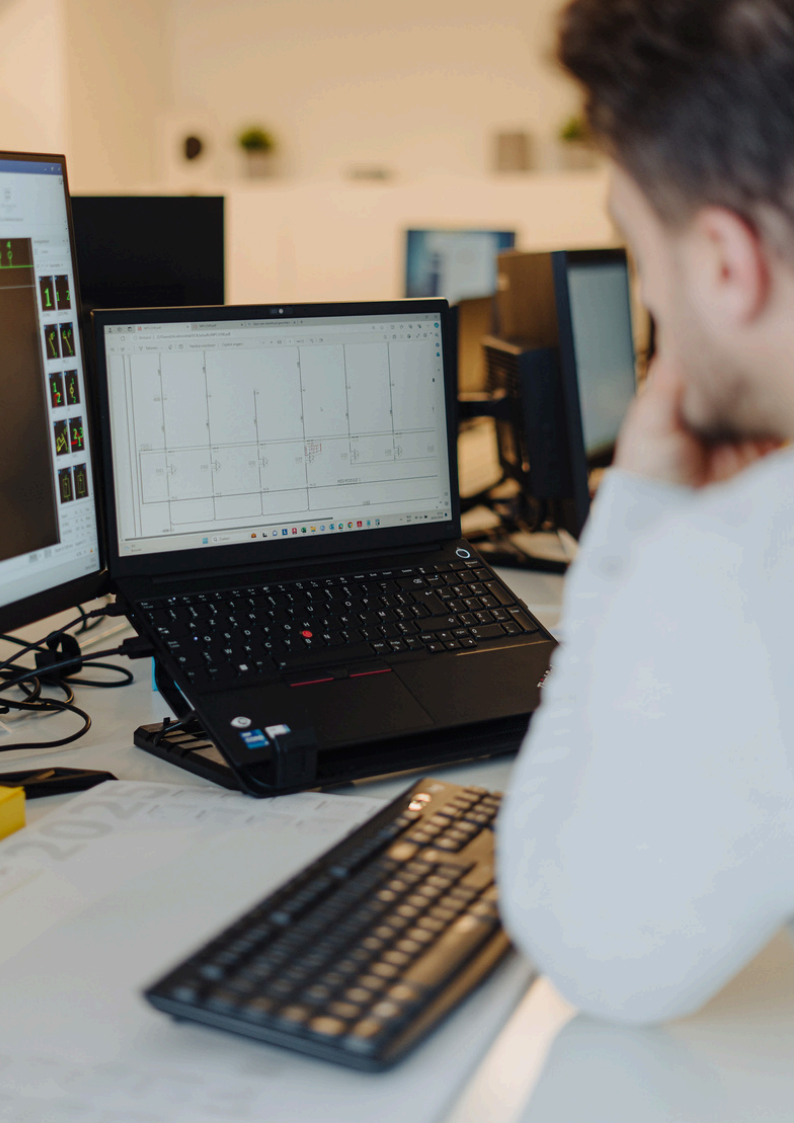




**Experience,
Never Retires:
Keeping Knowledge on the
Shop Floor.**

**Cabinet
Manager**

LIGHTSTREAM



Maintain trust

Design and digital maintenance of your industrial machinery. The hand on the shoulder of your maintenance technicians.



**We breathe Volts,
eat Ampères for
breakfast, radiate
Lumen and can't
Resist a Watt.**

LIGHTSTREAM

[Lightstream.be](https://lightstream.be)

Preface

If you've worked in industrial environments, you know that experience is priceless. The way a senior technician can listen to a motor and know what's wrong, or glance at a panel and spot the anomaly that others miss, these are skills built over decades. Yet many of the most skilled people leave the shop floor not because they want to, but because the physical demands eventually become too much.

At LightStream, we've seen this first-hand. We have stood next to teams where the "go-to" expert was suddenly absent due to injury or retirement. We have watched younger colleagues step up bravely, but without the same confidence or context.

The result? Slower interventions, mounting frustration, and knowledge that simply vanishes the moment an experienced colleague leaves.

That is why we started asking ourselves a couple simple but powerful questions:

What if experience didn't have to retire with the body?

What if you could keep your most experienced people on board, without the physical strain?

This whitepaper explores that idea. Not as a dream of the future, but as a solution available today. Through Remote Assistance and Augmented Reality, we can give every technician an extra set of expert eyes in the field. Instead of describing a problem over the phone, what if a senior colleague could see through your eyes and guide your hands in real time? What if the knowledge of your most trusted experts could be present on every shift, in every plant, without them needing to climb a ladder, carry a toolbag or rush to the site?

We proved this concept during demonstrations like "Troubleshooting the Game" at Hannover Messe, where even simple issues such as a loose RJ45 connector could be resolved in seconds with AR support. But the impact is far bigger than efficiency gains. This is about creating inclusive workplaces, where older technicians can continue to contribute without the physical burden and younger technicians can learn faster, safer and with real confidence.

Whether you are a site manager trying to retain critical knowledge, an OEM looking to scale service or a maintenance team leader balancing resources ... Remote Assistance through AR offers a new way forward. It allows experience to outlast muscle and ensures that no expertise is ever wasted.

I hope this whitepaper sparks ideas, questions and action. Because if there is one thing we have learned in the field, it is this:

Experience may slow down with age. But it should never retire.



Dylan Caufrier
Founder Lightstream

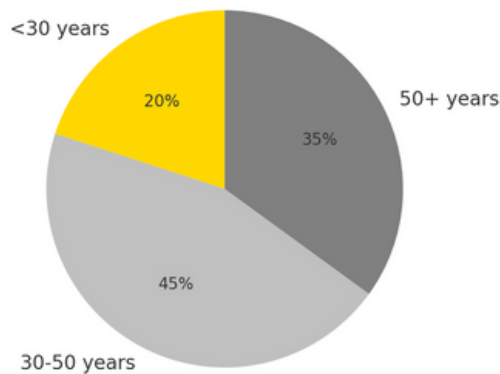
Dylan Caufrier
Founder & CEO, LightStream

The workforce challenge

Industrial companies face an undeniable demographic shift. Workforces are aging and fewer young professionals are choosing technical careers. According to Deloitte, by 2028, 2.4 million skilled jobs in manufacturing could go unfilled. At the same time, those who remain are being asked to work longer, as retirement ages rise worldwide.

But the reality of industrial work is physical: heavy lifting, climbing, crawling, exposure to risks. For older technicians, this leads to higher absenteeism and earlier exits. Meanwhile, the knowledge drain accelerates.

Industrial Workforce by Age Group



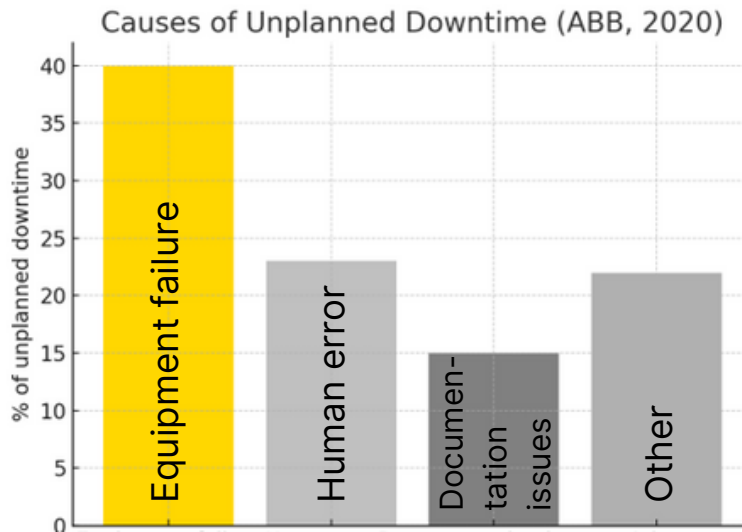
The demographics tell their own story. Today, about 35% of the industrial workforce is already over 50 years old. Within the next 10 to 15 years, the majority of these employees will retire. If we extend the lens to those aged 45 and above, nearly half of today's workforce will exit within the same timeframe.

This is not a distant forecast, it is a ticking clock. Unless companies act now to capture and transfer knowledge, they face an unprecedented loss of expertise.

The cost of losing experience

When senior technicians leave the field, companies lose more than labor capacity. They lose context: the subtle understanding of systems, the shortcuts, the "sixth sense" for diagnosing issues. McKinsey estimates that unplanned downtime can cost industrial firms up to \$260,000 per hour in some sectors.

But let's look deeper into the causes of that downtime. ABB's research highlights that:



- 40% of unplanned downtime comes from equipment failure, often linked to aging assets.
- 22.5% is the result of human error. This number is striking, because mistakes multiply when technicians lack experience or are rushed without proper guidance. Fatigue, incomplete training, or simple oversight in high-stress conditions can bring entire production lines to a halt.
- 15% stems from documentation issues: missing, outdated, or inaccessible information. A wrong schematic, a delayed update, or uncertainty about the as-built status creates costly hesitation or, worse, dangerous mistakes.

And this is where the workforce challenge and documentation challenge intersect. Human error and documentation issues together account for more than a third of all downtime. These are not failures of machines, but of the systems around the people who maintain them. The moment experienced staff walk out the door, both risks grow exponentially.

Remote Assistance directly targets this problem. By giving technicians immediate access to senior expertise and up-to-date digital documentation, you reduce the likelihood of both human error and documentation-driven mistakes. In other words: you shrink nearly 40% of the downtime risk.

Consider the ripple effect:

- A retired expert might have known that a specific valve always sticks after a shutdown, saving hours of troubleshooting.
- A missing drawing might force a younger engineer to open a cabinet blind, with safety risks that an experienced colleague would have anticipated.
- An overlooked calibration setting might escalate into a costly production interruption, all because the “tribal knowledge” never made it into the documentation system.

The **loss of experience magnifies the causes of downtime** identified by ABB. Equipment will always fail eventually, but whether it takes minutes or hours to get a line running again depends on how much context and know-how is available in that moment. Without experienced eyes to guide interventions, both the likelihood and the cost of downtime increase dramatically.

What if you could keep them on board?

Imagine a world where experience doesn't retire. Where senior technicians continue to support operations, not with their physical presence, but with their expertise. For decades, industrial companies have relied on a small group of "go-to" experts: the ones who know the quirks of the installation, who remember every upgrade, and who can diagnose problems faster than any manual. Yet when those experts step off the shop floor, much of that value is lost. Documentation alone cannot capture intuition, and younger colleagues cannot instantly replace decades of hands-on insight.



Remote Service Teams make it possible to preserve that value. Instead of carrying tools, senior staff carry knowledge. They coach, validate, and guide in real time, without the physical strain of climbing ladders, crawling through switchrooms, or rushing across large industrial sites.

Picture this:

- A 62-year-old electrical specialist, no longer fit for daily fieldwork, sits comfortably at a desk with an Apple Vision Pro headset. A junior technician in the field connects and shares their exact perspective. Within moments, the senior expert identifies the root cause of the issue and guides the repair step by step.
- A chemical plant preparing for commissioning distributes tasks across teams. Experienced supervisors no longer need to be physically present in every control room, yet they remain virtually available to check setpoints, validate safety steps, and mentor younger colleagues on the spot.
- An OEM facing global demand scales service by centralizing expertise. Senior engineers based in one location support dozens of sites simultaneously, eliminating travel time while ensuring the same level of quality everywhere

The benefits are clear:

- Extended careers: valuable experts remain active contributors, even as physical limitations increase.
- Lower absenteeism: older technicians face less risk of injuries and strain, reducing costly sick leave.
- Mentorship at scale: instead of training in classrooms, juniors learn in the field, supported by live guidance.
- Consistent quality: interventions are validated by experts regardless of who is physically present.

Experience doesn't have to walk out the door. By keeping your senior technicians "on board" as knowledge multipliers, you unlock a new model of industrial collaboration, one where expertise flows continuously, bridging generations, and where no hard-earned skill is ever wasted.

How remote assistance makes it possible

Remote Assistance, enabled by Augmented Reality (AR), allows technicians in the field to share their live perspective with senior experts.

Through devices like Apple Vision Pro, the expert can literally see what the technician sees and guide their actions step by step. Hands stay free, decisions are faster, and no one has to guess.



What makes this powerful is not just the video feed, but the immersive layer of context. An expert can highlight a component directly in the technician's field of view, draw instructions in mid-air, or overlay critical data from the documentation system. The guidance is not abstract or verbal alone, it is visual and immediate, exactly where the work is happening.

During demonstrations such as “*Troubleshooting the Game*” at Hannover Messe, we proved the value of this approach in measurable terms. Technicians using AR-enabled guidance reduced troubleshooting time by a factor of ten compared to paper-based workflows, and by half compared to tablets. Even simple problems, like a loose RJ45 connector, were solved in seconds rather than hours.

But the impact extends well beyond speed. Remote Assistance also:

- Improves safety: technicians keep both hands free while receiving instructions, reducing risky maneuvers.
- Reduces stress: no more long phone calls trying to “describe what you see.” Experts can see it directly and remove ambiguity.
- Strengthens collaboration: multiple stakeholders (engineers, contractors, OEMs) can join the same live session to validate and decide together.
- Builds learning-by-doing: junior staff don't just hear what to do, they see it and perform it in real time, accelerating their growth curve.

The result is a workflow where distance, documentation gaps, and knowledge silos no longer dictate the outcome. Whether the issue is a faulty connector, a miscalibrated valve, or a safety-critical reset, ...

Remote Assistance ensures the right action is taken the first time.

Remote Assistance is not just a new way to communicate, it is a new way to work. By merging human expertise with augmented reality, it ensures that knowledge is always present where it is needed most... in the hands and in the line of sight of the technician. This is how we turn decades of experience into a living resource, available at any moment, for any challenge.

Strategic benefits for companies

Keeping senior experts on board through Remote Assistance offers more than an answer to today's workforce shortages.

It creates a structural advantage that strengthens efficiency, resilience, and culture across the organization..



Retention of critical knowledge

When a senior technician leaves, the company loses far more than a pair of hands. It loses decades of tacit knowledge: the unwritten tips, the recognition of patterns, the ability to anticipate failures before they happen. Remote Assistance preserves this knowledge by transforming it into a shared resource. Senior experts remain accessible to every intervention, ensuring that experience continues to guide decisions in the field.

Reduced absenteeism and healthier careers for older staff

Industrial work is physically demanding. Heavy tools, confined spaces, repetitive strain, and exposure to risks all take a toll, especially on older employees. By moving from physical fieldwork to digital support roles, senior staff can continue contributing without jeopardizing their health. This reduces absenteeism, prevents early retirements, and extends careers, while keeping their knowledge in active use.

Inclusive workplaces where generations collaborate

Remote Assistance bridges the generational gap. Senior technicians remain actively engaged as mentors, while junior colleagues gain confidence under their live guidance. Instead of a division between “those who can still do the work” and “those who know but are retired,” companies create inclusive teams where every age group has a valued role. This improves morale and creates a culture of learning and respect.

Faster onboarding for new hires

Traditional onboarding in industry is slow and expensive. Juniors often spend months shadowing more experienced colleagues before they can operate safely on their own. With Remote Assistance, new technicians receive real-time guidance during actual interventions. They learn by doing, but with the safety net of expert oversight. This shortens the learning curve, reduces errors, and allows new hires to deliver value sooner.

Consistency and quality across interventions

Even the best-trained junior cannot replace decades of expertise. Without guidance, interventions vary in quality depending on who is on shift. Remote Assistance ensures a consistent standard across all sites and teams. Senior experts can validate work in real time, flag potential mistakes, and enforce best practices. The result is higher reliability, fewer repeat interventions, and stronger compliance with safety and quality standards.

From physical resource to scalable knowledge asset

Perhaps the greatest benefit is strategic. Instead of treating senior staff as a limited physical resource that eventually retires, companies transform them into a scalable knowledge asset. Their expertise is no longer tied to a single shift, site, or role. It becomes available anywhere, anytime, across the entire organization, amplifying its value rather than letting it fade away.

Remote Assistance does more than solve immediate staffing problems. It ensures that experience continues to shape decisions, that careers can be extended without physical strain, and that the next generation is supported rather than left to struggle alone. In an industry where every mistake is costly and every delay matters, this is not just a technological advantage, it is a cultural one. Companies that embrace it will not only retain their most valuable asset “**knowledge**”, they will multiply it across every corner of their operations.

Case for Action

The workforce challenge is not theoretical, it is already here. Companies that continue to rely solely on physical presence will struggle with knowledge gaps, safety risks, and rising costs.

- According to Deloitte, **77% of manufacturers report difficulties in attracting and retaining workers**, and the gap is widening each year.
- The U.S. National Association of Manufacturers estimates that by 2030, 2.1 million jobs will remain unfilled in the sector if no action is taken.
- Korn Ferry projects **a global talent shortage of 85 million people** by 2030, representing \$8.5 trillion in unrealized annual revenues.
- Absenteeism due to musculoskeletal disorders already represents 30–40% of long-term sick leave in heavy industry across Europe.
- Studies (ABB, ServiceMax) show that human error and documentation issues together cause nearly 40% of unplanned downtime, failures that are largely preventable with better knowledge transfer and guidance.

Remote Assistance provides a scalable strategy: it redefines how experience is deployed. Instead of losing it, you can extend it. Instead of sidelining your most experienced people, you can keep them central to your operations, not as a physical resource, but as a knowledge multiplier.

The question remains: what if you could keep your most experienced people on board, without the physical strain? With the right tools, you can. Remote Assistance ensures that knowledge never retires, that experience is shared across generations, and that your workforce is prepared for the future. At LightStream, we believe this is not just about technology, but about people.

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Gain time



Manage all documents

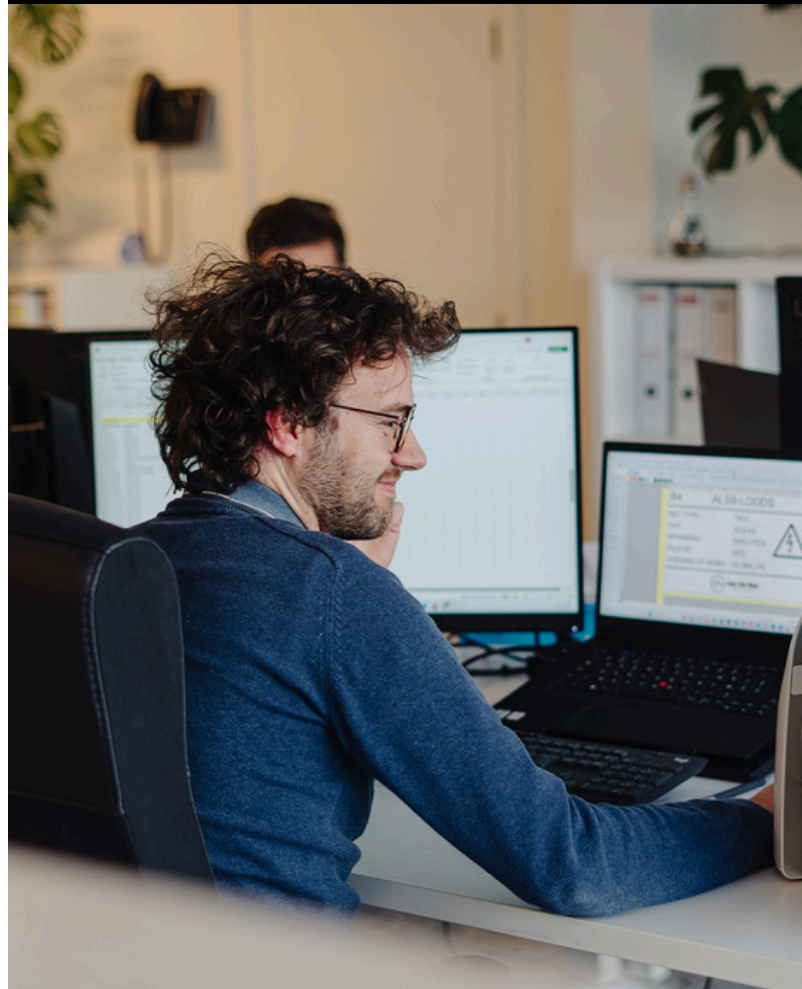
Have real-time access to up-to-date technical information

Cabinet Manager ensures a cost-efficient and secure workflow:

- Scan the QR code on the technical installation. Via personal login you get access to the necessary information. No information overload, only information that is relevant to you.
- From plans, inspection reports and manuals to emergency contacts: everything is available digitally at one place.
- Adjustments are visible in real time to colleagues and technical partners.
- Share quick fixes and insights through the Frequently Encountered Problems feature and help your colleagues solve problems faster.
- The software is available in 5 languages so that everyone in your international team can find their way around quickly.
- Log in easily via tablet, smartphone and desktop. You don't need an app for that. Handy!



**Cabinet
Manager**



cabinetmanager.be

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