

# NO FATALISM IN MANUFACTURING

CRISES. STATS. COUNTERMEASURES.

**Exciting Insights from Leading Studies**

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# Editorial

Fatalism is a philosophy of life, according to which developments and changes are preprogrammed. They are so unalterable that countermeasures are considered pointless.

If you look at the centrifugal forces of numerous global scenarios from the last 3 or 4 years, “philosophers” could conclude that many companies will eventually succumb to the aforementioned fatalism at some point. Whether it’s the COVID-19 pandemic, supply chain problems, restrictions, trade conditions, or military conflicts with far-reaching consequences: they have all had and continue to have both direct and indirect impacts on modern and often highly automated production. There are also other factors that have a direct impact on effectiveness, safety, and capacity utilization.

In view of such challenging times, AUVESY-MDT and Statista experts have joined forces to present the latest statistical facts, highlighting the prospects of automated production. These new angles provide orientation and help production plant decision-makers in their strategic prioritization.

To put it in a nutshell:  
Fatalism is, of course, not an option.

Companies that correctly plan developments and act in a sufficiently agile manner can set a promising course, even in such challenging times.

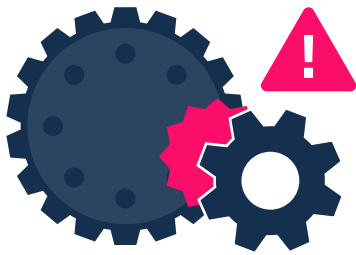


## Downtime Remains a Critical Issue

In times of crisis, plants are repeatedly tactically shut down. Potential decisive factors include shortages of raw materials, order slumps, cyberattacks, and a lack of qualified employees. It is possible that as a result of this a production line is no longer able to be fully operational 24 hours a day, 7 days a week. This may be logical in view of the aforementioned intentional shutdowns, but in reality, it is a fire hazard. This is because, while temporary shutdowns make sense due to external constraints, management teams must be even more able to restart. After all, in such situations,

time windows for core business are shorter, and, if production is possible, this must also be done at the push of a button. In addition, "15 hours of unplanned downtime per week" shows that the lengths of undesirable downtime are still far too long. If you make the right adjustments and achieve better plant readiness, then you can gain massive competitive advantages. This is because the topic of availability is also becoming increasingly important alongside today's overall developments.

### Worldwide on Average 15 Hours Downtime per Week

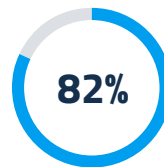


# 800 hours

That's how long the manufacturer's machines stand still on average per year. That's more than 15 hours per week.



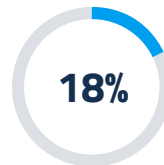
**\$ 22,000 per minute** costs a car manufacturer when production comes to a standstill.



... of manufacturers surveyed report at least one unplanned production shutdown in the past three years.



**\$ 50 billion** in costs caused by unplanned production downtime per year.



... of manufacturers surveyed see potential for improvement in their own company to avoid downtime.

Source: Forbes, 2022

# Staff Shortages Hit Production to the Core

The challenge of the workforce shortage is very common in the Western world, and there are no “one-size-fits-all” solutions. Corresponding demographic developments have been ignored for far too long. Changes in life and career expectations are also making it more difficult for manufacturing companies to recruit sufficiently motivated and qualified employees. The situation is so dramatic that even during a period of inflation and recession, there are significantly more vacancies than there are workers. In the past, mass unemployment was the main symptom of economic crisis.

New risks are also emerging in automated production, because who will restart a plant or even just a machine if the staff responsible for it at the time of shutdown are no longer working in the same plant. The transfer of knowledge, for example about the last software versions or settings, becomes indispensable. If you do not have the processes and the right solution in place, you risk everything. At this point, trends such as deploying increasing amounts of robots can only help to a limited extent, because even robots are dependent on updates and a certain level of maintenance.

## The Manufacturing Industry is Particularly Affected by a Shortage of Qualified Workforce



Source: Manpower, 2022

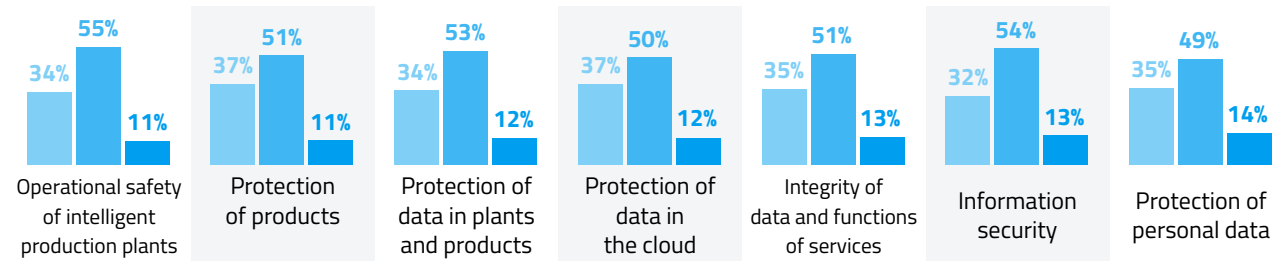
# Global Crisis Shows Increasing Importance of IoT

Statistics are of course always a matter of interpretation. Here, public perspective often differs temporarily from an economic perspective, especially when it comes to technological progress, as topics such as big data and artificial intelligence have repeatedly shown in recent years. Subjects like IoT and IIoT are no exceptions here and it is not surprising that reservations about IoT are already at their lowest within production. After all, nowhere else has the impact

of global crisis (pandemic, supply chain problem, shocks to global trade relations) been experienced so directly and clearly, and nowhere else have the advantages of good levels of digitization been so visible. The low reservations on the part of the manufacturing industries should therefore by no means be dismissed as a lack of risk assessment. They are simply experience-based decisions for important and necessary digital progress.

## Fewer Reservations about IoT in Production

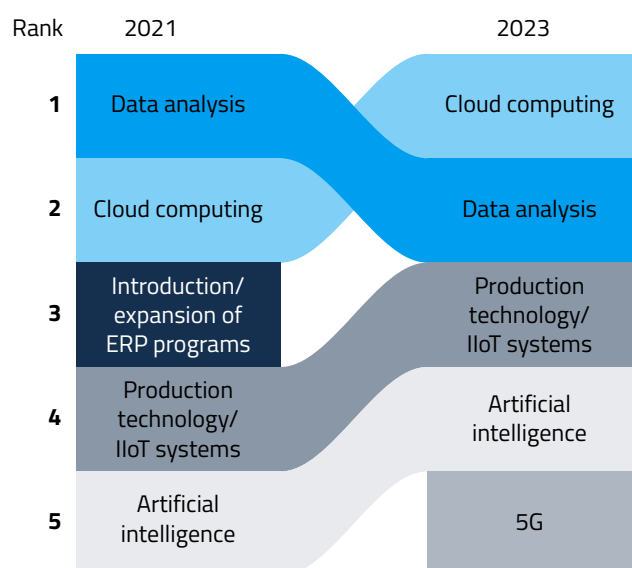
Low Middle High



Source: TÜV Süd, 2020

The changes in priorities within production speak for themselves. Companies have no time to lose in view of the current and future challenges. Mammoth ERP projects are clearly not the answer to the current needs, but all aspects that guarantee a fast and direct response are. Decisions must be technologically well-founded and practical, along with the help of all available data, maximum flexibility, and no gaps in the holistic information transfer and analysis. Of course, such developments must also be economically feasible, which is why reliable specialist solutions with a broad spectrum of functionalities and a platform character are coming into focus.

## Digitization of Production Processes More of a Priority



Source: Deloitte, 2022

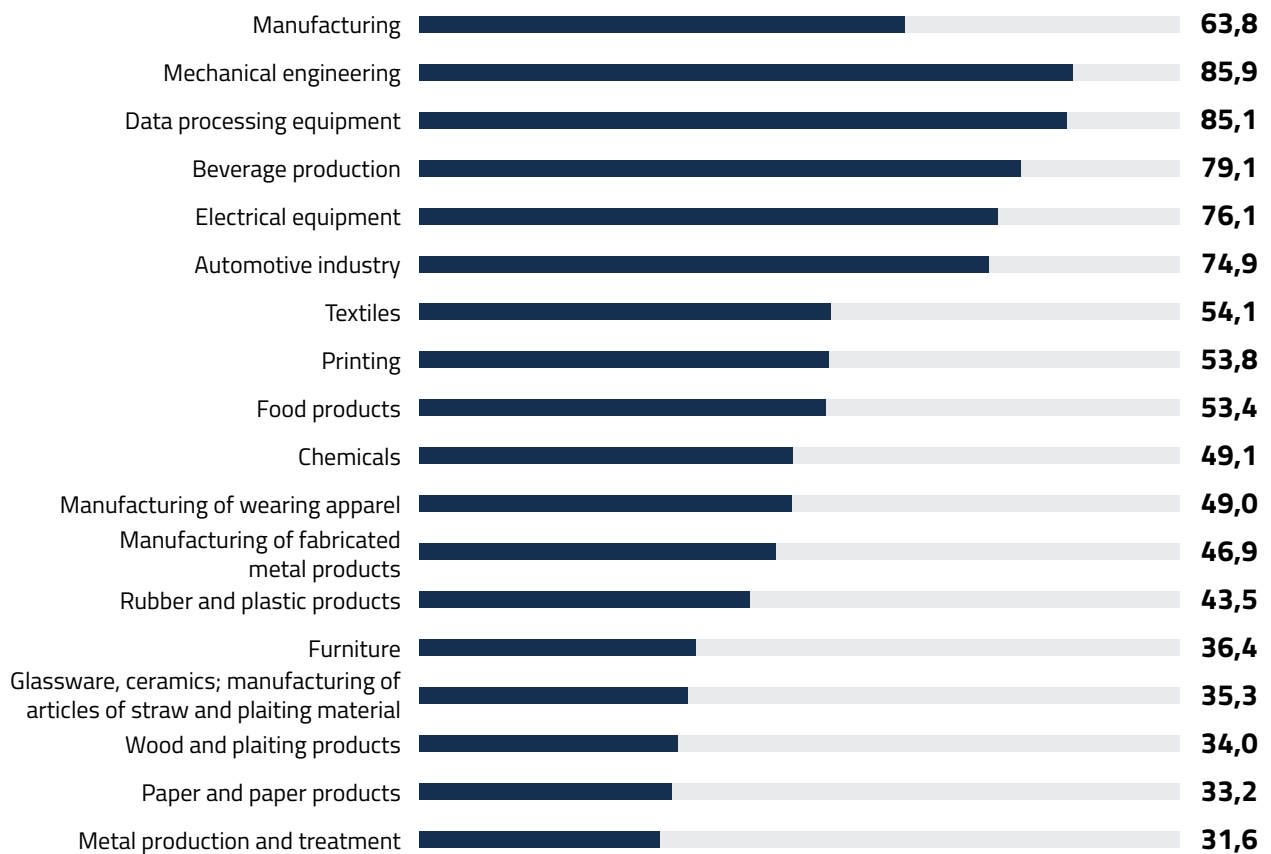
## Without Business Intelligence, Machines Stand Still

Where nothing goes in, nothing comes out. Even if your own processes are perfectly synchronized, nothing can be produced without the necessary materials. Shortage of materials has become a decisive hurdle for production. Even highly optimized industries such as the automotive industry are significantly affected and cannot simply compensate for the situation through better supply chain management. Until trends

such as the partial re-regionalization of supply chains become a widespread reality, it may be too late for some companies. Without business intelligence and a well-planned expansion of operational efficiency (for example the more sustainable use of scarce materials), it is difficult to counteract this development on a company-wide basis.

### Materials Scarcer Than Ever

ifo Scarcity Indicator October 2022 by economic sector



Source: Ifo, 2022

# Cybercrime Attacks from Everywhere

Many people are already sick of hearing about it because the enormous risk of cyberattacks has been pointed out again and again for so long. Nevertheless, the danger remains real, and, what's more, it's constantly getting bigger. From a manufacturer's perspective, horror scenarios are unfolding. The existing security measures can often no longer cope with the ever new and ever more intelligent series of attacks. In some cases, plants must shut down completely. So, it is no longer just a question of initial damage caused by a cyberattack. Sensitive customer data is stolen (and in some cases published), recourse claims

burden business development, and important trust and image values deteriorate rapidly. A single successful cyberattack can therefore have domino effects that are critical to the very existence of a company. Every other cyberattack leads to significant downtimes. On the other hand, those who continuously build their own lines of defense, who don't fall into the cost and complexity traps of mammoth IT approaches, and who invest in reliable cybersecurity processes based on lean, innovative solutions can also gain a competitive edge in this highly critical field.

## One in Two Cyberattacks Leads to Production Downtime

Impact of cybersecurity attacks on companies worldwide in 2021



47%

Work interruptions/  
production losses in the  
affected departments



46%

Loss of sensitive  
customer data



41%

Additional costs for  
external service providers  
for problem solving



40%

Additional internal  
costs for troubleshooting  
(e.g. overtime)



33%

Image loss



28%

Theft of intellectual  
property



22%

Permanent  
impairment  
of productivity



18%

Financial sanctions  
due to liability issues



15%

Shutdown of the  
entire company

Source: IDG, 2021



# New Risks in the Near Future

The graphic shows the most feared effects of cyberattacks from the perspective of surveyed manufacturing companies.

Today, no company can rule out the possibility of being targeted by cyberattacks, which increasingly affect operational technology (OT) in

industrial plants. Proactive protection measures are essential to reduce downtime, errors, and safety hazards.

## Production Downtime Scares Companies the Most

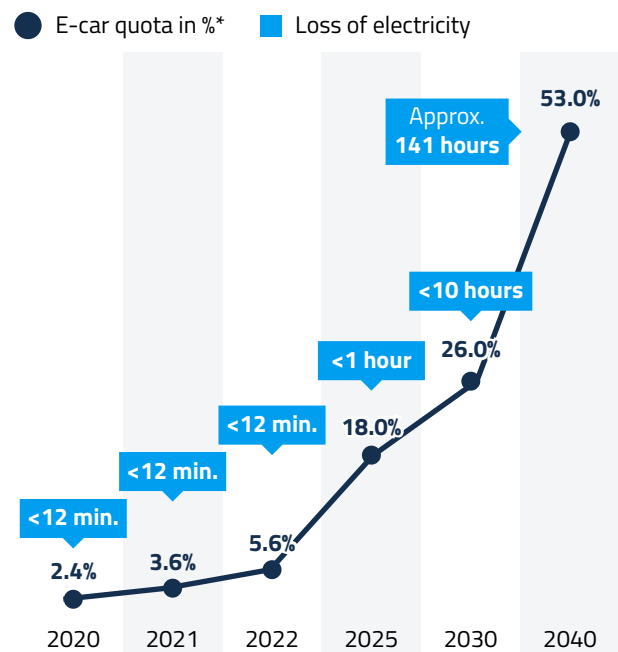
|  | 2023 in percent | Rank 2023 | Rank 2021     |
|--|-----------------|-----------|---------------|
| Loss of production incl. interruption of supply chains | 58%             | 1         | 1             |
| Loss of revenue  | 56%             | 2         | 9             |
| Loss of customer trust/damage to the brand             | 56%             | 3         | 4             |
| Reputation damage                                      | 55%             | 4         | 5             |
| Impact on corporate strategy                           | 55%             | 5         | not mentioned |
| Loss of confidence in technical integrity              | 55%             | 6         | not mentioned |
| Negative impression on job applicants                  | 54%             | 7         | 8             |
| Theft of intellectual property                         | 54%             | 8         | 2             |
| Decline in share price                                 | 52%             | 9         | 3             |
| Fines and penalties                                    | 52%             | 10        | 7             |

Multiple answers possible

Source: Deloitte, 2022

Aside from supply crisis due to regional military conflicts, energy supply in coming years is a sensitive and risky issue for the manufacturing industry. Even if sufficient conventional energy is available, the difficult transition toward decarbonization is still a fact in most countries of the world. The important and desirable (growing) share of alternative energy sources brings new challenges. First and foremost, it must be ensured that these new options can meet the actual energy demand. The attached graphic shows why companies should look ahead at their production and focus on robustness and their own alternative energy processes. This example here shows the level of power outages that will occur in the future as a result of more e-mobility alone.

## Blackout: E-Mobility in Germany Will Significantly Increase Risk in the Future



\* As of 1 January, from 2025 forecast

Sources: Kraftfahrtbundesamt, Oliver Wyman/TU München

# octoplant 8 Good Reasons to Take on All Challenges

## 1. IoT Device Management

octoplant is vendor-independent and can connect to all common automated production and IoT devices. As a central data-management platform, it manages programs and configuration settings data in a standardized manner. By doing so, the solution ensures transparent management of complex information in a way that is both manufacturer-independent and solution-neutral across all common industry standards. Its robust change history shows who changed what, where, when, and why at a glance.

## 2. Safeguarding Assets

By backing up assets, users can sleep soundly at night because octoplant helps safeguard automated production and ensures that the correct authorized version is always running. With complete version management, plant operators across the board always have access to the latest version and can see whether changes are required. The process of creating backups is automated – saving time and labor, reducing errors, and ensuring a reliable data snapshot of the entire production environment.

## 3. Instant Recovery

octoplant's capacity for instant recovery ensures that all necessary programs, data, and settings made within the scope of machine automation are available and are running correctly. It also allows for production to be restored at any time. In the event of an emergency, octoplant enables production environments and devices to be restored quickly as it eliminates the need to search for the last previously functioning version.

## 4. Business Intelligence

octoplant consolidates the data of complex, fragmented production environments into one easy-to-use data-management platform. It helps ensure that data is easy to analyze and thus guarantees better, safer, and faster decision-making. Data can also be exported at any time. This solution provides valuable insights, allowing the user to compare different production locations and devices, and helps aid reliable predictive maintenance. Identify and manage what is going on with your devices. Ensure all devices are configured correctly. Restore the right system configurations quickly. Make more informed decisions.

## 5. Operational Efficiency

octoplant enables companies to increase their degree of overall equipment effectiveness (OEE) by digitally connecting information from field, control, supervisory, and enterprise levels. octoplant adapts to existing workflows and (by comparing servers) provides information on how efficiently components are being used and how frequently changes to specific components are being made. Guidelines and best practices for assets and configuration settings data can lead to an increased level of standardization and efficiency.

## **6. Compliance Management**

Integrated documentation and regulatory workflows, such as those for the release process, help ensure reliable and seamless compliance management in which risks are reduced, resulting in a rule-compliant, traceable, and auditable production process. octoplant supports compliance with legal standards such as the KRITIS IT security law, the FDA 21 CFR Part 11 regulation, and GxP rules to ensure process quality, production documentation, and proof of compliance.

## **7. Threat Protection**

Thanks to its proactive vulnerability, change, and risk detection features, octoplant's holistic security architecture is able to protect production environments from attack, prevent damage, and avoid downtime. It breaks down the automatically assigned, regularly updated asset risk score for each inventory asset (CVE records). AUVESY-MDT's solution can therefore be used to prevent and reduce damage and shorten and even avoid downtimes thanks to its vulnerability, change, and risk-detection features.

## **8. Education and Training**

Finally, due to effective knowledge transfer, companies can help preserve their own production-specific knowledge and pass it on to new employees. The comprehensive e-learning platform enables employees to continue learning about octoplant anytime and anywhere. Best practices in the form of videos and webcasts can help improve job skills for everyone involved and ensure rapid onboarding when it comes to new equipment or production lines.

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