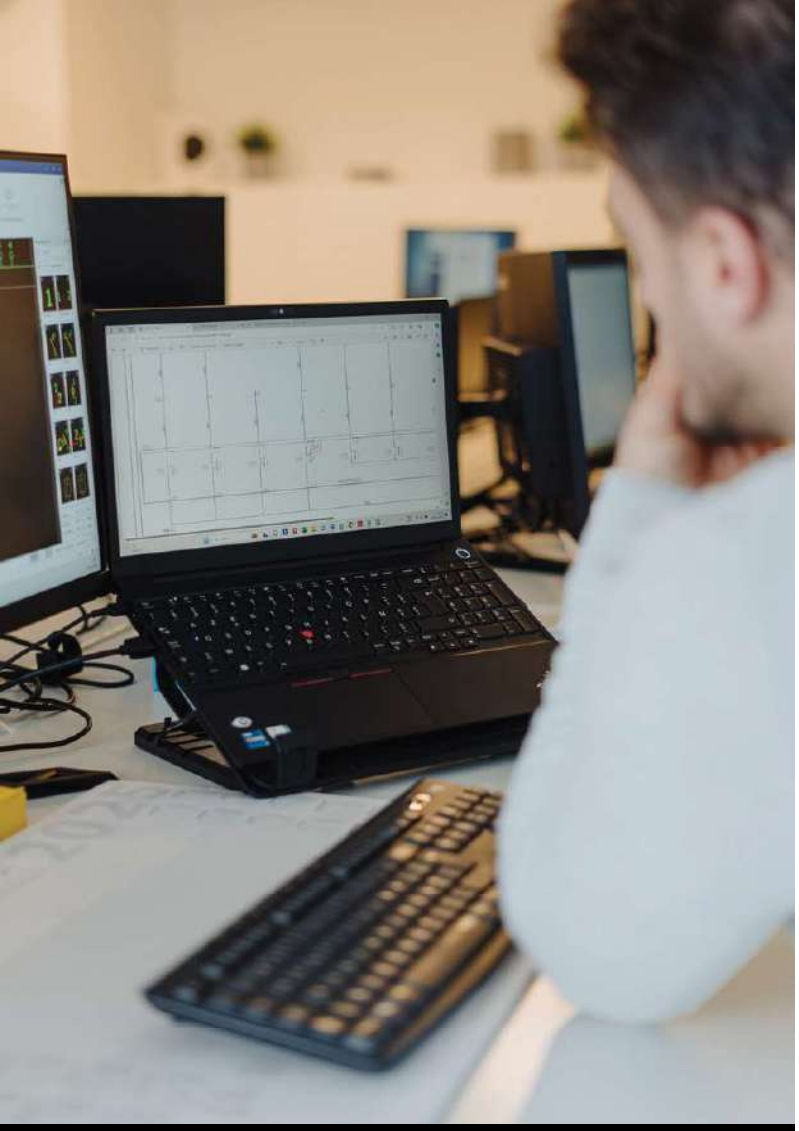
Mastering content sprawl

How to tackle the Asbuilt Documentation Challenge

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 Ampéres for breakfast, radiate Lumen and can’t Resist a Watt.

Lightstream.be

Preface

Dylan Caufrier
Founder Lightstream

In recent decades, the industrial sector has experienced tremendous technological advancements, with Industry 4.0 being one of the most transformative changes. Advanced automation systems, smart sensors, and digital tools have led to improved efficiency and safety but also bring new challenges. The role of maintenance technicians has drastically changed as a result; whereas they previously applied their expertise fully by addressing physical malfunctions, they are now often faced with complex digital systems and increasing administrative pressure.

This white paper delves into the uncertainties and challenges that technicians face today, such as time pressure, complex installations, insufficient information, loss of experienced staff, evolving technology, collaboration between different departments and external partners, and the perceived loss of autonomy. These uncertainties can lead to frustration, inefficiency, and even safety risks.

CabinetManager offers solutions to address these challenges by providing technicians with the tools they need to work effectively and confidently. By centralizing all essential information, promoting collaboration across departments, capturing knowledge, and giving technicians direct access to the right documentation on-site, CabinetManager not only supports them in maintaining installations but also in embracing digital transformation.

This white paper describes how CabinetManager meets the needs of the modern technician and how it can contribute to a more efficient, safer, and future-proof workplace. We invite you to explore the insights and solutions that empower technicians not only to keep up with changes but also to actively shape them.

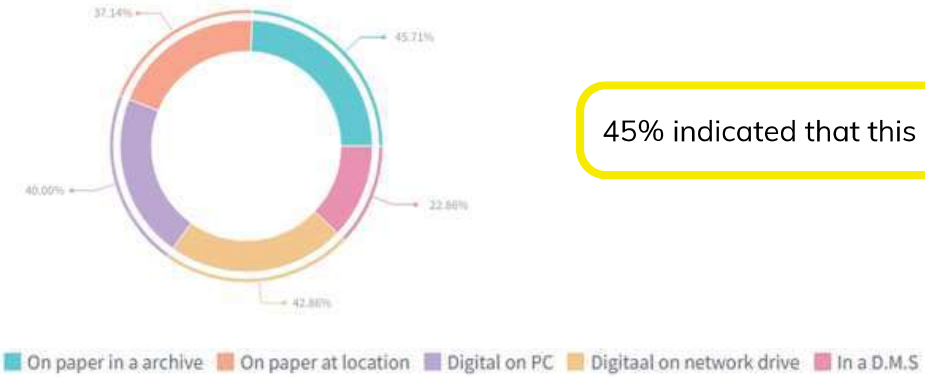
Dylan Caufrier

Asbuilt documentation, A neverending story

Industrial installations are complex systems comprising a large number of technological components. To ensure optimal performance of these systems, regular and thorough maintenance is crucial. If maintenance is not properly carried out, even minor issues can cause major failures, leading to production stoppages. Frequent maintenance activities and adjustments to installations result in regular changes, which in turn require constant updates to the associated documentation to ensure safety and efficiency.

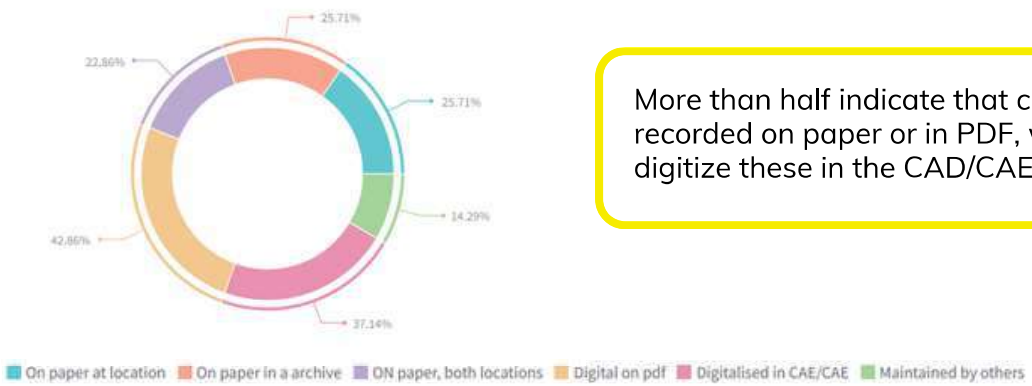
In 2024, we conducted a survey on this topic among visitors at national and international trade fairs. More than 200 unique participants completed the questionnaire, in which we asked them the following questions:

How is the technical documentation of your installations maintained?



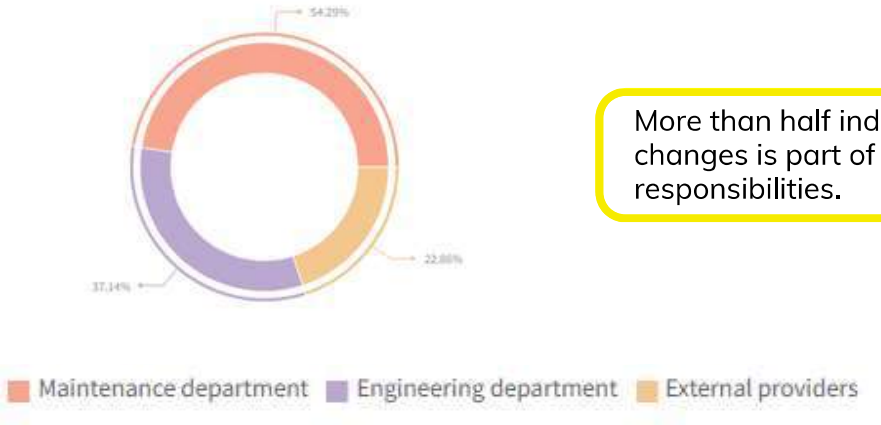
45% indicated that this is primarily done on paper.

How are changes to an installation documented and distributed within your organization?



More than half indicate that changes are only recorded on paper or in PDF, while 40% also digitize these in the CAD/CAE native files.

Who is responsible for the digitization of changes in your installation?



More than half indicate that the digitization of changes is part of the maintenance staff's responsibilities.

On a scale of 1 to 10, how essential is on-site installation documentation during a maintenance intervention?

On a scale of 1 to 10, the average score is 7.66, indicating that this would strongly support an intervention.

On a scale of 1 to 10, how would you rate the accuracy of your installation documentation?

On a scale of 1 to 10, the average score is 5.44, indicating that the accuracy of the documentation is highly susceptible to improvement.

The survey indicates that the technical documentation of industrial installations is often outdated and not optimally managed. A large portion of organizations (45%) still relies on paper documentation, which causes issues in tracking and disseminating changes. Additionally, nearly half of the respondents document changes only on paper, indicating a limited degree of digitization.

It is clear that the responsibility for documentation updates often falls on the maintenance staff, leading to increased workload and a risk of inconsistencies. Although the majority of participants indicate that up-to-date documentation is essential for daily operations, the results show that its accuracy often falls short.

These findings highlight the urgent need for an effective solution to improve the digitization and management of technical documentation, aimed at ensuring the efficiency and safety of industrial installations.

Solution: A new digital tool ?!

Technicians are naturally hesitant when it comes to the implementation of digital tools; furthermore, they are rarely involved in the selection and final implementation of these tools.

Their hesitation can often be attributed to the following obstacles

Familiarity with paper processes

Many technicians are accustomed to paper documentation, which has been the norm in the industry for years. The transition to digital tools requires a change in working methods and can be perceived as a significant challenge.

Lack of user-friendly software

Not all digital solutions are designed with the end user in mind. If the software is not intuitive or user-friendly, it can create resistance among technicians who are already busy with their daily tasks.

Time investment and learning curve

It takes time to learn how to use new tools, and technicians often feel that this time could be better spent on their current tasks. The impression that digital tools bring additional administrative burdens contributes to their hesitance.

Lack of training and support

If technicians do not receive adequate training and guidance when implementing a new tool, it can lead to frustration and demotivation. The lack of practical support makes the transition to digital solutions more difficult.

Insufficient perceived added value

When technicians do not see how digital tools make their work easier or improve quality, they are less likely to use them. Demonstrating concrete benefits, such as time savings or increased safety, can help break this resistance.

Fear of change and loss of autonomy

Changes in working methods can bring about uncertainty, especially if technicians feel that their expertise and knowledge are less valued in a digital context. Furthermore, the introduction of new tools can feel like a loss of control over their work processes.

The implementation of digital tools in industrial environments must be both practical and human-centered. The challenges faced by technicians—from paper habits and software complexity to time investment and training—call for an approach that respects their workload and technical expertise.

Make me ditch this pen.

Everyone who has seen the film 'The Wolf of Wall Street' remembers the legendary scene with the command 'Sell me this pen.' If we translate this tagline into the world of technicians, it would sound more like **'Make me ditch this pen.'**

Source: Martin Scorsese, 2013, Wolf of Wall Street , Paramount pictures

And rightly so!

For the technician, the pen is always available, regardless of the type of paper. It doesn't require batteries or Wi-Fi. Simple matters can be noted immediately without the need for complex software (often plagued with bugs).
In short, the pen symbolizes autonomy, convenience, and efficiency.

The lifecycle from the Proof of Concept to the product that CabinetManager is today has provided valuable insights through many tests and iterations on how we can overcome these obstacles. The question now is: how can we transition from 'Make me ditch this pen' to a digital experience?

To be effective, we must address the uncertainties of maintenance technicians and provide them with the tools that help alleviate these uncertainties.

What are the uncertainties for technicians, and how do we address them with CabinetManager?

Time pressure

Every production downtime incurs enormous costs, placing immense pressure on technicians to resolve issues as quickly as possible. This urgency can lead to stress, negatively impacting the quality of their work.

Research and studies we have conducted with our clients have shown that an average of 10 minutes per intervention is lost searching for the right information and context. This can relate to schedules, installation documentation, or the history of problems, especially when the defect has occurred in the past. Searching for the right information is a significant factor contributing to the time pressure that technicians experience.

CabinetManager offers a solution to this challenge by leading technicians to an overview page with a simple scan of a QR code, where all relevant information is clearly presented. This ensures that technicians have immediate access to the necessary data without wasting time searching. As a result, we can save an immediate 10 minutes on 'troubleshooting' time.

Complexity

Industrial installations are complex systems consisting of a wide range of components, such as PLCs, variable frequency drives, and sensors. Industry 4.0 has undeniably revolutionized automation, but this progress has also brought a downside: industrial installations have become more complex than ever. Where technicians once followed a physical wire to troubleshoot issues, they are now faced with digital signals transmitted via various network protocols over Ethernet cables. The components are 'smarter' and more advanced, but this comes with extensive manuals and documentation that are difficult to navigate.

The increasing complexity of installations also leads to subtle, 'invisible' faults that are not visible to the naked eye, making troubleshooting more complicated. Furthermore, it is impossible for technicians to become fully proficient in all components and technologies, resulting in a growing need for specialized knowledge and support.

CabinetManager provides an answer to this challenge by supplying technicians with the right information at the right time. The system centralizes and organizes manuals, technical specifications, and other essential documentation in an accessible manner, without overwhelming the user with irrelevant data. This ensures that technicians receive exactly the information they need to quickly understand and resolve complex problems.

Information fragmentation

The documentation that technicians need is often scattered across different locations and sometimes even completely absent from the place where they need to use this information. This lack of accessible and relevant information leads to frustration and uncertainty, especially when quick decisions are required.

Necessary information for technicians:

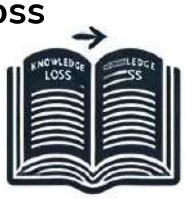
- Schematics and plans
- Inspection reports
- Manuals
- Datasheets
- Procedures
- Installation history
- ...

When examining the information silos where this crucial data is stored, we see that:

- Schematics and plans are often most up to date on paper, usually located at the installation site.
- Inspection reports are typically found in archives.
- Manuals and datasheets are often stored on a network drive.
- Procedures are stored in maintenance software.
- Installation history is stored in maintenance software.

CabinetManager centralizes all this information in a clear dashboard, allowing technicians quick access to the most recent and accurate data. This creates a 'single source of truth' that significantly improves the efficiency and effectiveness of the maintenance process. As a result, technicians can perform their work with more confidence and less uncertainty, knowing that they always have the right information at their fingertips.

Knowledge loss



Many organizations face an aging technical staff approaching retirement, leading to a potential loss of a wealth of expertise and practical knowledge. This situation is further complicated by higher employee turnover, resulting in technicians with the right experience often being unavailable when they are most needed. This loss of knowledge and continuity places additional pressure on the remaining technicians, who may not have the necessary experience to quickly resolve complex problems.

Moreover, this often leads to absenteeism and understaffing, creating a vicious cycle: with too few personnel and knowledge, maintenance is often carried out only minimally, resulting in higher risks of failures and longer downtime. This increasing pressure to achieve the same results with limited resources can negatively impact the quality of maintenance and undermine the overall efficiency of the team.

CabinetManager offers a solution with the **Frequently Encountered Problems** module: every intervention is documented, including the cause of the problem and a quick fix, allowing technicians to act quickly on recurring failures. This way, valuable knowledge is retained even when experienced technicians leave. Additionally, the Emergency Contacts module links responsible parties to installations, enabling technicians to quickly reach the right person, which enhances the speed and effectiveness of problem resolution.

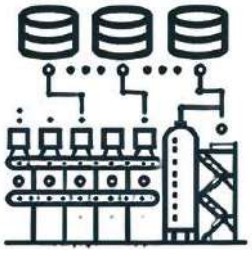
Evolving technology

The rapid advancement in technology continuously challenges technicians to learn new skills and adapt to a changing work environment. This constant need to keep up can lead to feelings of overwhelm and stress, especially when adequate training or support is not available. The fear of not keeping up with the latest developments or falling behind colleagues can further undermine the motivation to embrace new tools and systems.

In the past, technicians could primarily focus on their core tasks, such as maintenance and troubleshooting. However, nowadays, the administrative aspect of their daily work is increasingly growing. Our survey shows that this is a source of frustration for many technicians, as they not only have to manage operational tasks but also master a wide range of software applications. For nearly every process—from accounting and purchasing to inventory management, scheduling, and personnel management—there is a specific software solution. Although these tools are intended to streamline administrative processes, they often contribute to the complexity of the work environment, causing technicians to lose oversight and 'don't see the wood for the trees.'

CabinetManager centralizes maintenance and troubleshooting tasks in one 'installation' dashboard, allowing technicians to quickly take the right actions and easily record details in the Frequently Encountered Problems module. This reduces the administrative burden and shares information efficiently. Soon, integrations with maintenance software such as SAP, Maximo, and Ultimo will be available, enabling information exchange with a single click and making manual transfer between systems redundant.

Divided information, broken collaboration



Technicians often rely on good collaboration with other departments and external partners to perform their work effectively. Unfortunately, uncertainties regarding communication and coordination can significantly complicate the process of fault transfer and problem-solving, resulting in increased workload and frustration. A lack of clear information exchange means that technicians do not always have the most up-to-date data, which can undermine the efficiency and accuracy of their work.

In many organizations, three separate 'information silos' can be identified: the maintenance silo, the engineering silo, and the 'third parties' silo. This triangle of separate worlds often leads to inefficiencies, as there is no 'single source of truth.' In practice, the maintenance team often works with paper documentation, the engineering department makes upgrades to the digital versions, and external parties such as contractors and suppliers build the installations using their own version of the information.

This creates a situation where three different versions of the truth exist, resulting in errors, misunderstandings, and delays being more the rule than the exception. The results of such an approach speak for themselves—and not in a positive way.

CabinetManager breaks down silos by enabling collaboration between maintenance and engineering. Real-time changes from the maintenance team are immediately available for digitization and upgrades, reducing errors and ensuring consistent data. External partners, such as contractors and suppliers, gain access to the most up-to-date documentation, which limits communication problems and errors caused by outdated information.

Loss of autonomy

With the increasing implementation of digital tools and systems, technicians sometimes feel less autonomous. The fear that their craftsmanship and experience are less valued in a digitizing environment can lead to resistance against new technologies and changes in work processes. This resistance is often expressed with statements like: 'We've been doing it this way for years!' The transition from working with a simple paper form to strict digital procedures in software can feel like a restriction of their freedom.

Despite the introduction of new digital processes, mistakes are still made in practice, and procedures are ignored or disregarded. Many digital applications claim to promote safety and efficiency, but if technicians only input information afterward rather than on-site, the digital tool misses its purpose. Procedures that are enforced solely through administrative obligations are viewed by many as a burden rather than a helpful tool.

CabinetManager recognizes that administrative obligations do not completely disappear but supports technicians with crucial information readily available on-site, such as 'Lock out, Tag out' procedures and safety guidelines. This saves time and promotes compliance. Through the 'Frequently Encountered Problems' module, technicians can share their solutions, contributing to a collective knowledge base and a more efficient work environment. By actively involving technicians and providing them with the right tools, CabinetManager fosters a balance between autonomy and digitization, making the adoption of technology perceived as a valuable addition.

You ditched the pen.

When to digitize... And when not to?

A conclusive answer to the approach of digital changes is not straightforward. Now that everything is managed digitally, you can consider two strategies:

- **Collecting changes and digitizing them later:** With this approach, all changes are first retained and documented to be processed into the digital source files at a suitable time—such as when there is time or budget available. This can be done by internal staff or by external specialists.
- **Processing changes immediately:** In this approach, changes are implemented immediately in the original documentation, ensuring that the data remains current and accurate at all times. However, this method requires significant time and resources to be applied consistently.

What if you combine the best of both approaches?
Not every change needs to be recorded digitally right away. Often, some adjustments are temporary—once the problem is resolved, they are reversed and do not affect the permanent data. By distinguishing between structural and temporary changes, you can deploy resources more effectively while maintaining a reliable and up-to-date digital twin.

CabinetManager combines both strategies by monitoring changes over time. When a change remains unaltered for two weeks, the system considers it definitive. The installation manager can track all changes via the tracklist and easily convert them into digitization tasks. This way, temporary information is automatically filtered out, while permanent adjustments are efficiently transferred to the digital environment, ensuring an up-to-date digital twin without unnecessary resource strain.

To conclude

The digitalization of technical documentation is not just a step towards paperless operations, but a crucial investment in the safety, efficiency, and reliability of industrial installations. In a sector where precision and speed are essential, a platform like CabinetManager strikes a balance between immediate usability and structural reliability.

By providing technicians with access to a digital, up-to-date “single source of truth” and actively involving them in digitalization processes, a culture of collaboration and efficiency emerges. At the same time, CabinetManager enables installation teams to keep track of structural changes without overwhelming them and efficiently filter temporary maintenance tasks.
Thanks to a dynamic approach and smart features, the digital twin grows alongside each installation, ensuring the value of technical expertise is preserved in an increasingly complex world.

Congratulations, you have diched the pen and embraced the digital future.

For those who have yet to start this digital journey: we warmly invite you to explore together how CabinetManager can support your installation management. Let’s see how this platform can work for you to preserve technical knowledge and elevate your installation to the next level.

Dylan Caufrier.

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Gain time

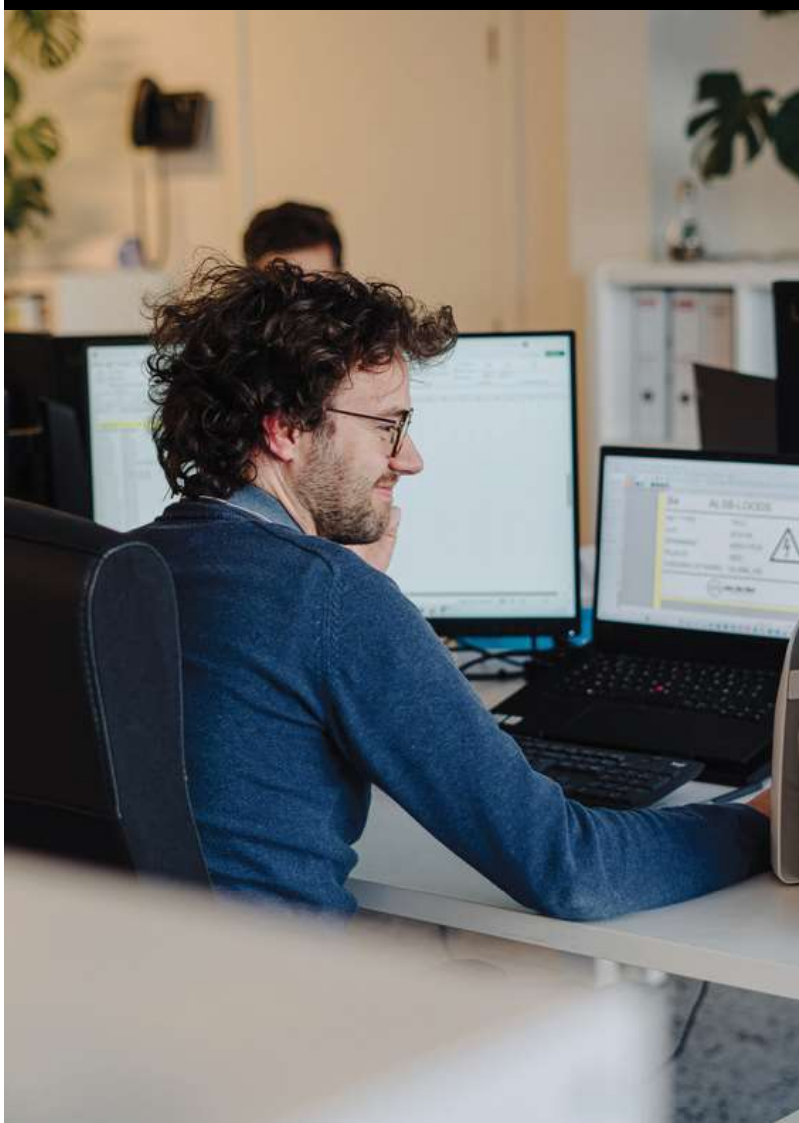
Manage all documents

Have real-time acces 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



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