

SURU

WATER DAMAGE PREVENTION

A CASE STUDY 06/2022

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WATER DAMAGE PREVENTION

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INTRODUCTION

Water damage prevention

by Marc Dobro

This case study explores the development, scoping, trialing, roll-out, assessment and results of a new concept in domestic insurance: **preventive protection**. Rather than covering policy holders against the cost of damage, you prevent damage from occurring in the first place.

The study summarizes a three-year pilot project run in collaboration with Finnish insurance group, LähiTapiola, who generously agreed to share the results.

Over the course of that project, we took preventive protection from concept to reality, jointly developing an operational model and pricing structure that proved economically advantageous to both of us. And effective. Way beyond our own or their expectations.

In the final analysis, we achieved a sustainable reduction in LähiTapiola's water damage payouts in excess of 80%, taking damage incidence at the high-risk end of their portfolio from 6% to 1% in the process.

The model responsible for this transformation is called **Prevention as a Service (PaaS)**. The story of how we brought that to reality takes you from first contact through rollout to full implementation and integration into your business model.

The results and analysis you will read are based on over 6,500 data years of information.

How it works

The key to achieving this level of turnaround is the service. Providing a level of protection for homeowners that they have not previously enjoyed. This is enabled by a small device that is fitted to the water inlet pipe in domestic homes. Developed by SURU in collaboration with GROHE and marketed as "Sense Guard", this smart water meter remotely monitors water use and automatically shuts off the supply if it detects an abnormal pattern. It then sends an alert to SURU, enabling us to take appropriate action.

Europe-wide, water damage accounts for around 40% of all payouts on domestic insurance policies. This has huge implications for the industry, as it does for homeowners. Because no homeowner or tenant wants to be confronted with the stress and complexity of cleaning up after a water damage has occurred.

Prevention as a Service (PaaS) is the reality of an aspiration the insurance sector has had for a long time: sustainably preventing damage before it happens. This both improves the combined ratio and strengthens customer retention in a fiercely competitive marketplace.

This document is evidence of the effectiveness of PaaS, gathered over three years of operational application. I commend it to you.



Marc Dobro
CEO SURU

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The concept
of prevention





The concept **water damage prevention**

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The concept of preventive protection is the opposite of the approach the industry has been following for the last 300+ years. Up to now, actuarial practice has had to rely on calculating risk based on past events. Today, Prevention as a Service (PaaS) offers the ability to calculate risk in real time, reducing both exposure and liability. That means less risk and smaller payouts. In each instance, around 80% less, as this case study proves.

Translating concept into reality

SURU had the product – the device – required to facilitate the concept, but we needed the business model.

We knew that the Sense Guard smart water sensor we developed with GROHE had the potential to achieve damage prevention. The challenge was to turn that potential into a viable business proposition.

We needed an insurance partner who was willing to go on that journey with us. We found that partner in Finnish insurers, LähiTapiola.

First, the tool

Sense Guard is a smart water-monitoring device that is installed on the inlet pipe of a building. Over time, it builds up an accurate picture of the way water is used by the occupants. It then transmits real-time reports that can be tracked and analyzed.

If water consumption spikes or is unusually high – a typical sign of a leak – the Sense Guard device automatically shuts down the supply and informs the data owner. In the case of this study, that was SURU as service provider and the LähiTapiola Group as development partner and customer.

As soon as an alert has been received, the data owner can arrange for timely action to be taken to prevent further damage – and prevent paying out on damage claims.

Co-creation

SURU's role in the partnership was to contribute the Sense Guard device and the expertise in water management. LähiTapiola provided the insurance expertise and the large-scale test environment.

In terms of the Prevention as a Service (PaaS) concept, we were both starting from zero. We had nothing to go on except a belief in the potential of the device, and of the necessity to achieve a step-change in the domestic insurance business model.

The willingness to work together as partners was decisive as we went through the process of co-creating and implementing an entirely new model.

From vision to reality

In 2018, LähiTapiola took a new strategic direction. They decided to drop their old positioning as an insurer and become instead a provider of life-long household protection.

The question they asked themselves was: "Who would buy an insurance policy to protect against potential damage when they could stop the damage from occurring in the first place?" No one.

So what might be the alternative? How could an insurance company get to a place where it became a provider of life-long household protection?

Defining the landscape

LähiTapiola began by analyzing their business to decide where they could make the most impact. As water damage accounted for 40% of their entire domestic insurance payouts, that became their target. They set themselves the goal of cutting payouts in half by 2025. Just seven years.

At that point, they had neither a physical tool to achieve those reductions, nor a business model or cost structure to enable the process.

Identifying the development partner

From their experience working with partners who understood water supply technology, LähiTapiola knew they had the potential to offer their customers a way to secure their homes.

The goal of the 2018 strategy was to ensure that LähiTapiola's customers, their properties, belongings and especially their loved ones would be protected – preventively – lifelong.

The next step was to identify the right partner. Based on years of successful collaboration, they chose German water supply specialists SURU, backed by their Japanese owner, LIXIL. And more specifically, their Sense Guard water monitoring device.

Decisive to that decision was the knowledge that SURU had the size and leverage to move fast and scale the rollout as soon as it was needed.



The steps **water damage prevention**

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The conceptual framework of an insurance company seeking to prevent damage rather than pay for damage that has already occurred, is wholly new.

This proved as challenging for the LähiTapiola teams as it did for the Group's end customers. Crucially, there is zero cost to the policy holder: the preventive program is offered entirely cost-free as an value-added service.

This needed explaining to an initially skeptical audience. Why would an insurer give them something for nothing? But when it was explained that this concept benefited both parties, the necessary buy-in was quick to come.

To make the model work, the transparency of the process between LähiTapiola and the SURU team needed to be mirrored in communications with the homeowners. LähiTapiola reaped rapid benefits by explaining the facts:

We pay out less.
You suffer less stress, heartache and inconvenience.

The concept of preventive protection rather than reactive response is a win:win. In the future, using the combined power of AI and prevention as a service (PaaS), this model will become the defining dynamic of large areas of the domestic insurance portfolio.

From Day 1, LähiTapiola's intention was to be involved with SURU as co-creators: combining expertise from both sides of the story in a dynamic and agile process.

The other issue was technology. To fulfill their ambition, LähiTapiola needed a solution that could shut off the water, on its own, while providing the data needed for future business models. Becoming proactive and making the claims process something that could happen by just pressing a button.

Pasi Korhonen, Program Owner, LähiTapiola, explained: "We studied what's out there and met with a lot of suppliers. We knew that nothing would be 100% ready for what we are doing, but we trusted ourselves that we had

made the right choice. When you're doing something that's new for your company's DNA, you want the partner to be there with you if things go sideways. And boy did we learn a lot together."

Once the initial decisions had been made, the next task was to assemble a project team, made up of people with the necessary expertise from both sides. The team's first task was to establish a list of parameters for the proposed test phase. These were:

1. Be sure of your strategic decision
2. Look at your data
3. Form an estimate of impact – trust your numbers
4. Avoid the pilot pitfall of being too cautious – scale big enough to generate sufficient results to achieve meaningful data
5. Ensure strong internal ownership

Beyond that, at an operational level, it was crucial to understand who brought which competencies to the table.

LähiTapiola were experts in insurance but knew little about water supply technology. SURU were experts in water supply technology but knew little about insurance.

This entire project would have been unthinkable if either partner had lost sight of that.

Preparing to implement Prevention as a Service (PaaS)

1

EMBED
STRATEGY

2

ANALYSE
PORTFOLIO

3

START
ROLL-OUT

EMBED STRATEGY

LähiTapiola's strategy was clear: they decided to abandon their traditional positioning as an insurer and become instead a provider of lifelong household protection.

The goal was to cut water damage payouts in half by 2025: a period of seven years from the date the new strategy was approved by the Board in 2018.

To make this work, it was important to ensure that everybody within the organization understood the concept. Not just the goal, but how that was going to be achieved.

LähiTapiola consists of a network of individually managed regional companies. This meant presenting the concept to each business unit with the aim of convincing them to commit to trialing the PaaS model.

Proof is the best argument

Initially, the individual regions reacted very differently. Some saw the potential and were keen to participate, others were skeptical. This was frustrating for the team driving the process, but it was also to be expected and had to be managed.

One way to convince the regions that were less keen was to devise a pricing model that ranged from zero cost to maximum cost, based on the level of return. The lower the financial commitment, the more modest the benefits, and vice versa.

Ultimately, the single biggest lever was the results achieved. As the data years piled up and the initial expectations were exceeded, more of the regions came on board.

6,500 data years of evidence

By the time the 3-year pilot phase was complete, LähiTapiola had 6,500 data years of evidence that Prevention as a Service (PaaS) had reduced water damage payouts by over 80%.

Transparent pricing makes the concept tangible

As ever with a new concept, potential customers need to know what – precisely – it will cost them. During the co-creation phase, where SURU and LähiTapiola were shaping an entirely new business model, the idea of flexible and scalable costing was a key consideration.

By the time the concept was presented to the regional business units as a working model, the partners had devised a robust pricing structure. This ranged from zero investment with a lower return to a modest sum that allowed the respective business units to enjoy 100% of the savings.



Let's get things straight:

**"We're going
to reduce water
damage payouts
by 50% by 2025.**

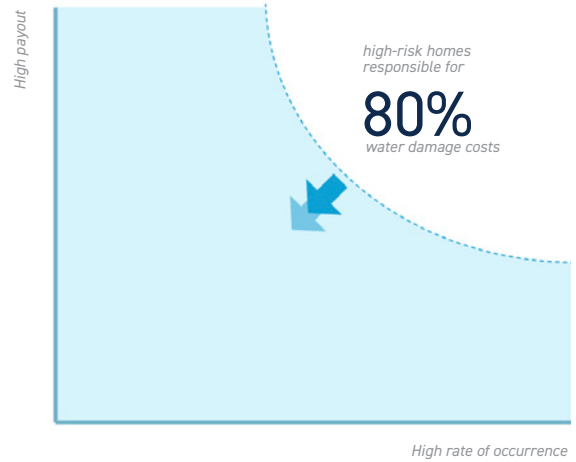
& we're going to keep our topline"



STARTING WITH HIGH-RISK PROPERTIES

LähiTapiola started by targeting the high-risk, single-family homes that carried the highest burden, payout level and frequency. Representing around 20-25% of the portfolio, these properties generated 80% of the Group's total payout costs. Although the model has now been rolled out to the entire portfolio, the high-risk segment will continue to be the principal focus.

In terms of getting end-customer buy-in – convincing homeowners to have the Sense Guard device installed – it was easiest to explain the relevance of the concept to people whose homes were at demonstrably high risk.

**REACHING THE MID-RISK PROPERTIES**

Once the high-risk segment of the portfolio has been protected, the next target will be to increase penetration in the mid-low risk sector. These properties make up around 75-80% of LähiTapiola's portfolio and account for 20% of the total payout costs.

As LähiTapiola becomes more confident in working with the PaaS model, the Group will be extending their target to single-family homes across the entire portfolio. In the future, there is no limit to the type of building that can be protected, including the entire commercial property segment, as well as new builds. The goal is to ensure that no property ever becomes a high risk, which will be crucial in securing the long-term viability of the model for LähiTapiola.

The key is that LähiTapiola knows that the model works. The task now is to extend its application to secure the Group's entire building protection portfolio.



Acquisition

Customer acquisition performed in collaboration



Connectivity

Proactively secure device connectivity



Alarm Data Response

Alarm data response and customer contact



Dashboard View

Device status, KPIs and key figures



Micro Leak Detection

Remote or on site visit to locate the leak based on the alarm data

THE OFFER

In designing the PaaS model, the time period was defined by LähiTapiola's data scientists. They decided that, to calculate a watertight business case, they would need a specific number of thousands of data years. By the time the project team had exceeded 3,000 data years, it was clear that the results were reliable, consistent and sustainable.

To reach the point at which the concept could be said to have been proved, the trial phase concentrated on getting sufficient houses secured, running the new service, and then measuring the results.

The LähiTapiola regions led the way in terms of rollout. They fed back to Group HQ how many housing units they initially wanted to protect and paid for the project setup as an investment. In effect, the Group proposed a new model – with no proven outcome – while asking the regions to carry the cost.

The immediate upside for the regions was what they learned from the process, especially because they were co-creating the solution to their own specifications.

Operating with a partner like SURU provided maximum flexibility in terms of how the conversion from 'product' to 'service' happened. To make the vision a reality required SURU to move into new pricing territory, while LähiTapiola was opening up a new service concept.

Scaling the pricing structure

What LähiTapiola ended up with was a completely scalable remuneration model, within which each region was free to choose its preferred financing system. There was not one model imposed from above that was supposed to fit everyone.

From the outset, this completely new service concept was based on total flexibility and scalability. Because the data is so precise and extensive, it is possible for any company wanting to use the model to know exactly which properties to protect and which pricing model will work for them.

Accessibility

Based on the findings from the LähiTapiola pilot project, any company wanting to adopt the Prevention as a Service (PaaS) model can do so at no cost at all.

If an insurance company has no budget to test the model, they can begin with a zero-cost pricing structure. As they gain confidence and see their own evidence, they can shift to a higher-risk model with greater returns.

Operational requirements

Although the entire process is digitized, it is still necessary to have people to steer and run the service.

At the outset, while the concept was still being finalized, a lot of people were involved. LähiTapiola and the SURU team ran a series of kick-off meetings involving up to 20 people, including senior managers, operations and claims specialists, customer service staff, actuaries and business development representatives.

Once the concept was operational and into the trial stage, almost everything was handed over to SURU. We manage almost the entire process on behalf of the insurers, but independent of them.

As soon as the system is up and running, it becomes a matter of replication. The processes are robust and the workflows easy to manage.

LähiTapiola estimates that one person can oversee thousands of individual homes. Beyond that, the organizational setup currently requires a weekly one-hour follow-up meeting. This often takes only 30 minutes and is in the process of being switched to once a month. Other than that, there is a quarterly steering committee meeting with the regional management team.

At HQ level, LähiTapiola has just one full-time person managing and overseeing the entire project on a day-to-day basis.

D Project Involvement



Insurance involvement



SURU involved



The result
**water damage
prevention in action**

Now that the model has passed the pilot stage and has become a permanent feature of LähiTapiola's business model, there is a razor-sharp process description of anything that needs to be done, the order of activities, and the resources involved.

This means that the service package can be instantly rolled out whenever a new region or company chooses to come on board.

LähiTapiola and the SURU team speak of new rollouts as “batches”. When the established protocol is used to execute the model, they know exactly when they will start to see the results from each batch.

The results are measured based on input from the insurer's claims department – in terms of claims, payouts, frequency and extent – and from SURU in terms of the number of incidents mitigated or avoided altogether. All of this is visible on a dashboard, to which both parties have access.

When LähiTapiola began analyzing the data, they felt sure that what they were looking at was too good to be true. Initially, they simply ignored the topic of savings until they had reached the number of data years indicated by the actuaries.

Over time, they began to see that the trends they had observed early on remained the same. By the time they had accumulated over 3,000 data years – and were still seeing higher-than-expected savings – they realized the extent of the potential.

Reaching the number of data years requested by the data scientists was the proof point and the milestone LähiTapiola have continued to work against. With a maximum of 6,000 homes protected, this data-gathering process took from the first installation in April 2019 through to August 2021.

The proof is in the numbers

When LähiTapiola passed 3,000 data years, they made the first analyses. These were more positive than expected. They were already seeing a reduction in payouts of over 70%, as was officially communicated at the time.

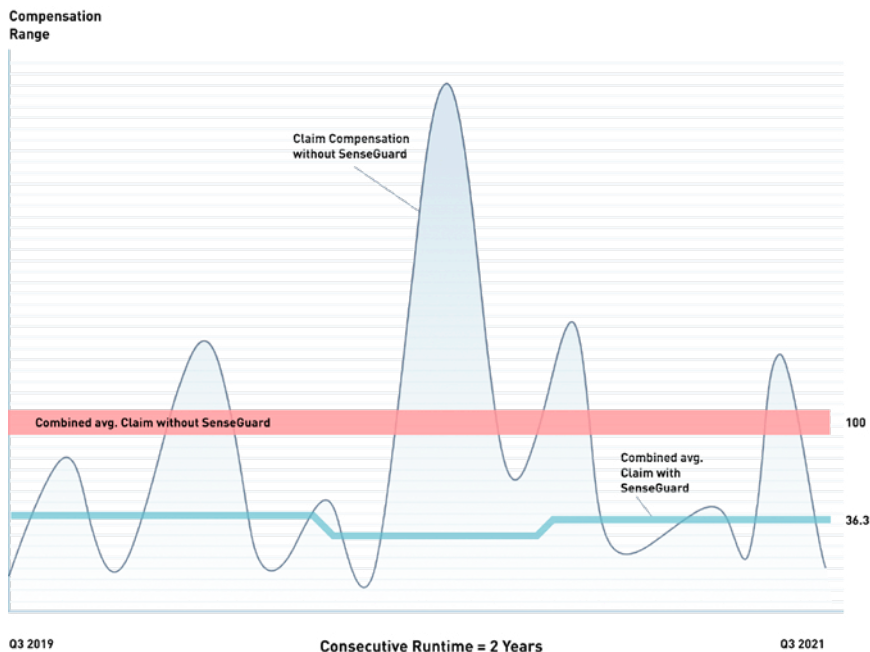
By the time they had reached 6,500 data years, the company was seeing even greater savings. The final figure has stabilized at over 80%.

By the end of the three-year pilot, LähiTapiola has established how to analyze the portfolio and proved how to implement the service. They know how to obtain the necessary savings within the high-risk segment.

Today, the Group is well on target to exceed their original goal – a 50% reduction in water damage payouts by 2025 – across the entire property portfolio and across Finland.

They are still refining the model, but it has already proved its value beyond any realistic projections at the start. Preventive protection is now part of the Group's culture: preventing water damage incidents for the benefit of the group's customers, the environment, and all of us.

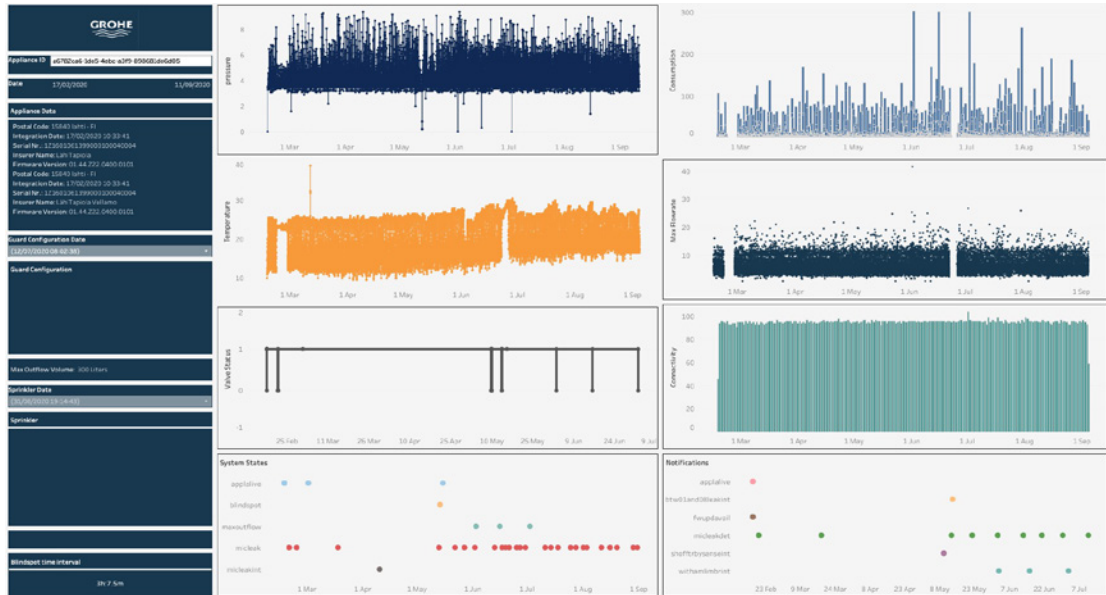
E Proved water payout savings (index)



The highest water damage value peaks were damages which had already been leaking before the system was installed and by installing they were found. This also contains damages that the system is not able to recognize such as i.e roof leaks or in wall grey water leaks.

Still by looking at the end results it's clear that customers with GROHE Sense Guard installed will suffer less damages with smaller payouts. It has been proven.

5 ANALYSED DATA



Graph top left

Pressure curve within a water pipe in Finland. Unusual pattern detected by GROHE Sense Guard.

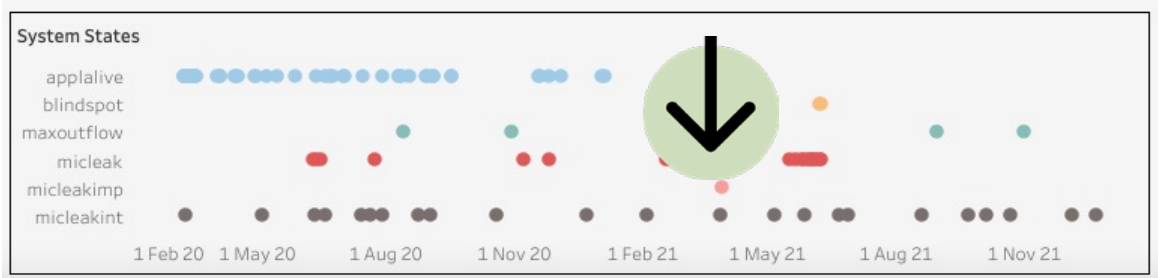
Graph mid left

Temperature curve within a water pipe in Finland. Temperature variation can indicate an unusual behaviour.

Graph bottom left

System states indicated by GROHE Sense Guard. System states trigger a notification to the customer.

3 CASES DETECTED

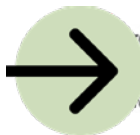


Case 1

GROHE Sense Guard was detecting an irregular pattern in May and June 2021. The customer reacted fast and created a claim at Lähi-tapiola's claims department.

Validated issue

Cold water pipe. Manifold and water pipe connection was leaking.



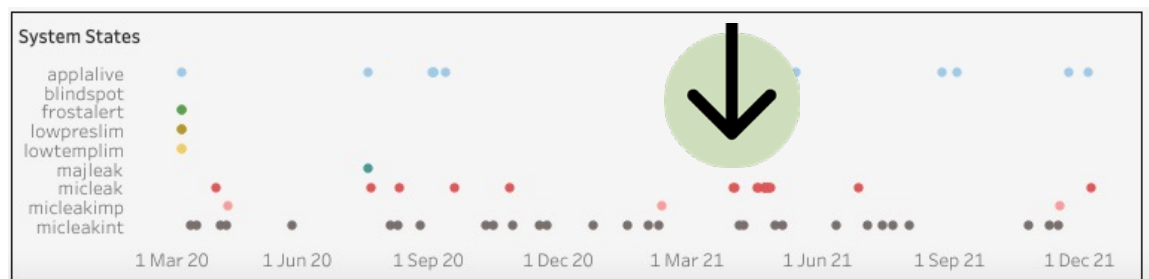
elhumabvthr	a8e35d2e-18c7-4332-8b7d-f714db4bf5b2	2020-09-09 14:03:02.000	1c173352-3712-49b0-9638-9889ed720617	2020-07-28 09:15:36.000
elhumabvthr	9d549ecb-4a31-4df1-9c36-8c808473edfb	2021-08-06 05:08:26.000	8b7a1f43-6de1-493d-afbc-02eb0c2ff9c0	2021-08-05 14:29:07.000
elhumabvthr	e17de2fd-7f8e-4d25-8298-00e57239f37e	2021-07-14 05:09:59.000	f82d88e-d8e6-46e1-874a-601b85c2178d	2021-07-13 21:47:18.000

Case 2

GROHE Sense detected a high humidity. GROHE Sense was not in perfect reach of the water leak, so didn't detect water, yet it was able to detect the leak by high humidity.

Validated issue

GROHE Sense alerted a dishwasher leak



Case 3

Guard was detecting an irregular pattern in April 2021. The customer reacted and created a claim at Lähitapiola's claims department.

Validated issue

The customer was able to find a leak on the inwall piping



Reduce CO₂
**thanks to water
damage prevention**

Due to the intensive work involved in repairing water damage, the Prevention as a Service (PaaS) model will help those who employ it to achieve their sustainability strategies.

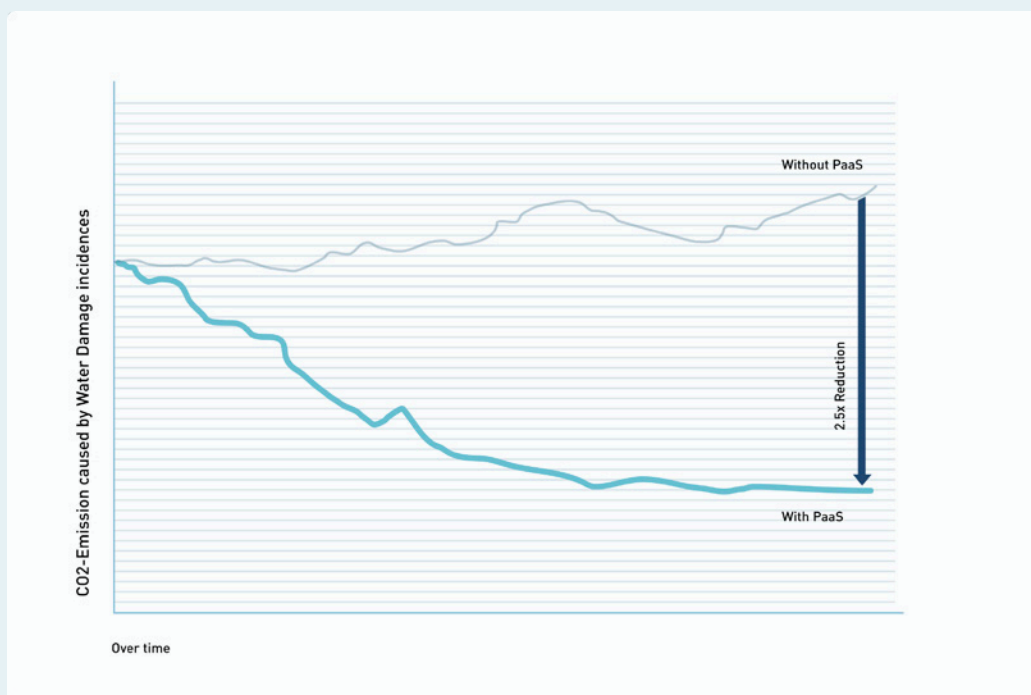
Every water damage event prevented saves the CO₂ emissions associated with repairing it. By taking active measures to prevent water damage, insurance companies are directly contributing to decreasing CO₂ emissions.

The main sources of CO₂ emissions include:

1. Installation of new materials and demolition of the damaged material
2. Transportation of the tradespeople handling the work and of the materials
3. Electricity required for the drying/dehumidification process.

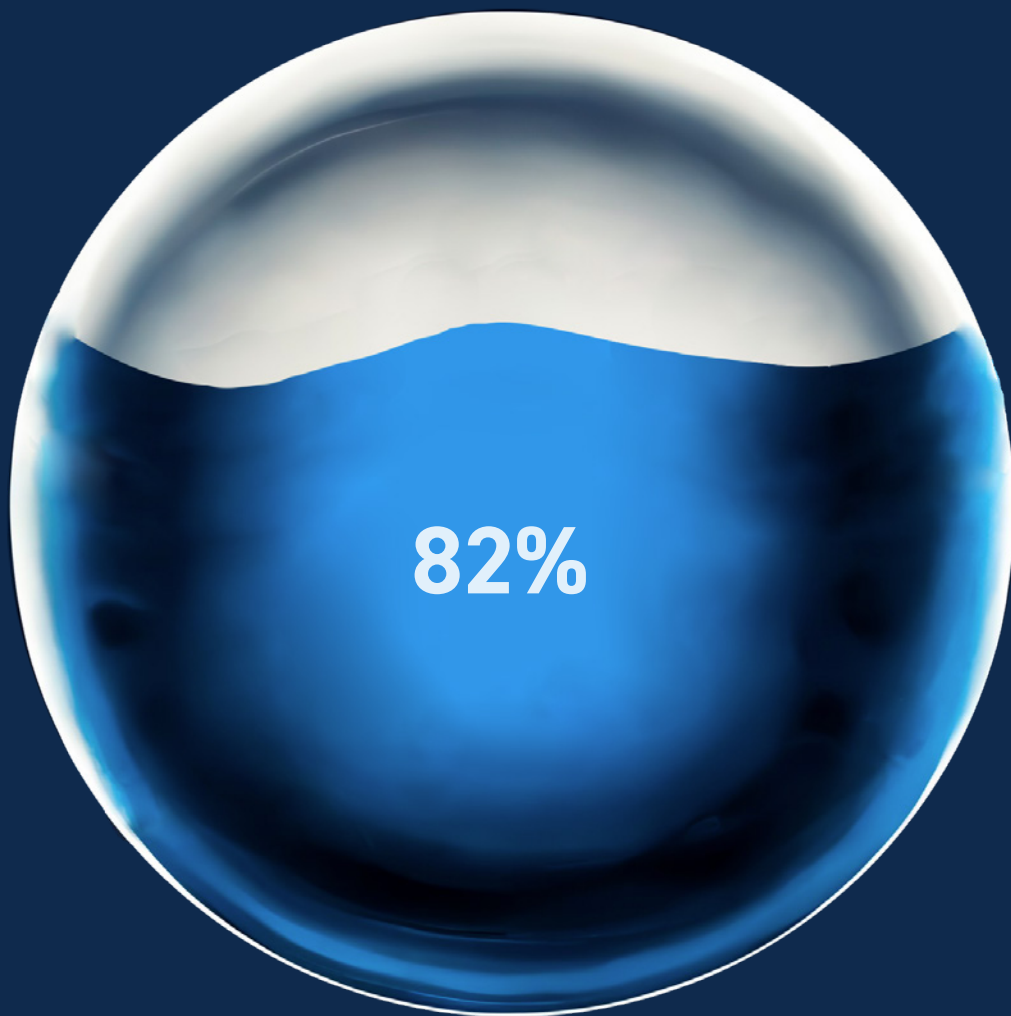
By taking measures that actively prevent water damage, you are reducing CO₂ emissions, the number of claims, and their cost. This means a win-win situation for everyone involved: the environment, the insurance company, and the customer, who gains security and peace of mind.

CO₂-Emission caused by Water Damages

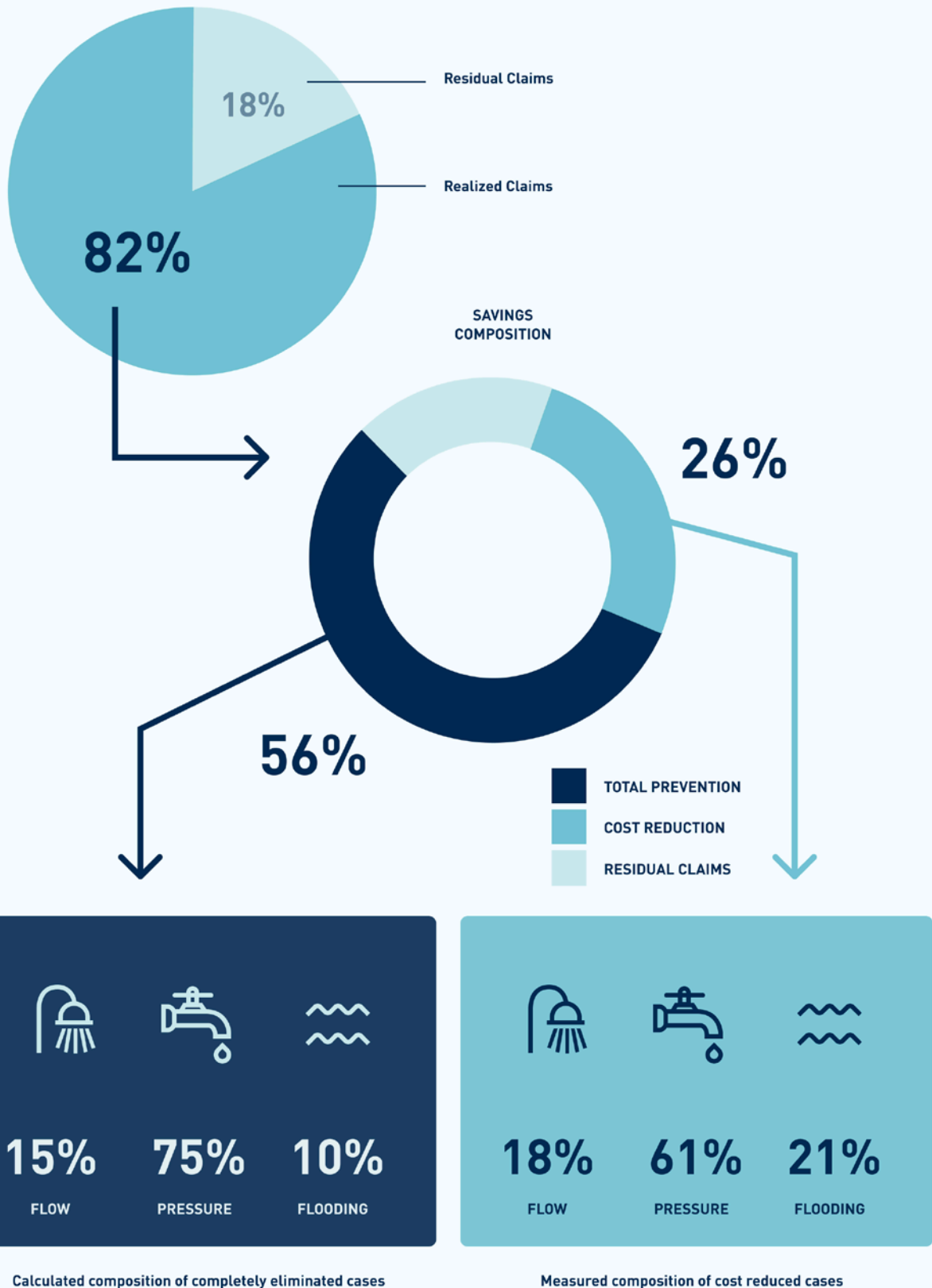


There were 5,500 homes secured in the pilot phase, and we managed to reduce the occurrence of water damage in high-risk homes from as high as 6 percent to 1 percent. So you have already reduced emissions by reducing the occurrence rate and the extent of water damage. Reduced damage means reduced CO₂ emissions. An insurance company can act as a catalyst for a more sustainable future.

SURU's Prevention as a Service (PaaS)
- savings achieved in Europe



SURU PaaS: Breakdown of proven savings across Europe



Calculated composition of completely eliminated cases

Measured composition of cost reduced cases

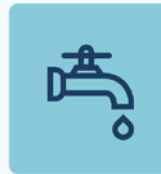
Where the savings were made

**EARLY DETECTION CAN
REDUCE COSTS,
PREVENTION CAN TOTALLY
ELIMINATE THEM.**



FLOW

- Unusually high consumption
- Max. water flow
- Pipe damage



PRESSURE

- Micro leaks
- Blind spots

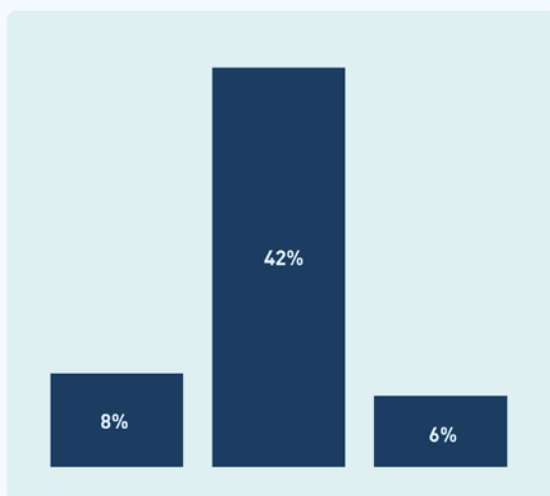


FLOODING

- Water detected
- Flooding



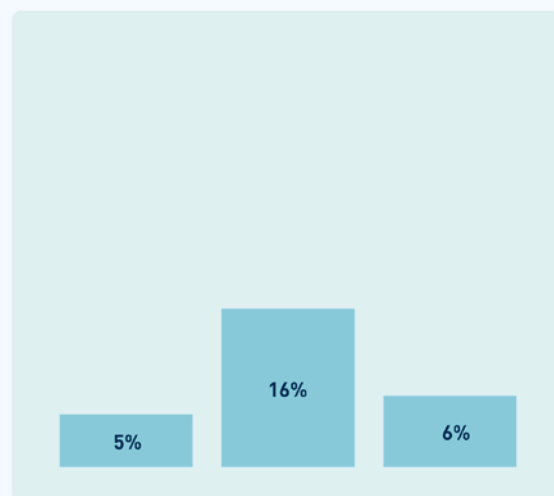
IMPACT ON SAVINGS PREVENTED/REDUCED COMPARING FLOW, PRESSURE AND FLOODING



PREVENTION
BY FLOW

PREVENTION
BY PRESSURE

PREVENTION
BY FLOODING

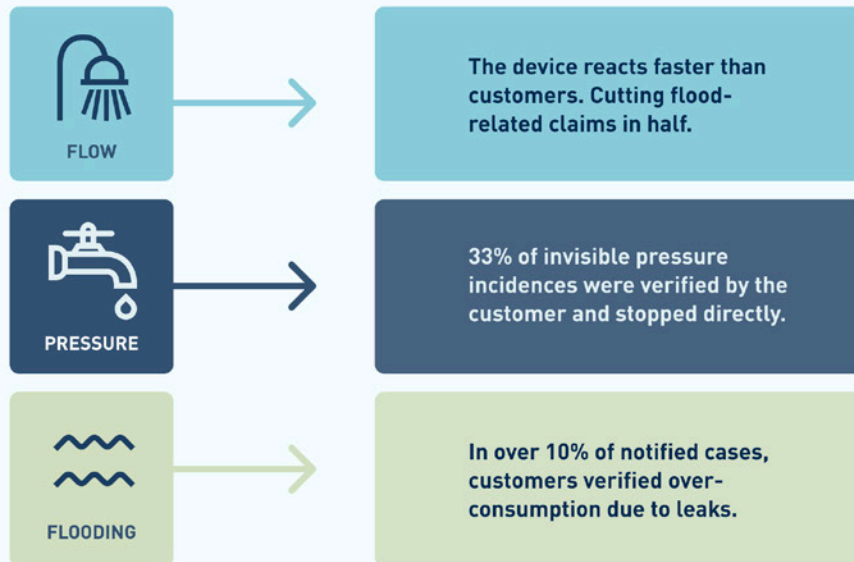


COST REDUCTION
BY FLOW

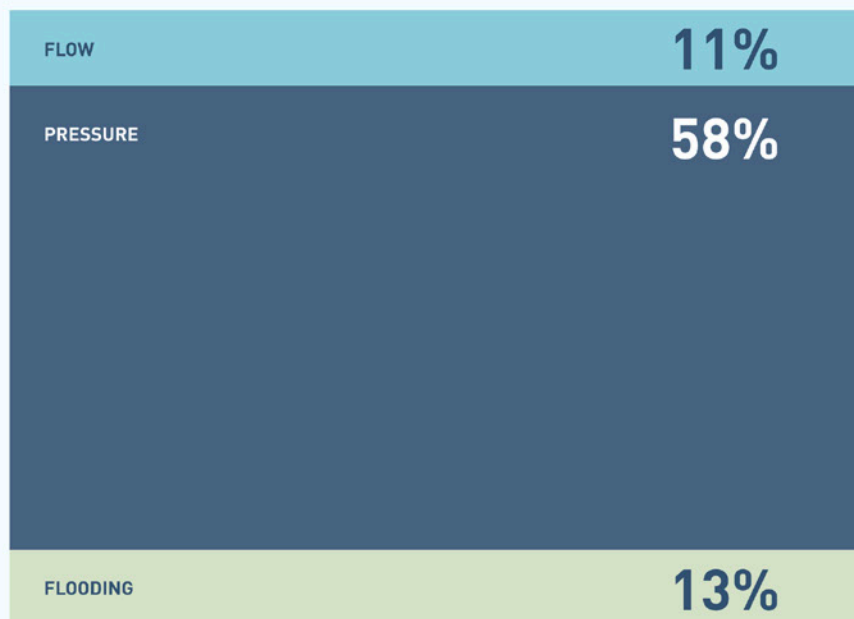
COST REDUCTION
BY PRESSURE

COST REDUCTION
BY FLOODING

What customers experienced



Complete savings



'22

CONTACT

Claus Kurt Nielsen
+45 3114 2286

Email
claus.nielsen@suru-water.com