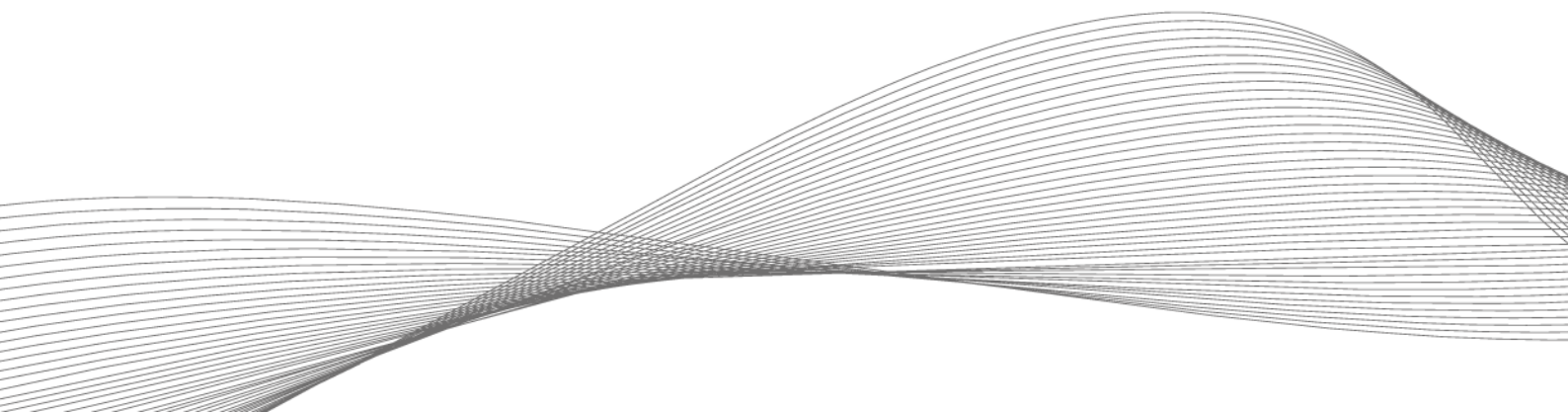# A UNIFIED AUTHENTICATION SOLUTION FOR THE MODERN FACTORY

Less complexity, more security

Modern factories are complex organizations. Employees in production, logistics and administration need access to a wide variety of machines, equipment, facilities and data, as well as access to different rooms. Who receives which authorizations depends on their role in the company. To enable secure, smooth production operations under these conditions, it makes sense to use a modern authentication solution based on radio frequency identification (RFID) and mobile technologies. These technologies can cover a wide variety of applications with a single system.

In every factory, smooth production is the top priority. With digital transformation, the machines, robots and logistics systems required for this are increasingly networked with each other via the Internet of Things (IoT). This not only allows production processes to be optimized, but also improves throughput and quality and reduces costs. However, this high degree of networking is also associated with challenges: Operating errors or acts of sabotage can have serious consequences such as plant downtimes or faulty production. In addition, the more automated the factory, the more data is generated, collected and analyzed. This valuable information must also be protected from unauthorized access.

Another sensitive area in factories is internal logistics. Although motorized industrial trucks such as forklifts, cranes or scissor lifts are indispensable helpers, their use is also associated with risks. Forklifts alone caused more than 15,000 reportable accidents in 2021.[1] To reduce the risks to people, machines and inventory as much as possible, it is therefore essential to limit their use to trained personnel.

The need to regulate access and limit it to an authorized group of people exists for manufacturing companies in numerous other areas. Access to production halls, laboratories or offices must be regulated, as must access to the company network, valuable tools, the company parking lot, or company-owned charging stations for EVs—to name just a few examples.

One system can cover all requirements

In the complex facilities of a factory, access and entry are often controlled by many different methods. Access to the machine control system requires the entry of a PIN, the forklift operator needs a key, the locker is secured with a padlock, and the computer is protected by a password. However, this patchwork not only compromises efficiency (for example, by requiring keys to be managed or PINs to be repeatedly entered), it also compromises security if, for example, passwords are shared or hacked.

"A secure, simple and efficient solution for user authentication and access control in production environments is a system based on radio frequency identification (RFID) and mobile technologies."

The basis for such a contemporary solution already exists in most companies: the classic employee ID card, which is equipped with an RFID chip—and which employees already carry with them, for example, to gain access to the factory premises. The use of RFID key fobs is also possible. In addition, digital credentials can be used on the smartphone that is always at hand. This is made possible by NFC (Near Field Communication) and BLE (Bluetooth® Low Energy) technologies.

Maximum flexibility in the choice of identification medium means that the best solution can be found for each area of the company. In administration, digital badges are particularly suitable, while in production the use of cards is recommended. Whether it is a smartphone, a card or a key fob, the identification medium is simply held up to the appropriate reader to grant access and entry without delay. This saves considerable time and increases productivity, especially when numerous authentication processes are required per shift.

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[1] https://publikationen.dguv.de/widgets/pdf/download/article/4590

A uniform solution I s not only easy to handle for employees. The administrative effort for IT is also significantly reduced. Authorizations can be assigned individually for each person and revoked if necessary. In the event of loss, the badge can be blocked via the central system.

Indispensable: Scalability, flexibility and optimization

No two manufacturing companies are the same. Factors such as manufacturing processes and machines, number of employees or the number of manufacturing sites make each operation unique. Companies should therefore implement a total solution that allows maximum flexibility and adaptations at any time. Such a scalable system allows companies, for example, to start with machine authentication and also use the badge for applications such as the use of industrial trucks. Other applications such as kiosk solutions for the use of tool trolleys, single sign-on in the company network or time recording can be successively added as required.

In any case, a user authentication system improves transparency in a factory by providing the opportunity to collect and evaluate data. The information obtained can be used to identify optimization potential in manufacturing, among other things—e.g., with regard to the use of machines, rooms or vehicles. By making processes more efficient, resources can be used more sustainably, ecological benefits can be achieved, and costs can be reduced.

To ensure that the introduction of an authentication solution based on RFID, NFC and BLE is a success, three aspects in particular must be taken into account during implementation:

1. Reliable protection of people, inventory and data
The readers used must be equipped against both physical manipulation and hacker attacks and support advanced encryption. Only then will they provide the required level of security for production environments. However, to effectively and holistically secure an RFID-based authentication solution, looking at the reader alone is not enough. It is necessary to include the complete system in the company's security concepts.

2. Universal readers offer maximum flexibility
A variety of card technologies are available on the international market, each with its own data formats, communication frequencies and security functions. Different technologies can therefore be in use within a company. Multifrequency readers, such as those offered by solution provider ELATEC, support more than 60 common transponder technologies worldwide. In addition, they are certified in over 110 countries worldwide, so that even internationally active companies can use their digital or analog credentials universally at all locations without any problems.

3. Future-proof and cost-saving in the field with remote updates
As technologies, processes and IT infrastructures change, the chosen system should allow for customization and offer regular updates and upgrades. For manufacturing companies, the option of mobile remote configuration is also important. This means that all installed readers can be easily updated—regardless of their location and thus also across different company sites.

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