10
Relevant activities: product structuring risk mode	elling

Agri Risk Transfer, founded by former Swiss Re underwriter Hans Feyen, designs parametric and indemnity-based agriculture insurance policies. It works with insurers, governments, NGOs and insurtechs. Agri Risk Transfer is able to integrate locally available data and agricultural practice into product design and pricing.

# Agvesto



Founded: 2013	ead Office: London, UK	
Locations served: Europe, US, India Si	ze (no. of employees): 1-10	
Relevant activities: distribution product structuring	risk modelling calculation agent	
Triggers: windstorm drought excess rainfall flood	wildfire heat freeze hail	
Policyholder types: SME		
Policyholder industries: agriculture		

Agvesto distributes parametric weather and catastrophe insurance for farming businesses. It sells policies from multiple insurers. Agvesto also acts as the calculation agent, using data from satellites, weather stations and sensors to trigger pay-outs.

## Anansi



Founded: 2018	Head Office: London, UK	
Locations served: UK	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting produc	t structuring calculation agent	
Triggers: other		
Policyholder types: SME corporate		

Anansi underwrites parametric delivery delay insurance for e-commerce businesses in the UK. If an item's delivery is delayed by more than 24 hours, the business receives an automatic pay-out equivalent to the costs of shipping up to £20 GBP. A delay of more than five days triggers a pay-out of the value of the item up to £5,000 GBP. The product is available for small businesses as well as larger retailers. Anansi plans to offer more coverage options protecting deliveries in the future, as well as expand outside the UK. Wakam is providing insurance capacity for the product.

# Assured Risk Cover



Founded: 2014	Head Office: Pleasanton, California
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting produc	t structuring risk modelling
Triggers: windstorm	
Policyholder type: personal	

Assured Risk Cover provides StormPeace, a parametric hurricane insurance product for individuals in Florida. The product is sold through agents. It is designed to cover deductibles on homeowners' insurance policies but can offer limits of up to \$100,000 USD to those with no homeowners' insurance. Assured Risk Cover paid claims to StormPeace policyholders after Hurricanes Irma in 2017, Michael in 2018, Dorian in 2019 and Sally in 2020. Topa Insurance Company provides insurance capacity for the product.

# Atekka



Founded: 2021	Head Office: Paris, France
Locations served: France	Size (no. of employees): 1-10
Relevant activities: MGA underwriting product	structuring risk modelling
Triggers: drought excess rainfall hail heat fr	eeze wind
Policyholder type: SME	

Atekka is a start-up providing agricultural insurance products in France. It provides indemnity-based insurance and parametric insurance triggered by weather conditions such as rainfall, wind, temperature and hail.

# **AXA Climate**



Founded: 2017	Head Office: Paris, France
Locations served: Global	Size (no. of employees): 51-100
Relevant activities: MGA underwriting product	structuring risk modelling
Triggers: windstorm earthquake wildfire drough	nt freeze hail tornado snow water level
Policyholder type: corporate	

AXA Climate (formerly AXA Global Parametrics) is an MGA and part of the AXA Group. Its insurance capacity comes from AXA XL. AXA Climate provides parametric insurance and weather derivatives for natural perils as well as climate adaptation consulting services. AXA Climate underwrites the parametric hurricane insurance policy for the Mesoamerican Reef in the Caribbean Sea, structured by WTW and the InsuResilience Solutions Fund. AXA Climate has worked with calculation agents and data providers such as CoreLogic, ICEYE, Hailios, SatSure and VanderSat.

Baoba

Founded: 2022	Head Office: Miami Beach, Florida
Locations served: US, Canada, Europe	Size (no. of employees): 1-10
Relevant activities: marketplace	
Triggers: travel disruption	
Policyholder type: personal	

Baoba operates a marketplace connecting insurers with travel agencies and other travel sector organisations, enabling insurance to be embedded into travel products. Insurance companies can use Baoba's marketplace to sell their policies on the booking systems of travel companies. Baoba has partnered with Blink Parametric to offer Blink's flight delay solution through its platform. It also plans to feature other Blink products such as flight cancellation, hotel disruption, lost luggage and weather guarantees.

# Benchmark Labs



Founded: 2019	Head Office: San Diego, California
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: data provider	
Triggers: drought excess rainfall heat freeze	wind solar radiation

Benchmark Labs provides historical asset-specific weather data and real-time observations that can be used to determine parametric pay-outs. The company has partnered with AkinovA to provide location-specific weather data for parametric risk transfer contracts on AkinovA's platform.

# BirdsEyeView Technologies



Founded: 2019	Head Office: London, UK
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: MGA underwriting produ	ct structuring risk modelling
Triggers: excess rainfall drought heat freeze	e windstorm earthquake flood wildfire
Policyholder type: SME	

BirdsEyeView Technologies is an MGA founded in 2019, offering parametric weather and catastrophe insurance products to small and medium-sized businesses. It provides excess rainfall and drought insurance through RAPTOR, its automated quote-and-bind engine, with products for other perils designed on request. BirdsEyeView's excess rainfall and drought products can cover event cancellation and agriculture risks. BirdsEyeView participated in cohort seven of the Lloyd's Lab innovation programme.

Blue Marble Blue Marble

Founded: 2015	Head Office: Miami Beach, Florida	
Locations served: Asia, Africa, South America	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting product structuring risk modelling		
Triggers: windstorm drought excess rainfall flood agriculture yield		
Policyholder type: personal SME		

Blue Marble is an MGA providing parametric microinsurance products in Asia, Africa and South America. It was founded as a consortium of nine insurers and brokers including Zurich, Guy Carpenter and TranRe. Initial products have included extreme weather coverage for 7,000 smallholder coffee farmers in Colombia and weather and yield index-based coverages for 8,000 smallholder farmers in Zimbabwe and Mozambique.

## Bounce



Founded: 2020	Head Office: Wellington, New Zealand	
Locations served: New Zealand Size (no. of employees): 1-10		
Relevant activities: MGA underwriting risk mod	elling product structuring distribution	
Triggers: earthquake		
Policyholder type: personal SME corporate		

Bounce Insurance provides parametric earthquake insurance to individuals and businesses in New Zealand. It launched products for homeowners and small businesses in 2021, offering up to \$50,000 NZD (\$35,000 USD) of coverage and selling direct to consumers. In 2022 it began to cover larger businesses with limits of up to \$2 million NZD (\$1.4 million USD), sold through brokers. Policies are triggered by ground movement at the policyholder's location, using data from GeoNet, New Zealand's earthquake data authority. Munich Re Innovation Syndicate 1840 at Lloyd's provides Bounce's insurance capacity.

# Cerchia



Founded: 2020	Head Office: Zug, Switzerland	
Locations served: Europe	Size (no. of employees): 1-10	
Relevant activities: marketplace		
Triggers: windstorm earthquake wildfire excess	rainfall hail volcano snow water level epidemic	
Policyholder type: corporate		

Cerchia operates a marketplace between capital market investors and buyers of insurance, supporting parametric risk transfer transactions without any intermediaries. It specialises in coverage against natural perils and weather events. Cerchia uses distributed ledger technology to make transactions decentralised and trigger pay-outs automatically based on third-party data.

## **ChAl Predict**



Founded: 2017	Head Office: London, UK	
Locations served: New Zealand	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting product structuring	risk modelling	
Triggers: commodity price change		
Policyholder type: SME corporate		

ChAl Predict creates commodity price forecasts to help companies understand and manage commodity price risks. It plans to launch parametric insurance products that allow companies to hedge against volatility in commodity prices, starting with metals and agricultural commodities.

Climatica

Founded: 2021	Head Office: Warsaw, Poland	
Locations served: Europe	Size (no. of employees): 1-10	
Relevant activities: product structuring risk modelling	calculation agent	
Triggers: excess rainfall heat freeze snow		
Policyholder type: personal		

Climatica provides software for insurers to offer white-label parametric weather insurance products. Its first product protects individuals against bad weather on holidays such as excess rainfall, high or low temperatures or lack of snow. It plans to create solutions for the agriculture and energy sector in the future.

# Cloud to Street



Founded: 2015	Head Office: New York, New York
Locations served: Global	Size (no. of employees): 11-50
Relevant activities: calculation agent	
Triggers: flood	

Cloud to Street uses satellite imagery and artificial intelligence to track floods around the world in near real time. The company's data can be used to price premiums and validate and trigger claims payments. The company has worked with WTW since 2020 to provide parametric flood insurance in Morocco.

## **Cover Genius**



Founded: 2014	Head Office: New York, New York	
Locations served: US, Europe, Asia-Pacific	acific Size (no. of employees): 251-500	
Relevant activities: MGA underwriting p	roduct structuring risk modelling	
Triggers: earthquake travel disruption		
Policyholder type: personal SME		

Cover Genius is an MGA providing embedded insurance products in over 60 countries. It provides two parametric products: Shake Shield and Smart Delay. Shake Shield is a parametric earthquake insurance product for small businesses with limits of up to \$10,000 USD. Insurance capacity for the product is provided by Swiss Re. Smart Delay provides automatic compensation to air travellers for flight delays. Cover Genius distributes its Smart Delay solution through flight booking sites such as Skyscanner and Ryanair.

## Demex



Founded: 2020	Head Office: Washington D.C.	
Locations served: Global	ved: Global Size (no. of employees): 11-50	
Relevant activities: product structuring risk modell	ing calculation agent MGA underwriting	
Triggers: freeze snow		
Policyholder type: SME corporate government		

Demex structures parametric insurance and derivative solutions for organisations to transfer non-catastrophic extreme weather risk. Its first solution for property managers transfers the risk of snow removal expenses by providing automatic pay-outs based on a snowfall trigger. Demex has also partnered with MGA Vave to provide extreme temperature cover on Vave's commercial property insurance policies. During extreme cold events, policyholders are paid up to \$1,000 USD. Nephila Capital provides capacity for Demex.

# EarthDaily Agro



Founded: 1987	Head Office: Maple Grove, Minnesota	
Locations served: Europe	Size (no. of employees): 101-250	
Relevant activities: data provider calculation agent		
Triggers: agriculture yield excess rainfall drought	heat freeze	

EarthDaily Agro (formerly Geosys) is an agriculture technology company. It provides data on crops and weather from satellite imagery which can be used for risk modelling and to create indices for parametric agriculture insurance. EarthDaily Agro's partners include Skyline Partners.

## **eLEAF**



Founded: 2000	Head Office: Wageningen, Netherlands	
Locations served: Africa, Europ	Size (no. of employees): 11-50	
Relevant activities: data prov	rider calculation agent product structuring	
Triggers: drought		

eLEAF is an agricultural data company. It uses sensor and satellite data to provide insights into crop production levels and associated water use. eLEAF has been creating and monitoring indices for parametric drought insurance for the agriculture sector since 2009. It uses relative evapotranspiration indices, which are algorithmically-calculated measures of change in the release of water from soil and plants (part of the water cycle). Companies using eLEAF's indices for parametric insurance include Allianz, Munich Re, AXA Climate and OKO.

## **ERN**



Founded: 1996	Head Office: Mexico City, Mexico
Locations served: Latin America, Caribbean, Europe, North Africa Size (no. of employees): 1-10	
Relevant activities: risk modelling calculation agent	
Triggers: windstorm earthquake excess rainfall ground movement	ent

ERN is a catastrophe modelling company. It provides risk models to insurers for natural perils including hurricanes, earthquakes, storm surge, floods and tsunamis. It also provides calculation agent services for parametric insurance covering earthquakes, tropical cyclones and excess rainfall. ERN is the calculation agent for Súper's parametric earthquake product and CCRIF SPC's parametric products. It is currently working with Global Parametrics to design a parametric index for landslide coverage in Colombia. ERN provides modelling and calculation services in the Caribbean, Latin America, Europe and North Africa.

**Etherisc** 



Founded: 2016	Head Office: Munich, Germany	
Locations served: Global	Size (no. of employees): 11-50	
Relevant activities: underwriting (re)insurance	e capacity product structuring risk modelling	
Triggers: travel disruption drought flood		
Policyholder types: personal		

Etherisc provides a decentralised alternative to insurance. It uses blockchain technology to underwrite parametric policies using cryptocurrency capital locked in smart contracts. Its policies are risk protection products that are not regulated as insurance. Etherisc is currently providing two parametric products. One, in partnership with ACRE Africa, covers more than 17,000 smallholder farmers in Kenya against drought. Etherisc's second product, FlightDelay, provides automatic pay-outs to policyholders whose flights are delayed or cancelled. Both products are triggered by data supplied by oracle provider Chainlink.

Exante exante.

Founded: 2019	Head Office: Dublin, Ireland
Locations served: US, Europe Size (no. of employees): 1-10	
Relevant activities: risk modelling	product structuring calculation agent
Policyholder types: personal SME	

Exante designs parametric products for insurers and distribution partners. It creates risk models, provides policy administration software and acts as the calculation agent. It previously provided a parametric hurricane insurance product for individuals in the US that would pay out in advance of hurricanes. When the National Hurricane Center forecast a hurricane, policyholders would receive pay-outs to use for emergency expenses such as evacuation. Exante is currently working with Mastercard on non-damage business interruption insurance products for SMEs triggered by data on transaction volumes, as well as other unannounced products.





Founded: 2001	Head Office: Sydney, Australia
Locations served: Australia	Size (no. of employees): 11-50
Relevant activities: MGA underwriting product	t structuring
Triggers: windstorm earthquake excess rainfall wildfire solar radiation	drought heat freeze hail
Policyholder types: corporate	

Epsilon Underwriting is a specialist MGA providing property, liability and cyber insurance in Australia. In 2021 it started offering parametric insurance products for extreme weather and natural catastrophes.

# Farmers Edge



Founded: 2005		Head Offic	ce: Winnipeg, Can	ada
Locations served: Can	nada, US, Brazil	Size (no. o	f employees): 503	1-1000
Relevant activities:	MGA underwrit	ing product structuring	risk modelling	calculation agent
Triggers: heat				
Policyholder types: S	SME			

Farmers Edge is an agriculture technology company using satellite and weather station data to provide analytics to farmers. Since 2021, it has offered a parametric heat stress insurance product for canola farmers. The product is offered through Farmers Edge's MGA subsidiary, DigiAg Risk Management. Farmers Edge is the calculation agent. Munich Re is providing insurance capacity. Farmers Edge is looking to offer more parametric weather agriculture insurance products in the future.

# FloodFlash



Founded: 2017	Head Office: London, UK	
Locations served: UK, US	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting pr	oduct structuring risk modelling data provider	
Triggers: flood		
Policyholder types: SME corporate		

FloodFlash is an MGA providing parametric commercial flood insurance. FloodFlash has created proprietary flood depth sensors, which it installs outside insured businesses. The business receives a pay-out when the sensor measures a flood depth that exceeds a predefined trigger. FloodFlash began by offering policies to small and medium-sized businesses in the UK with coverage limits up to £5 million GBP. It is now providing larger limits for bigger businesses in the UK. It has begun to offer corporate parametric flood insurance in the US and intends to roll out its product to SMEs in the US later in 2022. FloodFlash sells through brokers. Its insurance capacity comes from Munich Re Innovation Syndicate 1840 at Lloyd's.

# Gisaïa



Founded: 2014	Head Office: Blagnac, France
Locations served: Global	Size (no. of employees): 11-50
Relevant activities: data provider	
Triggers: solar radiation	

Gisaïa provides geospatial data. Its solar radiation data is available through Skyline Partners' INSDEX software platform for parametric insurance. Its data allows companies to understand, monitor and insure against solar radiation. The data can be used for underwriting and to validate claims.

# Global Ag Risk Solutions

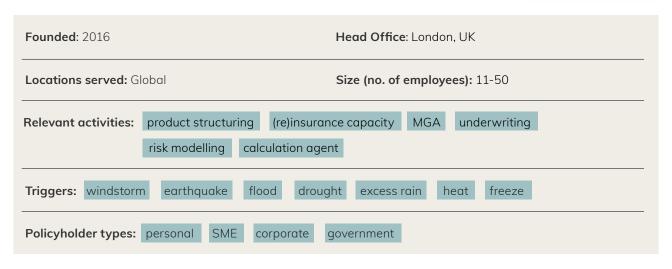


Founded: 2011	Head Office: Moose Jaw, Canada
Locations served: Canada	Size (no. of employees): 11-50
Relevant activities: MGA underwriting produ	uct structuring risk modelling
Triggers: heat	
Policyholder types: SME	

Global Ag Risk Solutions is an MGA underwriting agriculture insurance. One of its products is a parametric heat stress insurance product for canola farmers in Canada. Through a partnership with agriculture company Corteva Agriscience, Global Ag Risk Solutions' parametric heat stress insurance is included when purchasing canola seeds bought from Brevant seeds, a Corteva Agriscience affiliate. Insurance capacity is provided by Northbridge General Insurance.

# Global Parametrics





Global Parametrics builds parametric risk transfer solutions for communities, businesses and governments globally. It is a public-private partnership, supported by Hannover Re, KfW and the UK government. Global Parametrics focuses on natural disasters and weather perils, structuring indices, designing products and advising companies on risk transfer. Global Parametrics operates an MGA and provides access to capital from its Natural Disaster Fund. 7.2 million beneficiaries across 52 countries were covered by Global Parametrics' risk transfer programmes in 2021, 6.4 million of which are classified as poor and vulnerable. Many programmes Global Parametrics is involved in do not insure individuals directly, but insure organisations such as community groups or aid agencies that pass on the benefits of any pay-out to individuals (the 'beneficiaries'). Successful projects include B-Ready, which made payments to 1,698 vulnerable households in the Philippines in advance of Typhoon Rai in 2021.

# GreenTriangle



Founded: 2018	Head Office: Zug, Switzerland
Locations served: Europe, Africa, South America	a, US Size (no. of employees): 1-10
Relevant activities: product structuring risk	modelling calculation agent
Triggers: drought agriculture yield	

GreenTriangle provides software for agriculture insurance pricing, monitoring and policy management, including both parametric and indemnity insurance. It designs parametric products using indices based on predicted crop yields or soil moisture. GreenTriangle has created an app used by farmers to collect field-level data, which is used to trigger parametric pay-outs or to assess indemnity insurance claims. Its software is currently being used in France, Ukraine, South Africa, Uruguay, the US and Poland.

Hailios



Founded: 2017	Head Office: Colorado Springs, Colorado	Size (no. of employees): 1-10
Relevant activities:	data provider; calculation agent	
Triggers: hail		

Hailios has created sensors which detect and analyse hail. Its sensors are installed at policyholders' locations to allow parametric insurance pay-outs to be triggered by localised hail data. Hailios is partnered with CoreLogic and its sensors are used by AXA Climate and Munich Re among other companies underwriting parametric hail insurance.

# Hillridge Technology



Founded: 2018	Head Office: Sydney, Australia
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: product structuring risk mode	elling calculation agent
Triggers: windstorm drought excess rainfall	
Policyholder types: personal SME	

Hillridge Technology develops parametric weather and catastrophe insurance products, currently focused on the agriculture sector. It has worked with insurer Mitsui Sumitomo and broker Victor Insurance to launch weather risk insurance products for agricultural businesses in Australia. Hillridge has also received a grant from blockchain technology company NEAR Foundation to develop a parametric typhoon insurance solution for individuals and small businesses in Vietnam.

Hohonu



Founded: 2020	Head Office: Honolulu, Hawaii
Locations served: US	Size (no. of employees): 1-10
Relevant activities: data provider calculation a	gent
Triggers: water level	

Hohonu provides near-real-time water level monitoring. It monitors tides and water levels for coastlines, rivers and streams, including areas not covered by publicly available sources such as the US National Oceanic and Atmospheric Administration and the US Geological Survey. It has developed solar-powered water level sensors which can be installed at policyholder locations. Hohonu can act as a calculation agent for third-party parametric water level insurance or derivatives.

# **IBISA Network**



Founded: 2019 Hec	ad Office: Luxembourg	
Locations served: Africa, Asia, South America Size	e (no. of employees): 1-10	
Relevant activities: product structuring risk modelling	calculation agent	
Triggers: windstorm drought excess rainfall		
Policyholder types: personal		

IBISA Network provides software solutions for insurers to build, distribute and operate parametric microinsurance solutions for smallholder farmers. It works on insurance products triggered by drought, excess rainfall, cyclones and typhoons. IBISA combines weather data from European Space Agency satellites and observations from local human weather watchers in remote areas to trigger pay-outs. IBISA's solutions are currently being used in the Philippines, India, Senegal and Guatemala. Its partners include Global Parametrics.



# Innovatrix Capital

Founded: 2021	Head Office: London, UK
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	risk modelling product structuring
Triggers: other	
Policyholder types: corporate	

Innovatrix Capital is an early-stage start-up designing a parametric insurance product for the life sciences sector. It plans to insure against risks associated with clinical trial failure.

# InQlusiv

Founded: Unknown	Head Office: Norwalk, Connecticut
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	product structuring
Policyholder types: SME	

InQlusiv is an MGA that plans to sell parametric business interruption policies to small and medium businesses owned by women, LGBTQ people and people of ethnic minorities. Its initial offering will also cover property and liability exposure. The product is not known to have launched yet. InQlusiv is licensed in all 50 US states and will sell its products through a digital platform. It received investment from MS Amlin in 2021.

Insurion

Founded: 2017	Head Office: Tel Aviv, Israel
Locations served: Russia	Size (no. of employees): 1-10
Relevant activities: product structuring calculation	n agent
Triggers: travel disruption excess rainfall drought other	
Policyholder types: personal SME	

Insurion provides policy administration software for consumer embedded parametric insurance products. It provides solutions for flight disruption, parcel delays and weather cover for holidays and crops. Its clients include Russian insurers Alfa and Tinkoff.

# InsurWiz Technology



Founded: 2018	Head Office: Székesfehérvár, Hungary
Locations served: Hungary	Size (no. of employees): 1-10
Relevant activities: product structuring	risk modelling calculation agent
Triggers: travel disruption snow	
Policyholder types: personal	

InsurWiz Technology provides software for insurers to offer consumer parametric insurance products. It has designed white-label parametric insurance solutions offering protection against lack of snow for skiing holidays and flight disruption coverage. InsurWiz is planning to offer white-label weather and catastrophe insurance solutions in the future. It uses blockchain technology to automate pay-outs. InsurWiz's insurer partners include Allianz and Aegon Hungary.

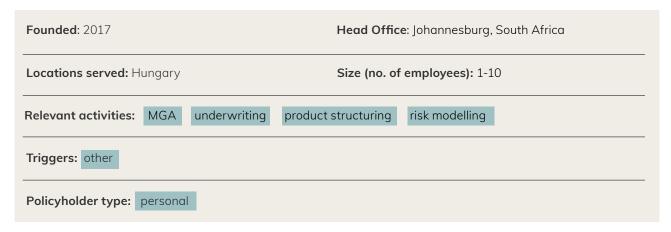
# Intangic



Founded: 2017	Head Office: Washington D.C.
Locations served: US, Europe	Size (no. of employees): 1-10
Relevant activities: MGA underwriting risk mo	delling product structuring
Triggers: other	
Policyholder type: corporate	

Intangic (formerly Cyberhedge) provides parametric insurance products to cover risks associated with intangible assets. It has created parametric solutions for directors' and officers' liability from cyber and digital assets risk, transaction liabilities from mergers and acquisitions and digital transformation risks such as cloud migration.

InvestSure YnvestSure



InvestSure has created a parametric insurance product protecting investors against losses caused by allegations of management fraud. If shares in a company drop by more than 10% after allegations of management fraud, insured investors can sell their share within 30 days to receive an automatic claim paid into their investment account. The claim reimburses investors for any losses beyond the 10% drop in value. After launching to investors in the Johannesburg Stock Exchange in 2018, InvestSure has expanded to offer protection to South Africans buying shares on the US stock market.

# Founded: 2015 Head Office: Oakland, California Locations served: US Size (no. of employees): 1-10 Relevant activities: MGA underwriting risk modelling product structuring distribution Triggers: earthquake Policyholder type: personal SME

Jumpstart provides parametric earthquake insurance to individuals and small businesses in California, Oregon and Washington. It started selling products direct to consumers as an MGA in 2018, providing limits of up to \$20,000 USD. Policies are triggered by peak ground velocity at the policyholder's location, using US Geological Survey data. In 2021 Jumpstart was acquired by MGA Neptune Flood, which will continue to use the Jumpstart brand for parametric products. Jumpstart is currently designing products for perils other than earthquakes such as flood, including as part of Neptune Flood's partnership with ICEYE.

## **K2** Parametric



Founded: 2021	Head Office: Woodland Hills, California
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	risk modelling product structuring
Triggers: earthquak windstorm	
Policyholder type: corporate	

K2 Insurance Services, founded in 2011, acquires and builds MGAs and insurance intermediaries. In 2021, former Swiss Re SVP Scott Carpinteri founded K2 Parametric, a start-up MGA, as part of the K2 Group. K2 Parametric underwrites parametric earthquake and hurricane insurance in the US with capacity from multiple insurers, focusing on corporate and public entity clients. Its policies use intensity at location triggers.

# Kettle



Founded: 2020	Head Office: Hamilton, Bermuda	
Locations served: US	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting	risk modelling product structuring	
Triggers: wildfire		
Policyholder type: insurer		

Kettle is a reinsurance MGA underwriting climate risks. Its first offering is a parametric wildfire reinsurance product, Grid Rated Industry Loss (GRIL). The product uses machine learning models on satellite imagery to determine what locations were impacted by a wildfire and what likely damage was caused. Pay-outs are based on the modelled loss to an insurer's portfolio from the wildfire event. Kettle participated in the eighth cohort of the Lloyd's Lab innovation programme.

# Kita



Founded: 2021	Head Office: London, UK	Size (no. of employees): 1-10
Relevant activities:	MGA underwriting risk modelling	product structuring

Kita is designing parametric insurance products for voluntary carbon markets. In voluntary carbon markets, organisations emitting carbon dioxide (CO2) can offset their emissions by purchasing 'carbon credits', which fund the removal of CO2 from the atmosphere. Kita aims to insure buyers and sellers of carbon credits against the failure of CO2 removal projects to deliver the promised CO2 reduction. Initially, this is likely to involve insuring young forests against risks such as frost, lack of rain or wildfire. Kita participated in the eighth cohort of the Lloyd's Lab innovation programme. It is currently in the process of obtaining the regulatory approval needed to sell insurance policies.

# Koala



Founded: 2018	Head Office: Paris, France	
Locations served: Europe	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting	product structuring risk modelling	
Triggers: travel disruption		
Policyholder type: personal		

Koala is an MGA providing insurance and protection products for flight delays and cancellations. Its three products are Koala Flex, Koala Flight Disruption and Koala Missed Connection. Koala Flex is a protection policy that allows customers to cancel their flight for any reason and be refunded 80% of the cost of their ticket. Koala Flight Disruption and Missed Connection provide compensation for delayed flights and missed connections. Koala sells its products through travel search engines such as Kayak and Vola.ro. Insurance capacity is provided by Wakam and Ensuro.

# kWh Analytics



Founded: 2012	Head Office: San Francisco, California	
Locations served: US	ocations served: US Size (no. of employees): 11-50	
Relevant activities: MGA underwriting risk mo	delling product structuring	
Triggers: other		

kWh Analytics provides insurance against the financial underperformance of solar farm projects. The product, Solar Revenue Put, is structured as a parametric insurance policy for solar production and revenues, targeted at investors in solar farms. If the solar farm performs under 95% of expected energy output, the policyholder receives a pay-out to make up the difference. The product has been created by utilising kWh Analytics' performance database of solar assets in the US. Insurance capacity is provided by Swiss Re.

Lite



Founded: 2016	Head Office: Paris, France
Locations served: France	Size (no. of employees): 1-10
Relevant activities: product structuring calculation	n agent
Triggers: freeze	
Policyholder types: personal	

Lite is a consumer energy data start-up. It has worked with start-up insurer Seyna to create a parametric insurance product for consumer energy bills. Using weather data and electricity consumption records from internet-connected smart meters, customers are compensated if bad weather, such as unusually low temperatures, results in high electricity bills. The product is designed to reward households that commit to lower energy usage. Seyna is providing insurance capacity.

# Luxelare



Founded: 2021	Head Office: Los Mochis, Mexico
Locations served: Mexico	Size (no. of employees): 1-10
Relevant activities: product structuring calculation	on agent distribution
Triggers: drought excess rainfall flood hail	wind
Policyholder types: SME	

Luxelare provides agriculture technology solutions to farmers and offers software and distribution to insurers to provide indemnity-based and parametric weather insurance products for the agriculture sector. Luxelare structures parametric products and acts as the calculation agent. It is currently distributing insurance policies in the Mexican state of Sinaloa only.

#### **Machine Cover**



Founded: 2018	Head Office: Boston, Massachusetts
Locations served: US, Europe	Size (no. of employees): 1-10
Relevant activities: product structuring risk mod	elling calculation agent
Triggers: transactions	
Policyholder types: SME corporate	

Machine Cover works with insurers and brokers to develop and implement parametric insurance products. Machine Cover assists with designing the product and provides software for policy administration and triggering claims. It has partnered with CRC Group to distribute a parametric non-damage business interruption product to SMEs in the US. The product uses local transaction volume data as an index. Pay-outs are triggered by a drop in transaction volume in a local area over eight weeks, provided it is significantly worse than transaction trends in the overall country and is not caused by seasonal factors. Machine Cover and CRC Group plan to launch the product later in 2022.

# Mainstay Underwriting



Founded: 2007	Head Office: Gold Coast, Australia
Locations served: Australia	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	
Triggers: hail	
Policyholder types: corporate	

Mainstay Underwriting is an MGA underwriting motor and caravan dealerships, motor trade and unoccupied property insurance in Australia. In 2022 Mainstay Underwriting launched a parametric hail insurance product for motor dealerships, providing coverage limits between \$400,000 and \$9 million AUD. Mainstay Underwriting offers the product in partnership with AXA Climate and Hailios. It requires that policyholders install Hailios sensors at their locations. Data from the sensors triggers pay-outs.

#### Metabiota



Founded: 2008	Head Office: San Francisco, California
Locations served: Global	Size (no. of employees): 51-100
Relevant activities: data provider risk modelling	
Triggers: epidemic	

Metabiota provides data on epidemic risk. In 2018, it worked with Marsh and Munich Re to develop PathogenRX, a parametric product protecting businesses against non-damage business interruption risks caused by disease outbreaks. No policies were underwritten before 2020, but the product has since seen increased demand caused by the COVID-19 pandemic. Three triggers must be met for a pay-out: a Disease Outbreak Notice (DON) from the World Health Organization (WHO), the WHO issuing a Public Health Emergency of International Concern for the disease and specific restrictions being issued by a civil authority in the insured business' area.

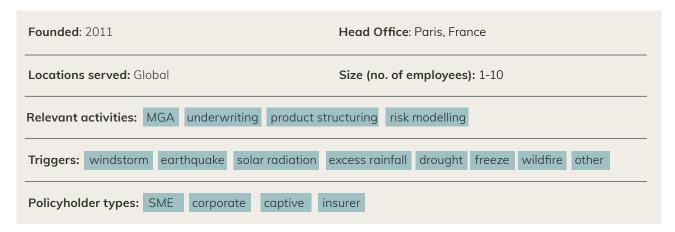
### MeteoControl

meteocontrel

Founded: 2020	Head Office: Kyiv, Ukraine	
Locations served: Ukraine	Size (no. of employees): 1-10	
Relevant activities: MGA underwriting pro	duct structuring risk modelling	
Triggers: drought excess rainfall heat free	eze	
Policyholder types: SME		

MeteoControl provides parametric weather insurance to farmers in Ukraine. It offers coverage against heat, frost, excess soil moisture and lack of soil moisture. MeteoControl is partnered with agriculture technology company Corteva Agriscience and broker GrECo. Insurer ARX and reinsurer Munich Re provide capacity.

Meteo Protect



Meteo Protect is an MGA founded in 2011 underwriting parametric weather and natural catastrophe insurance solutions. In 2020, it was acquired by Cooper Gay (formerly Cooper Gay France), part of the Ed Broking Group which is owned by Ardonagh. Meteo Protect offers parametric products to corporates and some smaller businesses, sold through brokers. Meteo Protect also underwrites parametric reinsurance products by designing parametric indices that act as a proxy for an insurer's overall portfolio risk.

## Microinsurance Catastrophe Risk Organisation



Founded: 2011	Head Office: Holetown, Barbados		
Locations served: Latin America	Size (no. of employees): 1-10		
Relevant activities: product structuring risk mo	delling calculation agent (re)insurance capacity		
Triggers: earthquake drought excess rainfall			
Policyholder types: personal			

The Microinsurance Catastrophe Risk Organisation (MiCRO) is a public-private partnership founded in 2011 following the 2010 Haiti earthquake. It helps local insurers and distribution partners, such as microfinance organisations, to create parametric microinsurance solutions. MiCRO implements the solutions with its software and calculation agent capabilities. It currently focuses on earthquake, drought and excess rainfall risks and has live projects in Guatemala, El Salvador, Colombia and Mexico.

### **MistEO**



Founded: 2019	Head Office: Thiruvananthapuram, India
Locations served: India	Size (no. of employees): 11-50
Relevant activities: MGA underwriting	risk modelling product structuring calculation agent
Triggers: drought excess rainfall	
Policyholder types: SME government	

MistEO is an MGA providing parametric weather insurance to farmers in India. It is developing other parametric risk transfer products to protect businesses and governments against climate-related events. MistEO uses satellite imagery and weather station data to design products and monitor weather conditions. Its policies are automated using blockchain-based smart contracts.

## Mitiga Solutions



Founded: 2018	Head Office: Barcelona, Spain	
Locations served: Global	Size (no. of employees): 11-50	
Relevant activities: risk modelling calculation agent		
Triggers: volcano		

Mitiga Solutions provides risk modelling and calculation agent services for natural catastrophe risk. It is specialised in modelling and monitoring volcanic eruptions. Mitiga Solutions is the risk modelling and calculation agent for the first volcanic eruption catastrophe bond, brought to market by Howden in 2021. The \$3 million USD bond is for the Danish Red Cross to fund humanitarian aid after an eruption. It uses a parametric trigger based on plume heights. Mitiga Solutions has a partnership with the Willis Research Network, a collaboration between broker WTW and the academia sector.

### Moonshot Insurance



Founded: 2017	Head Office: Paris, France	
Locations served: Europe	Size (no. of employees): 11-50	
Relevant activities: product structuring calculation agent		
Triggers: excess rainfall travel disruption other		
Policyholder types: personal		

Moonshot Insurance provides white-label embedded insurance products to retailers. Its software manages policy administration and connects to insurer partners. Moonshot's offering includes consumer parametric products covering flight disruption and holiday weather guarantees. Moonshot was created by insurer Societe Generale Assurances.

#### Oko



Founded: 2017	Head Office: Luxembourg
Locations served: Africa	Size (no. of employees): 11-50
Relevant activities: product structuring	distribution
Triggers: drought excess rainfall	
Policyholder types: personal	

Oko designs and distributes weather index insurance products for smallholder farmers in Africa. It provides a policy management system and a customer app. Oko currently offers drought and excess rainfall insurance in Mali and Uganda. Allianz is underwriting the products.

#### Otonomi



Founded: 2019	Head Office: Wilmington, Delaware
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	product structuring risk modelling
Triggers: travel disruption	
Policyholder type: SME corporate	
Policyholder industries: marine aviation	n

Otonomi is an MGA offering parametric insurance for the marine and cargo industry. Its first product, due to be launched later in 2022, is a parametric air freight insurance solution. The solution consists of air shipment delay and interruption coverage. Pay-outs are triggered automatically when air freight flights are disrupted, using aviation data supplied by logistics data provider OAG. Otonomi's policies are in the form of smart contracts on a blockchain. Chainlink is providing blockchain oracles for the smart contracts. Decentralised reinsurer Ensuro will provide (re) insurance capacity to Otonomi. Otonomi participated in the eighth cohort of the Lloyd's Lab innovation programme.

## **OYO** Corporation



Founded: 1957	Head Office: Tokyo, Japan
Locations served: Japan	Size (no. of employees): 1001+
Relevant activities: data provider	
Triggers: earthquake	

OYO Seismic Instrumentation Corporation (OYOSI) is the seismometer division of OYO Corporation, a geological surveying company. OYOSI has developed compact seismometers which can be installed at specific locations. In 2021 Swiss Re Corporate Solutions partnered with OYOSI on parametric earthquake insurance for corporates in Japan. Pay-outs are triggered by data from OYOSI seismometers installed at clients' locations.

### Pattern Insurance



Founded: 2020 Head Office: Palo Alto, California		
Locations served: Europe, Middle East, Asia, US Size (no. of employees): 11-50		
Relevant activities: MGA underwriting product structuring risk modelling		
Triggers: travel disruption excess rainfall		
Policyholder types: personal		

Pattern Insurance is an MGA providing embedded consumer parametric insurance products. In 2021, before US-based Pattern started trading, it acquired Setoo, founded in 2017, which offered parametric products for consumers in Europe, the Middle East and Asia. Pattern is continuing Setoo's products and plans to start offering them in the US during 2022. Products include flight disruption coverage, ferry delay coverage and holiday weather guarantees. Insurance capacity is provided by Wakam, AXA, Tokio Marine and Spinnaker Insurance.

### Parachute



Founded: 2020	Head Office: Chicago, Illinois
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting risk n	nodelling product structuring distribution
Triggers: windstorm	
Policyholder type: personal SME	

Parachute has created a parametric hurricane insurance product for individuals and small businesses on the US east coast. The product, which is not yet launched, is triggered by wind speeds at the policyholder's location and offers limits of up to \$10,000 USD. Parachute plans to sell policies direct to consumers and embedded within other purchases.

# **Parameter Climate**



Founded: 2020	Head Office: New York, New York
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: MGA underwriting product	structuring risk modelling
Triggers: windstorm earthquake drought ex	cess rainfall heat freeze
Policyholder type: corporate captive insurer	

Parameter Climate is an MGA structuring and underwriting parametric corporate insurance, reinsurance and weather derivatives. It provides coverage against weather events and natural catastrophes. Reinsurer SiriusPoint purchased a significant ownership stake in Parameter Climate in 2021. Parameter Climate's insurance capacity is provided by SiriusPoint and another undisclosed reinsurer.

#### **Parametriks**



Founded: 2022	Head Office: Paris, France
Locations served: US, Europe	Size (no. of employees): 1-10
Relevant activities: risk modelling	product structuring calculation agent

Parametriks provides software to help brokers, insurers and reinsurers offer parametric coverage. It has created its product and is currently discussing its first deployments. Parametriks aims to create 'predictive' parametric covers that pay out based on forecasts of events such as floods before they occur. Parametriks is working with insurers to embed parametric covers within existing insurance products and create hybrid parametric/indemnity insurance policies.

#### Parametrix Insurance



Founded: 2019	Head Office: New York, New York	<
Locations served: US; Europe	Size (no. of employees): 11-50	
Relevant activities: MGA underwriting	risk modelling product structuring ca	Iculation agent
Triggers: cyber downtime		
Policyholder type: SME corporate		

Parametrix is an MGA providing parametric insurance products for IT downtime. It protects businesses against business interruption losses caused by third-party IT service provider downtime. These third-party service providers include cloud providers, content delivery networks and payment service providers. Parametrix monitors IT service providers and triggers pay-outs automatically when it detects downtime. Pay-outs are based on the number of hours of downtime. Parametrix's products are currently available in Germany, Austria, Italy and the US. Its insurance capacity providers include Tokio Marine Kiln, Sompo and ELEMENT.

## Paratus Group



Founded: 2020	Head Office: St Peter Port, Guernsey		sey Size (no	Size (no. of employees): 1-10	
Relevant activities:	underwriting	(re)insurance capacity	product structuring	risk modelling	
Triggers: commodit	y price change				
Policyholder type:	SME corporate	е			

Paratus Group provides parametric insurance for fuel price and freight price risks. Paratus' products are designed to help shipping companies and airlines manage the risk of price change for marine fuels, freight and liquefied natural gas. It sells policies through insurance broker Price Forbes and shipbroker Gibson Shipbrokers. Paratus is regulated as an insurer in Guernsey.

## **PERILS**



<b>Founded</b> : 2009	Head Office: Zürich, Switzerland
Locations served: Europe, UK, Australia, New Zealand, Canada	Size (no. of employees): 11-50
Relevant activities: calculation agent	
Triggers: other	

PERILS publishes insurance industry catastrophe exposure and loss data for Europe, the UK, Australia, New Zealand and Canada. It is owned by ten insurers, reinsurers and brokers. PERILS prepares and makes available aggregated anonymous insurance data, to develop industry exposure and loss estimates. Its data is used in industry loss warranties and other parametric covers that use insurance industry loss as an index.

#### **Planet**



Founded: 2020	Head Office: San Francisco, California
Locations served: Global	Size (no. of employees): 501-1000
Relevant activities: data provider	calculation agent
Triggers: drought	

Planet provides satellite imagery and data. Insurers can use its data for risk modelling and to assess the impact of weather and catastrophe events. In 2021, Planet acquired VanderSat, which provides soil moisture data used to trigger parametric drought insurance policies from AXA Climate and Swiss Re among others.

### **Praedictus Climate Solutions**



Founded: 2015	Head Office: Chicago, Illinois
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: data provider risk modelling	
Triggers: agriculture yield	

Praedictus Climate Solutions provides agricultural data and commodity crop yield forecasts that incorporate the impacts of weather, environmental conditions, technology and climate change. In 2021 the company partnered with Speedwell Weather to create a parametric crop-yield risk transfer solution. The solution uses proprietary crop yield modelling techniques and indices designed by Praedictus.

#### Pula



Founded: 2014	Head Office: Mollis, Switzerland
Locations served: Africa, Asia	Size (no. of employees): 101-250
Relevant activities: product structuring risk mode	lling calculation agent
Triggers: agriculture yield drought excess rainfall	
Policyholder types: personal	

Pula designs index-based insurance products for smallholder farmers in Africa and Asia. Its main product is an area yield index insurance product that pays out to policyholders if yields in a specific area fall below a defined trigger level. It also provides a hybrid index insurance product. Faster pay-outs are triggered by weather events while maintaining the area yield index insurance coverage. Pula says its products have covered more than 5.1 million farmers since 2015, of which more than 200,000 have received pay-outs. Pula's partners include the United Nations World Food Programme and the Central Bank of Nigeria.

## **QOMPLX Underwriting**



Founded: 2019		Head	Office: Oxford, UK	
Locations served: UK	Size (no. of employees): 1-10			
Relevant activities: MGA	underwriting	risk modelling	product structuring	calculation agent
Triggers: cyber downtime	terrorism			
Policyholder types: SME				

QOMPLX is a cyber risk analytics company. Its MGA subsidiary QOMPLX Underwriting provides a parametric cyber and terrorism insurance product, WonderCover, for SMEs in the UK. There are three triggers: the company filing a data breach notification to the Information Commissioner's Office (the UK's data protection authority) as a result of a cyber attack; outages of third-party electronic services for more than 48 hours; and terrorism events occurring within the company's postal code zone. Available coverage limits range between £5,000 and £100,000 GBP. Chaucer is providing insurance capacity for the product.

# Recoop Disaster Insurance



Founded: 2020	Head Office: West Des Moines, Iowa
Locations served: US	Size (no. of employees): 11-50
Relevant activities: MGA underwriting product	t structuring risk modelling
Triggers: windstorm earthquake wildfire to	rnado other
Policyholder types: personal	

Recoop Disaster Insurance is offering multi-peril disaster insurance to households with an existing homeowner's or renter's insurance policy in 37 US states. The policy, which pays out lump sums between \$5,000 and \$25,000 USD, is partially parametric and partially loss-based. Policyholders are eligible for a payout if they are in an area where the state or federal government has declared a disaster, and if they verify with photos that they have sustained at least \$1,000 USD of property damage. Recoop says this means they can make most pay-outs within 48 hours of an event. Recoop's insurance capacity comes from Professional Solutions Insurance Company, Swiss Re and Munich Re.

#### Redicova



Founded: 2018	Head Office: Tully, Australia
Locations served: Australia	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	product structuring calculation agent
Triggers: windstorm	
Policyholder type: personal SME	

Redicova is an MGA offering parametric cyclone insurance in northern Australia. Individuals and businesses can buy coverage in 'units', with each unit providing \$1,000 AUD in coverage. Automated quoting and binding is available for up to 200 units. Pay-outs are based on the cyclone maps released by the Australian Bureau of Meteorology. Redicova is selling policies direct to customers but also accepts referrals from brokers. Insurance capacity is provided by members of the Lloyd's Disaster Risk Facility including Beazley, AXA XL and RenaissanceRe.

### **REVO-SPAC**



Founded: 2021	Head Office: Milan, Italy
Locations served: Italy	Size (no. of employees): 11-50
Relevant activities: (re)insurance capacity	underwriting
Policyholder type: SME	

REVO-SPAC is a special-purpose acquisition company (SPAC). SPACs are companies that exist only to acquire another company. They raise money for the acquisition by being listed on a stock exchange. REVO-SPAC was founded by Italian banker Claudio Costamagna and Alberto Minali, formerly CEO of insurer Cattolica and CFO of Generali. According to PitchBook, it raised €220 million EUR in its initial public offering on the Borsa Italiana stock exchange in May 2021. This included €15 million each from insurers Vittoria and SCOR. In December 2021, REVO-SPAC acquired insurer Elba Assicurazioni for €160 million. It plans to reshape the company to focus on specialty insurance coverage, particularly using parametric triggers, for small and medium-sized businesses.

### Riskwolf



Founded: 2019	Head Office: Zürich, Switzerland
Locations served: Global	Size (no. of employees): 11-50
Relevant activities: risk modelling	product structuring calculation agent
Triggers: cyber downtime	

Riskwolf, founded in 2019, has created a white-label parametric insurance product triggered by internet downtime, using data sources which detect when many devices in one area go offline at the same time. The product is targeted at internet service providers and telecommunications companies, so they can compensate their customers for downtime they experience. Riskwolf is currently working with a global reinsurer to pilot the product in Southeast Asia. The company is planning products protecting against other connectivity risks such as power outages and cloud downtime.

### Ryskex



Founded: 2016	Head Office: New York, New York
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: marketplace product structuring	
Policyholder type: corporate captive insurer	

Ryskex provides a marketplace for parametric risk transfer without intermediaries. Corporate buyers of coverage, insurers and investors use Ryskex to trade risks that are otherwise difficult to transfer in the insurance market. Ryskex uses blockchain technology and smart contracts to automate claims payments. Risks are traded as securitised intangible assets on the blockchain. Ryskex participated in cohorts two and five of the Lloyd's Lab innovation programme.

## S4 Agtech



Founded: 2011	Head Office: Buenos Aires, Argentina
Locations served: Latin America	Size (no. of employees): 1-10
Relevant activities: product structuring ris	sk modelling calculation agent
Triggers: drought flood	

S4 Agtech provides crop analytics and structures parametric agriculture insurance products. It has created parametric indices for drought and flood, currently covering Argentina, Uruguay and Brazil, which it uses to structure parametric products with insurers. S4 Agtech also acts as the calculation agent, monitoring the indices to determine when payouts are triggered. The insurers S4 Agtech is working with include Mapfre and Munich Re.

#### SatSure



Founded: 2017	Head Office: Bangalore, India
Locations served: Global	Size (no. of employees): 51-100
Relevant activities: data provider	

SatSure provides satellite data and analytics for agriculture, financial services and infrastructure. Its data is used to help insurers model and price risks and determine claims pay-outs. In 2020 it partnered with AXA Climate to support its parametric insurance underwriting.

#### Sola



Founded: 2020	Head Office: Woodbury, New York
Locations served: US	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	risk modelling product structuring
Triggers: tornado	
Policyholder type: personal	

Sola is an MGA which plans to launch a parametric tornado insurance product to individuals later in 2022. Sola intends to offer the coverage as an add-on to homeowners' insurance policies by partnering with home insurers and agents in areas of the US highly exposed to tornadoes.

## Speedwell Weather



Founded: 1999	Head Office: Harpenden, UK
<b>Locations served:</b> G	lobal Size (no. of employees): 11-50
Relevant activities:	calculation agent product structuring marketplace
Triggers: drought	excess rainfall heat freeze wind snow solar radiation

Speedwell Weather provides climate data, weather forecasts and software. It is used as a calculation agent for parametric weather risk contracts, both insurance and derivatives. It also provides historical data that can be used for risk modelling. Speedwell Weather's sister company weatherXchange is a marketplace that helps companies structure index-based weather risk contracts and compare prices from multiple providers.

Springboard SPRINGBOARD.

Founded: 2002	Head Office: Milton Keynes, UK	Size (no. of employees): 51-100
Relevant activities: dat	ta provider	
Triggers: footfall		
Policyholder type: per	sonal	

Springboard tracks footfall along streets, in shopping centres and can measure the number of customers entering and leaving stores. Aon and OTT Risk have used Springboard's data as part of parametric indices for non-damage business interruption coverage.

### Stable



Founded: 2017	Head Office: New York, Nev	v York
Locations served: US	Size (no. of employees): 51-100	
Relevant activities: underwriting (re)i	nsurance capacity risk modelling pro	duct structuring
Triggers: commodity price change		
Policyholder type: SME corporate		

Stable provides parametric products protecting against volatility in agricultural and food commodity prices. It can offer coverage on more than 7,000 commodity indices from 70 countries. Stable sells its parametric contracts as derivatives rather than insurance. It sells directly to businesses rather than through brokers. Stable is regulated as a collateralised insurer in Bermuda, meaning that all policies it underwrites are reinsured and Stable does not retain any risk itself.

### Steel City Re



Founded: 2007	Head Office: Pittsburgh, Pennsylvania	
Locations served: Global	Size (no. of employees): 1-10	
Relevant activities: MGA underwriting	risk modelling product structuring calculation agent	
Triggers: reputation		
Policyholder type: corporate; captive		

Steel City Re offers insurance against reputational damage. The company has designed reputational value metrics which it uses to provide reputation risk management advisory services. In 2012 it partnered with insurer Tokio Marine Kiln to underwrite parametric reputation insurance policies, where pay-outs are triggered by drops in a client's reputational value index over a period of time. In 2021, Steel City Re launched ESG Insurance, a product to protect companies against reputational damage caused by ESG failures. ESG Insurance pay-outs are triggered by drops in the reputational value index following a public ESG failure.

### **Totten Group**



Founded: 2002	Head Office: Toronto, Canada
Locations served: Canada	Size (no. of employees): 101-250
Relevant activities: MGA	underwriting product structuring
Triggers: epidemic	
Policyholder types: SME	

Totten Group is an MGA underwriting property, casualty and specialty insurance in Canada. It has developed a parametric product protecting the hospitality industry against business interruption caused by forced closure by government authorities during pandemics. In the event of both a Public Health Emergency of International Concern, as declared by the WHO, (excluding SARS-CoV-2 and associated mutations of SARS-Cov-2 disease) and a federal or local provincial authority lockdown, the customer receives a pre-agreed amount until the limit of cover is reached (either \$25,000 or \$50,000 or \$100,000 CAD). Chaucer is providing insurance capacity for the product.

#### Tremor



Founded: 2018	Head Office: Boston, Massachusetts
Locations served: Global	Size (no. of employees): 1-10
Relevant activities: marketplace product structuring	
Policyholder type: insurer	

Tremor is a risk transfer marketplace with an algorithmic matching engine to facilitate trading. Between 2018 and 2021, it has transacted more than \$8 billion USD in reinsurance limit, of which 16.2% has used parametric triggers.

# Understory



Founded: 2012	Head Office: Madison, Wisconsin
Locations served: Europe, US	Size (no. of employees): 11-50
Relevant activities: MGA underwriting production activities data provider calculation activities.	act structuring risk modelling
Triggers: hail wind freeze	
Policyholder type: SME corporate	

Understory has developed sensors that detect and analyse weather events such as hail, wind and frost. BMS Group is using Understory's sensors to collect data for the provision of parametric insurance products. Understory also offers commercial hail, wind and frost insurance as an MGA in the US and Europe. Pay-outs are triggered when its sensors, installed at the policyholder's location, detect hail, wind or frost events.

#### We2Sure



Founded: 2021	Head Office: Dublin, Ireland	Size (no. of employees): 1-10
Relevant activities: MGA	underwriting product structuring	risk modelling
Triggers: other		
Policyholder type: personal	SME	

We2Sure is an early-stage start-up offering parametric microinsurance products with an environmental, social and governance (ESG) focus. It works with community-based institutions such as schools and employers to structure event-based insurance products that benefit a community. It is currently providing a life insurance product to private schools. If a pupil's parent dies, the school receives a pay-out equivalent to the tuition fees required to complete the pupil's education. It is also working on a parametric insurance product for voluntary carbon markets.

## Weather Risk Management Services



Founded: 2004	Head Office: Gurugram, India
Locations served: Asia-Pacific	Size (no. of employees): 101-250
Relevant activities: product structuring risk	modelling calculation agent data provider
Triggers: windstorm earthquake drough	excess rainfall flood heat
Policyholder type: personal SME corpor	rate insurer

Weather Risk Management Services (WRMS) is a weather risk management company for the agriculture sector. It works with insurers to design parametric weather and catastrophe insurance products for farmers and agriculture companies and parametric agriculture reinsurance products. WRMS creates risk models to structure products and can act as a calculation agent through its access to weather station data. Most of its projects to date have been in India but it is also working in other parts of Asia and the Pacific, including working with the United Nations Capital Development Fund to develop parametric policies in Fiji.

Wetterheld

Founded: 2019		Head Offi	<b>ce</b> : Hamburg, Ger	many
Locations served: Europe		Size (no. of employees): 1-10		.0
Relevant activities: MGA	underwriting	product structuring	risk modelling	calculation agent
Triggers: drought excess	rainfall			
Policyholder type: persona	I SME			

Wetterheld operates both as an MGA and a technology provider to insurers looking to offer parametric weather insurance. Its initial product offering consists of parametric rainfall insurance for event organisers and parametric drought insurance for farmers, which it has sold in Germany since 2020. Wetterheld plans to expand its products to France and Poland and offer coverage for other weather events such as hail and frost in future. Wakam is providing insurance capacity for Wetterheld.

Yokahu



Founded: 2019	Head Office: London, UK
Locations served: Caribbean	Size (no. of employees): 1-10
Relevant activities: MGA underwriting	product structuring risk modelling
Triggers: windstorm	
Policyholder type: personal	

Yokahu is a technology company and MGA which currently offers a parametric hurricane insurance product to individuals in the Caribbean. The product is being sold through retail brokers. Pay-outs are based on wind speed data from the US National Oceanic and Atmospheric Administration (NOAA). Available coverage limits are between \$600 and \$10,000 USD. Chaucer is providing insurance capacity for the product. Yokahu's technology can be applied in other parts of the world and the company is looking for partnerships to offer personal lines catastrophe insurance outside the Caribbean.

### **Insurers**

## African Risk Capacity

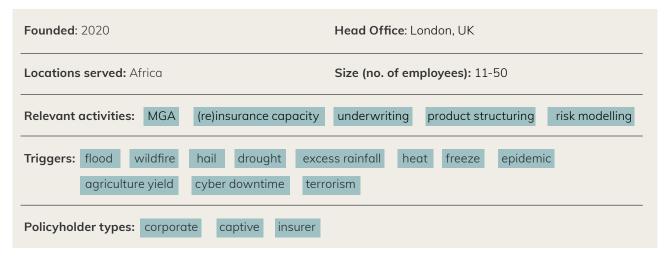


Founded: 2014	Head Office: Johannesburg, South Africa
Locations served: Africa	Size (no. of employees): 51-100
Relevant activities: (re)insurance capacity un	derwriting product structuring risk modelling
Triggers: windstorm drought	
Policyholder type: government	

The African Risk Capacity (ARC) is a specialised agency of the African Union. It is a multi-country risk pool offering parametric disaster insurance to African governments and humanitarian agencies. During the 2020/21 agricultural season, ARC provided drought and tropical cyclone coverage to 12 African governments. It also provides parametric insurance for disaster risk financing to humanitarian agencies Start Network and the United Nations World Food Programme. ARC plans to provide parametric coverage for floods and epidemics in the future.

# Africa Specialty Risks





Africa Specialty Risks is an MGA and reinsurer underwriting specialty insurance in Africa. Since 2021, it has offered parametric insurance policies covering weather, catastrophes and business interruption. Africa Specialty Risks can provide limits of up to \$25 million USD. Africa Specialty Risks' MGA underwrites with capacity from GIC Re, Peak Re and its Bermuda-licensed reinsurer.

Allianz



Founded: 1890	Head Office: Munich, Germany
Locations served: Global	Size (no. of employees): 1001+
Relevant activities: underwriting (re)insurance co	apacity
Triggers: windstorm earthquake excess rainfal	I other
Policyholder type: corporate	

Allianz is a global insurer providing life and health and property and casualty insurance. Its corporate insurance division Allianz Global Corporate & Specialty underwrites parametric weather, catastrophe and non-damage business interruption insurance through its alternative risk transfer unit. Allianz also provides insurance capacity to parametric insurance MGA New Paradigm Underwriters.

## Berkshire Hathaway Specialty Insurance



Founded: 2013	Head Office: Boston, Massachusetts	
Locations served: Global	Size (no. of employees): 1001+	
Relevant activities: (re)insurance capacity	underwriting risk modelling product structuring	
Triggers: earthquake windstorm		
Policyholder types: corporate		

US-based insurer Berkshire Hathaway Specialty Insurance (BHSI) offers FastCAT, parametric insurance coverage for corporate clients against earthquakes or named windstorms. The product is structured as a cat-in-a-box triggered by ground shaking for earthquakes and central pressure or wind speed for windstorms. BHSI only uses public data sources such as the US Geological Survey and National Hurricane Center to trigger its policies.

#### CCRIF SPC



Founded: 2007	Head Office: Grand Cayman, Cayman Islands
Locations served: Caribbean, Central America	Size (no. of employees): 1-10
Relevant activities: (re)insurance capacity underv	vriting product structuring risk modelling
Triggers: windstorm earthquake excess rainfall	
Policyholder type: government	

The Caribbean Catastrophe Risk Insurance Facility (CCRIF) was formed in 2007 as the first multi-country risk pool in the world. Now known as CCRIF SPC, it offers parametric catastrophe insurance products to governments and public utility companies in the Caribbean and Central America. Its policies cover tropical cyclones, earthquakes and excess rainfall. In 2021, CCRIF SPC provided more than \$1 billion USD in combined coverage limits to 19 Caribbean governments, 3 Central American governments and 1 electric utility company. Since 2007, it has paid more than \$240 million USD in claims, all within 14 days of the triggering event.

### China Re



Founded: 1949	Head Office: Beijing, China
Locations served: China	Size (no. of employees): 1001+
Relevant activities: underwriting (re)insurance ca	pacity
Triggers: windstorm earthquake	
Policyholder types: government	

China Re is a state-owned reinsurance group in China and one of the world's largest reinsurers. It provides capacity to China's government-supported catastrophe insurance pilot programme, which insures provinces and cities in China against natural catastrophes. Some of the pilot's insurance policies have used parametric triggers. The programme paid out ¥28 million CNY (\$4.2 million USD) to the province of Yunnan after earthquakes in 2017 triggered Yunnan's policy. Parametric typhoon policies for cities in the province of Guangdong paid out following Typhoon Hato in 2017 and Typhoon Mangkhut in 2018.

### First Insurance Company of Hawaii



Founded: 1911	Head Office: Honolulu, Hawaii
Locations served: Hawaii	Size (no. of employees): 101-250
Relevant activities: (re)insurance capacity	underwriting product structuring risk modelling
Triggers: windstorm	
Policyholder types: personal	

First Insurance Company of Hawaii (FICOH) is a property and casualty insurer owned by the Tokio Marine Group. In 2020, FICOH launched FirstTrack, a parametric hurricane insurance product for homeowners and renters in Hawaii. It offers coverage for damage below the deductible of most hurricane policies. Available coverage limits range between \$1,000 and \$25,000 USD. Pay-outs are based on the storm wind speed as measured by the National Hurricane Center and the storm's proximity to the insured home.

#### Generali



Founded: 1831 Head Office: Trieste, Italy
Locations served: Global Size (no. of employees): 1001+
Relevant activities: underwriting (re)insurance capacity
Triggers:droughtexcess rainfallheatfreezeearthquakewindwindstormfloodhailwildfiretornadoagriculture yieldtsunamiwater levelsolar radiation
Policyholder types: corporate government captive

Generali is a global property and casualty and life insurer with offices in 50 countries. Its commercial insurance arm Generali Global Corporate and Commercial (GC&C) underwrites parametric policies for corporates covering various natural catastrophes and weather events. GC&C has partnered with parametric insurance MGA Descartes Underwriting to improve corporate uptake of parametric risk transfer solutions globally. In 2022, The United Nations Development Programme (UNDP) announced a multi-year partnership with insurer Generali to develop parametric risk transfer solutions for vulnerable families and small businesses globally. The solutions being worked on include drought cover for smallholder farmers and climate risk insurance for coastal communities.

Lemonade Lemonade

Founded: 2015	Head Office: New York, New York
Locations served: US, Europe	Size (no. of employees): 501-1000
Relevant activities: underwriting (re)insurance	e capacity product structuring
Triggers: drought excess rainfall	
Policyholder types: personal	

Lemonade is an insurer that provides personal lines insurance such as home, car and pet insurance in the US and Europe. Lemonade's nonprofit arm, the Lemonade Foundation, announced in 2021 that it had formed a 'Crypto Climate Coalition' with partners including Hannover Re, Chainlink, Etherisc and Pula. The partnership intends to design and launch a parametric insurance product protecting smallholder farmers against lack of or excess rain using blockchain technology.

# Lloyd's of London

**LLOYD'S** 

Founded: 1688	Head Office: London, UK
Locations served: Global	Size (no. of employees): 1001+
Relevant activities: marketplace	

Many parametric insurance products have access to capacity through the Lloyd's of London insurance marketplace. Lloyd's syndicates underwrite parametric insurance policies globally for catastrophes, weather, cyber and other events. Various Lloyd's initiatives have supported parametric products. The Lloyd's Product Launchpad (formerly the Product Innovation Facility) provides capacity for Parametrix's cyber downtime insurance products and a parametric profit protection policy for the hotel industry. The Lloyd's Disaster Risk Facility provides capacity to Redicova's parametric cyclone insurance in northern Australia. The Lloyd's Lab innovation programme has incubated many parametric insurance start-ups including Parsyl, FloodFlash, Skyline Partners and Blink Parametric.

### Mitsui Sumitomo



Founded: 1918	Head Office: Tokyo, Japan		
Locations served: Global	erved: Global Size (no. of employees): 1001+		
Relevant activities: underwriting (re)insurance co	apacity product structuring distribution		
Triggers: excess rainfall hail snow heat freeze			
Policyholder types: SME			

Mitsui Sumitomo is a global property, casualty and life insurance and financial services group. Through subsidiaries MSI GuaranteedWeather and Vortex Insurance, it sells parametric weather insurance. Products cover rainfall, hail, snow and temperature risks and are targeted at SME event organisers, motor dealerships and the agriculture sector. Mitsui Sumitomo is partnered with Hillridge Technology to provide rainfall insurance for farmers in Australia.

### Munich Re



Founded: 1880 Head Office	e: Munich, Germany	
Locations served: Global Size (no. of	Size (no. of employees): 1001+	
Relevant activities: underwriting (re)insurance capacity product structuring risk modelling		
Triggers:     windstorm     earthquake     wildfire     flood     drought     excess rainfall     heat     freeze       wind     epidemic     agriculture yield		
Policyholder types:     personal     SME     corporate     captive     insurer     government		

Munich Re is one of the world's largest reinsurers. It provides insurance, reinsurance and insurance-related risk solutions. Munich Re underwrites parametric corporate insurance and reinsurance transactions across natural catastrophes and weather risks. Munich Re's solutions include "One Cat", parametric products for large corporates and financial institutions covering tropical cyclones (One Storm) and earthquakes (One Quake), offering limits of up to \$10 million and \$5 million USD respectively. Munich Re also provides capacity for parametric insurance MGAs such as Súper. Munich Re Innovation Syndicate 1840 at Lloyd's provides capacity for Bounce and FloodFlash.

## Pacific Catastrophe Risk Insurance Company



Founded: 2016	Head Office: Rarotonga, Cook Islands	
Locations served: Pacific	Size (no. of employees): 1-10	
Relevant activities: (re)insurance capacity	underwriting product structuring risk modelling	
Triggers: windstorm earthquake		
Policyholder types: government		

As part of the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), the World Bank launched a pilot insurance project for countries in the Pacific region in 2013. In 2016, this became the Pacific Catastrophe Risk Insurance Company (PCRIC), a multi-country risk pool providing parametric catastrophe insurance to Pacific Island Countries. It currently provides tropical cyclone and earthquake coverage. PCRIC is developing parametric excess rainfall and drought insurance products which it plans to launch later in 2022. PCRAFI's pilot made pay-outs after Cyclones Ian in 2014 and Pam in 2015, and PCRIC has made pay-outs after Cyclones Gita in 2018 and Harold in 2020.

### **SCOR**



Founded: 1970	Head Office: Paris, France	
Locations served: Global	Size (no. of employees): 1001+	
Relevant activities: underwriting (re)insurance capacity risk modelling		
33	flood drought excess rainfall heat solar radiation other	
Policyholder types: SME corporate captive insurer government		

SCOR is a global property, casualty and life insurer and reinsurer. It underwrites parametric corporate insurance and reinsurance for natural catastrophes and weather events. SCOR also provides capacity for Skyline Partners' Heat Stress Protect product protecting dairy farmers in France against heat.

## Sompo International



Founded: 2001	Head Office: Pembroke, Bermuda	
Locations served: Global	Size (no. of employees): 1001+	
Relevant activities: underwriting	(re)insurance capacity product structuring risk modelling	
Triggers: drought excess rainfo	3 ,	
Policyholder types: corporate		

Sompo International is a global specialty insurer and reinsurer based in Bermuda, with its core business in the Japanese market. It offers parametric weather insurance to agriculture companies, triggered by excess and lack of rainfall, high and low temperatures, crop yield and agricultural commodity prices. In 2021 Sompo announced an Epidemic and Pandemic Protection Program. The parametric product is triggered by civil authority restrictions resulting from international public health emergencies declared by the World Health Organization. In the product's first year, it is available only to existing clients of Sompo Global Risk Solutions.

# Southeast Asia Disaster Risk Insurance Facility



Founded: 2019	Head Office: Singapore	
Locations served: Southeast Asia	Size (no. of employees): 1-10	
Relevant activities: (re)insurance capacity	underwriting product structuring risk modelling	
Triggers: flood		
Policyholder types: government		

The Southeast Asia Disaster Risk Insurance Facility (SEADRIF) is a multi-country risk pool providing catastrophe risk insurance to member states of the Association of Southeast Asian Nations (ASEAN). It currently offers a partially parametric flood insurance product to governments. Pay-outs are triggered based on the estimated number of people living in areas where flood depth exceeds 25cm, but there is also an indemnity-based component offering protection against floods which do not trigger parametric pay-outs. Lao PDR is the only country currently using the product and discussions are ongoing with other countries.

## **Tokio Marine Group**



Founded: 1879	Head Office: Tokyo, Japan
Locations served: Global	Size (no. of employees): 1001+
Relevant activities: underwriting	(re)insurance capacity

Tokio Marine Group is a global property and casualty insurance group. Companies within the group include specialty insurers Tokio Marine HCC and Tokio Marine Kiln, which manages four Lloyd's syndicates. Companies within the Tokio Marine Group have provided capacity to parametric insurance MGAs including Parametrix and Pattern Insurance. In 2022, Tokio Marine Group announced a partnership with and strategic investment in ICEYE that includes developing parametric insurance products using ICEYE's synthetic aperture radar data.

# United Surety and Indemnity Company



Founded: 1990	Head Office: San Juan, Puerto Rico	Size (no. of employees): 11-50
Relevant activities:	underwriting (re)insurance capacity	
Triggers: windstorm	earthquake	
Policyholder types: personal		

United Surety and Indemnity Company (USIC) is a Puerto Rican insurer providing personal and commercial property and casualty insurance. In 2021, it launched parametric microinsurance products protecting individuals against hurricane and earthquake risks. USIC is providing coverage limits between \$200 and \$4,000 USD for hurricanes and \$3,750 to \$30,000 USD for earthquakes. Pay-outs are triggered by National Hurricane Center and US Geological Survey data.

#### **7urich**



Founded: 1872	Head Office: Zürich, Switzerland	
Locations served: Global	Size (no. of employees): 1001+	
Relevant activities: underwriting (re)insurance capa	city product structuring risk modelling	
Triggers: windstorm excess rainfall heat freeze hail		
Policyholder types: corporate		

Zurich is a global property, casualty and life insurer. In 2021 it launched a parametric weather insurance product for the construction sector in North America. Pay-outs are triggered by extreme wind, rain, hail and temperatures using data from the National Oceanic and Atmospheric Administration and other sources. It is designed to cover delay costs and other economic losses associated with weather events during construction projects.

#### Contact us

#### InsTech

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