



"SKLAD - The Association of Competent Logisticians and Suppliers (Spolek Kompetentních Logistiků a Dodavatelů) helps manufacturing and distribution companies with their logistics requirements. We are able to advise and cooperate in a wide range of customer needs - from the selection of a hall to the design and implementation of solutions, to the supply of technology or the provision of work safety and security of the facility. Our advantage is that as members we know each other. We have been meeting on projects with the same customers for a long time and have tested our cooperation in practice.

We bring new, modern and comprehensive solutions to the customer. We help them co-create a vision for innovation and their further growth. The association was founded in 2014 and its original intention was more about sharing business opportunities between individual members, but today the association also addresses the general logistics community as a source of news, up-to-date information and practical recommendations. The latter activity has therefore also resulted in collaboration on this research."

Petra Troblová

Executive Manager, SKLAD

About the study

The Ipsos agency carried out research for SKLAD between May and August 2022 to highlight the trends and influences currently shaping the logistics market in the Czech Republic. The result is a unique study that builds on the successful 2020 version.

The research involved 132 managers from the logistics and warehousing industry. The most commonly represented segments were retail/wholesale, e-commerce, automotive and manufacturing. The professionals shared their views on current and planned investments, the future of logistics and warehousing, and the impact of certain external influences (the war in Ukraine and the covid-19 pandemic) through a questionnaire survey and in-depth interviews.

Contents











Today's world of logistics is very turbulent

The current situation in the Czech logistics market is influenced by the combination of the long-term effects of the covid-19 pandemic, the conflict in Ukraine and its economic consequences.

Interviews with experts showed that the combination of these two influences, while not introducing completely new topics to the world of logistics, nevertheless represents a total change in internal logistics planning and philosophy for many companies:



Due to major external influences that cannot be predicted, companies are unable to plan as they used to.



Unreliable supply chains are forcing manufacturing companies to abandon "Just in Time" policies, causing manufacturers to oversupply selected key components and struggle for storage space.



Pressure for efficiency/
optimisation of warehouse
operations is growing - especially
in its digitalisation and moving
towards full warehouse
automation (minimising the cost
of human error).



Companies are looking for maximum energy savings – replacing lights with LED bulbs, installing automatic dimmers, photovoltaics, heat pumps, etc. (mainly manufacturing companies, others are worried about their suppliers).



Companies are also looking for savings and efficiency in the area of security, with the help of smart technologies such as smart camera systems or unattended doormen and reception desks.











"In the last three years, we have seen a significant increase in the number of orders shipped. Even those who previously did not prefer this method or even did not know it at all have started to buy online. We had to provide everything we lacked for our operation in a very short timeframe.

As our error rate went up slightly, we completely changed the way we store and pick purchases and today we are achieving our best ever figures. We are currently putting much more detail into optimising processes and the use of manpower in the warehouse."

Tomáš Morava

Chief Operating Officer, Košík.cz



The pandemic has started and moved many things forward

Experts agree that covid-19 is no longer an issue for them. After overcoming the initial shock and the daily restrictions during the pandemic (related to minimising social contact), many (previously) planned activities have taken off - especially in the area of digitising internal systems. In retrospect, experts see it as an accelerator for positive change.

"We were positively affected by the pandemic in the end - turnover picked up and we learned to do things we couldn't do before or had been putting off, such as dispensing goods without the customer having to enter the store."

Tomáš Rozsíval

Logistics Director, Stavebniny DEK





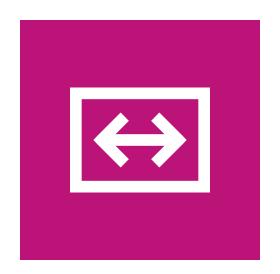
Two new topics

In the context of the consequences of the current social and economic situation, the following themes resonated more strongly among the experts (compared to the 2020 study):



IT SECURITY /
TECHNOLOGY
PROTECTION

This is related to the pressure to digitise the warehouse. A higher degree of automation logically brings with it a higher risk of violent intrusion into internal systems, hence higher demands on cyber protection.



OPTIMISATION
OF SUPPLY CHAINS

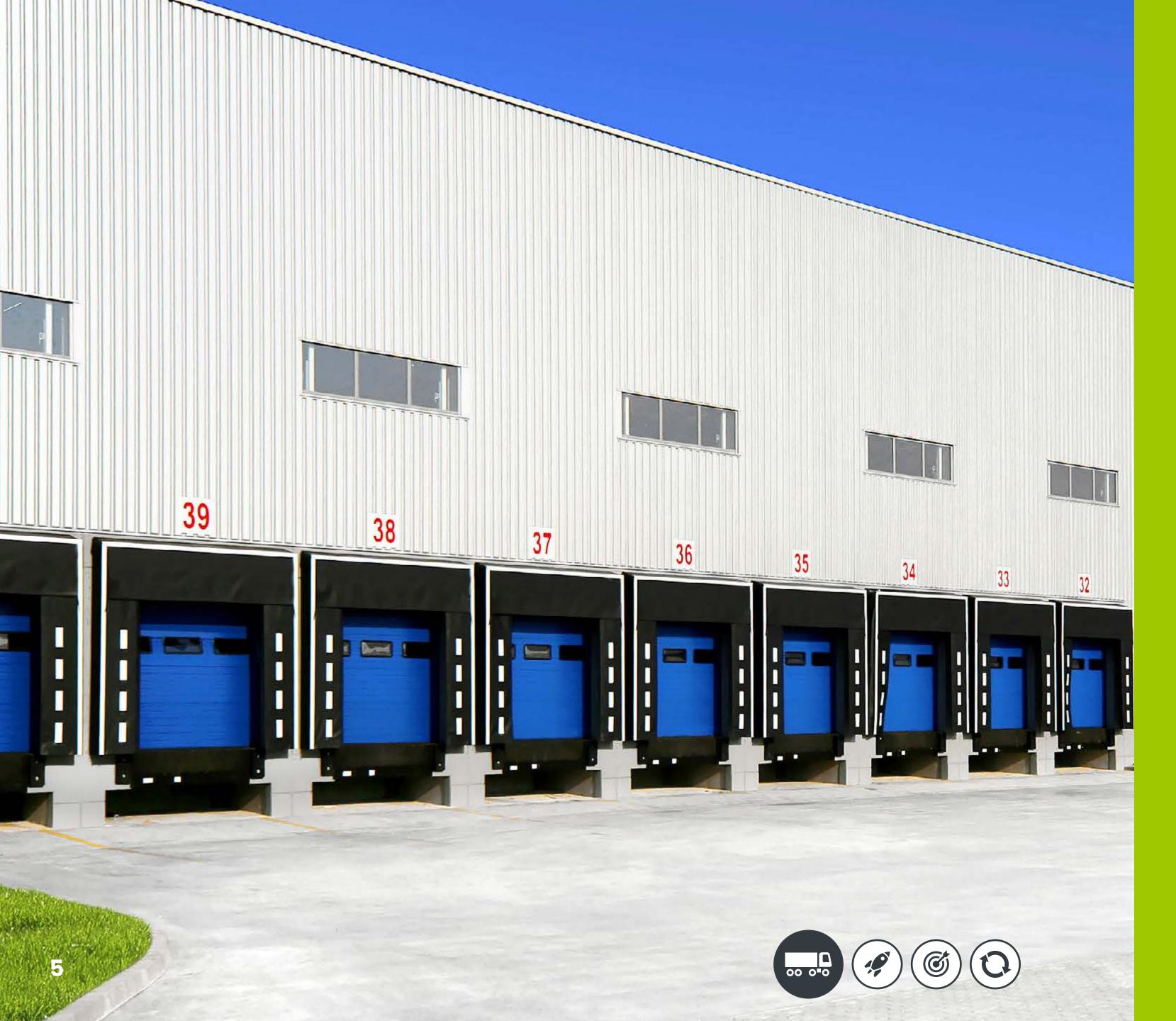
Some companies are thinking about "reinventing Europe" and optimising their supply chains to minimise the risk of sourcing from "the other side of the world."











Current challenges

The key issues of today are related to the combination of the effects of the covid-19 pandemic and the current economic situation:



General lack of stock technology/ equipment and long lead times



Human resources and their scarcity



Lack of available warehouse space

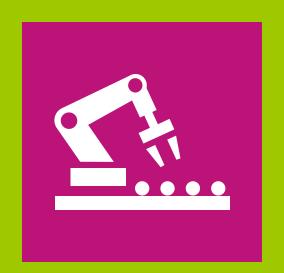


The inability to forecast developments



Digitisation & technology (both in management and warehouse equipment)





WHAT WILL WE BE EQUIPPED WITH?

The pandemic caused significant disruption to supply chains.

Companies with key suppliers in Asia are still dealing with the consequences. China's zero-tolerance policy and fear of repeated supply disruptions has led some companies to consider switching suppliers or securing a second source supplier for selected components. The current situation means significant price instability.

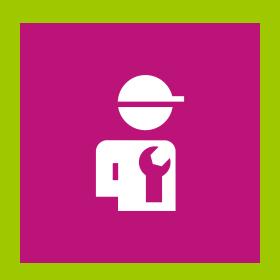
"Take, for example, the batteries in storage trolleys. If you break a particular kind, it can take 2-3 months to deliver them because the raw materials to make them are not there."

Jiří TrousilLogistics Director, MADETA









WHERE WILL WE GET THE STAFF?

The situation on the labour market is tense.

Qualified warehouse staff have disappeared from the market, along with drivers.

This is a phenomenon that has been going on for several years and has been exacerbated by the conflict in Ukraine.



"When we get the components, we have no one to bring them to us. Ukrainian drivers went home for Christmas and never came back. Moreover, working in the warehouse doesn't have such a badge anymore - nobody wants to work in a three-shift operation nowadays."

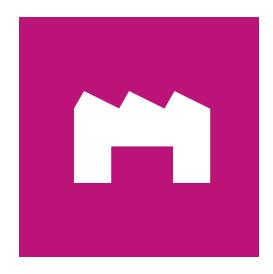
Petr Vodák Managing Director, Miele Technika











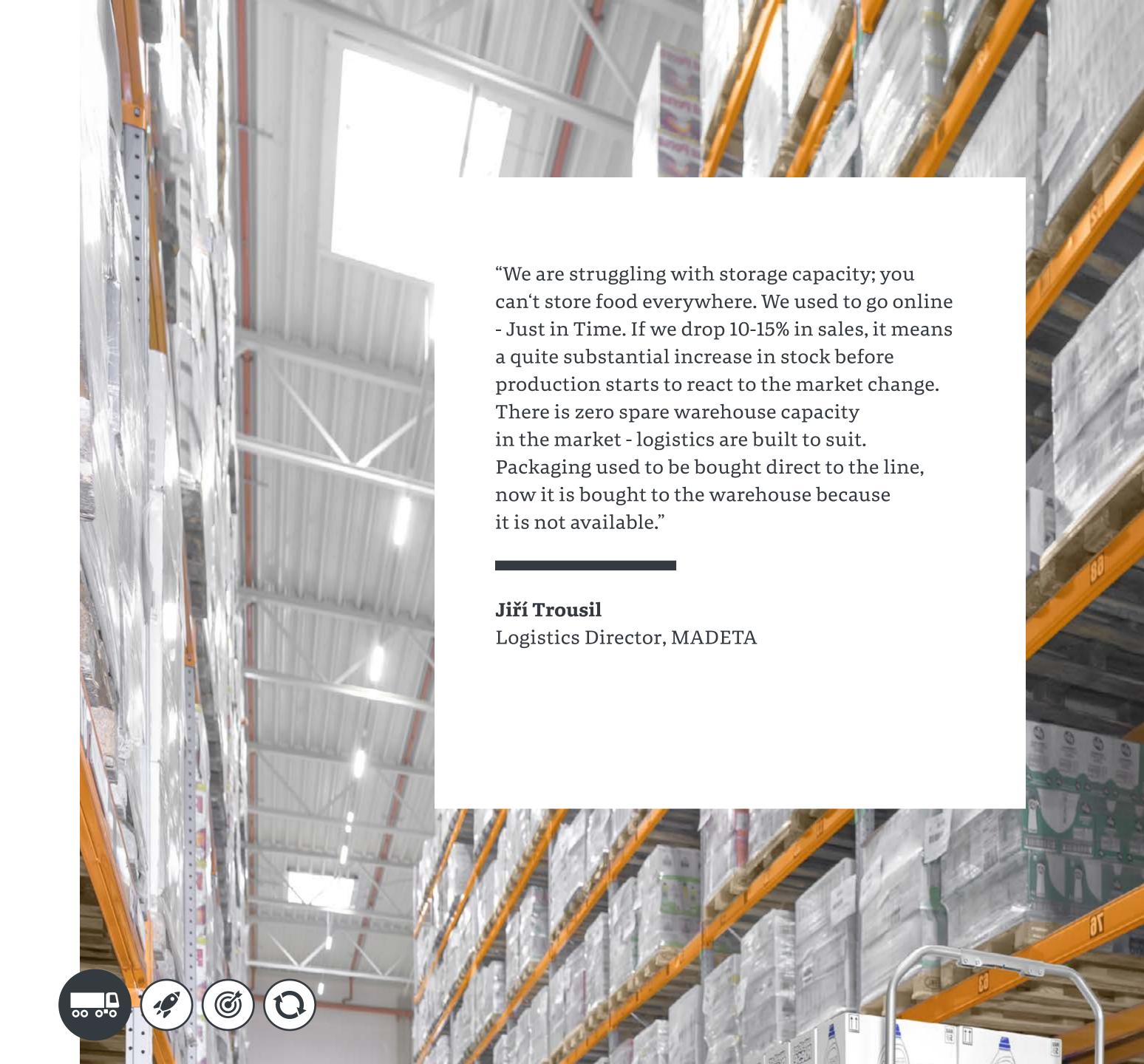
The uncertainty in supply chains is forcing (mainly manufacturing) companies to stock key components - the "Just in Time" principle (i.e., minimizing inventory) is no longer valid for many today.

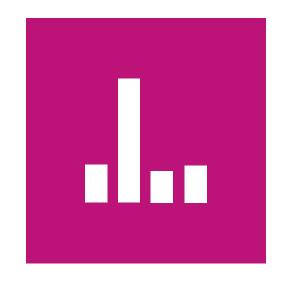
WHERE WILL WE STORE IT?

"For essential material, we had to increase its quantities to make sure we would have it if we needed it."

Petr Vodák

Managing Director, Miele Technology





WHAT ELSE IS GOING TO CHANGE?

Today's times are not very good for planning

- there are too many external factors that
fundamentally affect the operation of companies.

Sophisticated systems for traffic planning,
foundation, etc. don't work now. Companies
are reverting to the old "pencil/paper" type
of thinking. Actual customer behaviour is influenced
by one bad news story after another in the media.



DIGITISATION,
AUTOMATION &
WAREHOUSE DATA
ANALYTICS - IT'S THE
CLEAR PATH

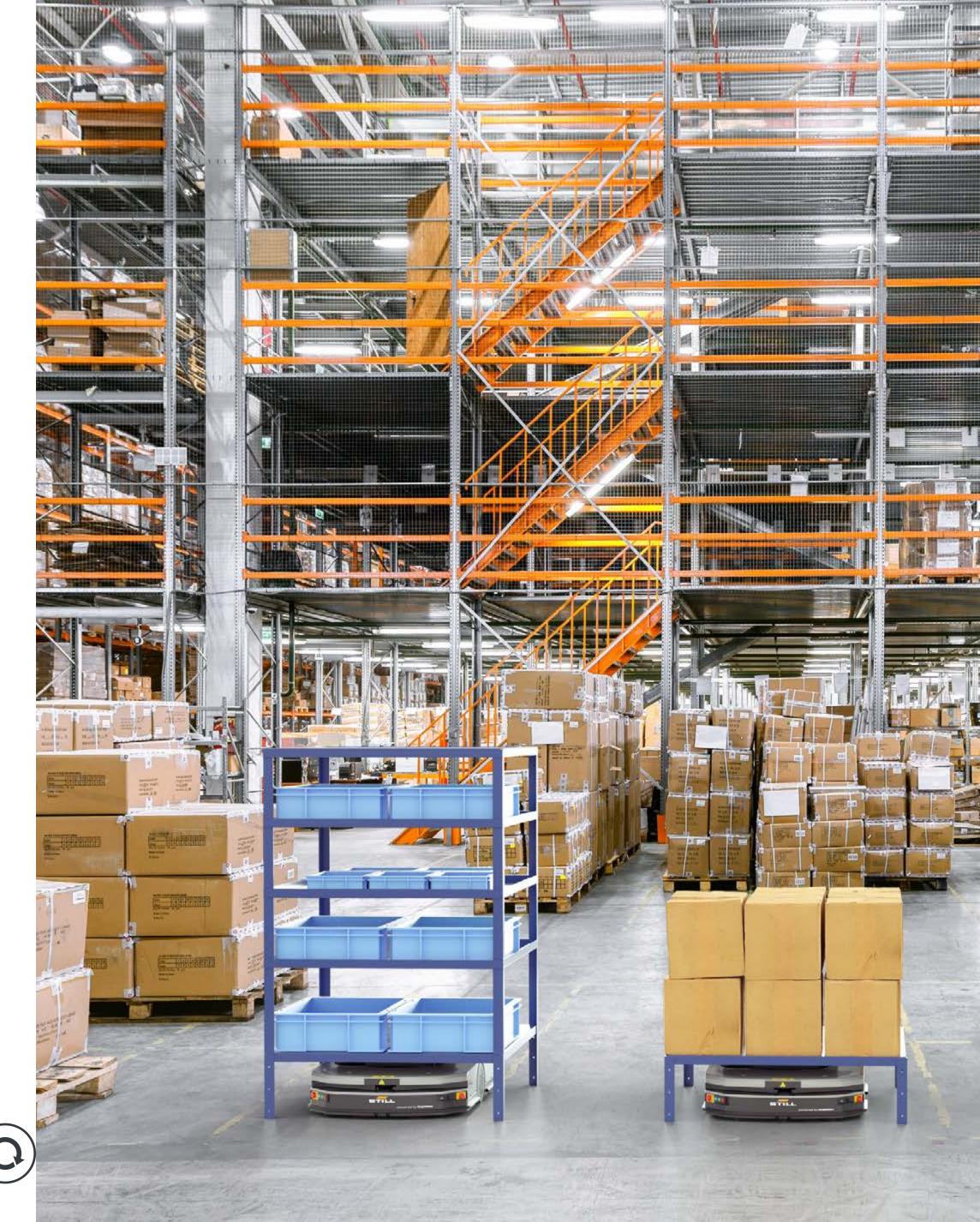
Experts agree that even so, today's times favour digitalisation in certain areas. They promise less dependence on human labour, which is expensive and less available than before, a reduction in errors and, as a result, more efficient warehouse operations. Companies that have been putting off automation are embracing it. Still, investments in this area are not mindless; they have to make sense. The required payback period for software is around 1–2 years, and for handling equipment around 2–4 years.











Where logistics automation is heading:

- Better tracking of materials throughout their entire lifecycle (from production to customer journey)
- Linking all warehouse activities
 and connecting them to the company's
 operations (production vs. order)
- RFID technology
- The use of VR elements, for example during picking (VR glasses during picking frequency, etc.)
- Inventory management using drones
- Paperlessness
- Autonomous transport
- E-commerce dispensing system, customer picking via an app (see Alza.cz)
- 3D printing allowing to print selected components on site (no transport required)
- Alternative fuels, e.g., hydrogen
- LGVs, etc.



"Our long-term corporate culture forces us to continuously improve and continuously replace old technologies with new ones. Recently, for example, we invested in AGV robots that drive around the warehouse instead of people, in automating processes in the warehouse, in turning single-purpose equipment into equipment that can do multiple tasks in the warehouse, in Goods-to-Person racks, in roller tracks, etc."

Tomáš Holomoucký Managing Director, DB Schenker "Automation allows us to stock up to 18,500 and unstock up to 22,000 tyres per shift with 3 workers. Wherever it makes sense, we have a sensor, a sensor, a camera. We know about every product - we know its location at any time. We don't need to do continuous inventory. We don't have to do complicated Takt Time calculations - I can see it online, we have almost zero error rate."

Vojtěch Fukal

Logistics Director, Nexen Tire Europe



"We have started a Cost Saving Programme, which reviews all processes and looks for possible savings. Since the biggest costs in our company are related to people, our activities are directed towards optimisation, reducing errors or replacing human labour. We are introducing various smart technologies, e.g., completely changing the way we pick goods, introducing vision systems that check the specifications of the picked material, etc."

Jan Karásek

Operations Director, Hyundai Glovis Czech Republic





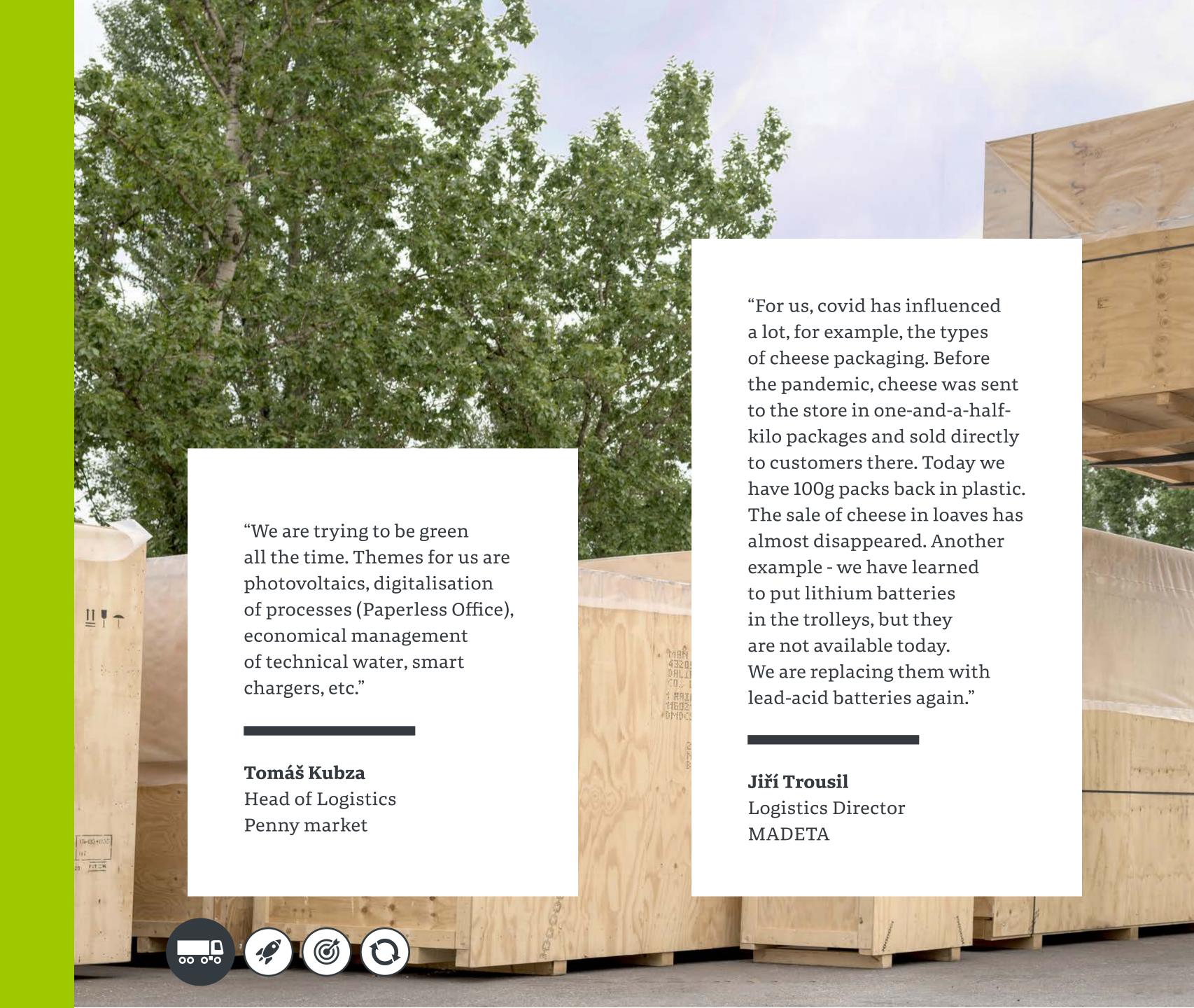




Green logistics is still alive

Even today, Czech logistics is trying to be green. Logisticians agree that ecology is one of the factors that influence their planned future investments.

Optimised use of resources and capacities, environmentally friendly waste disposal, accurate journey planning and route optimisation are key. On the other hand, it is clear that the covid-19 pandemic in particular has put some sustainable routes on hold.







95%

of the companies surveyed expect at least partial warehouse automation within 5 years.

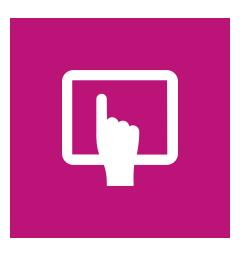






Time horizon of future trends (in %)

	2022	2025	2027
Partial automation of warehouses (with human factor)	55	16	24
Equipping warehouse staff with new technologies	49	27	14
Full warehouse automation (without human factor)	17	14	22



Partial warehouse automation is already a big topic.

Half of the companies perceive equipping warehouse workers with new technologies as a hot topic.



100 3011









Growing importance of technology equipment and automation

Warehouse workers are currently equipped with handheld scanners, mobile printers and often RFID chips. Compared to 2020, wearables have grown in importance.

Fully automated handling equipment and robots are the hottest topics in warehouse automation in the Czech Republic.

Time horizon:
trends
in equipping
workers with new
technologies
(in %)

	2022	2025	2027
Handheld barcode scanners	95	2	2
Mobile barcode printers	84	11	2
RFID chips	62	11	9
Location technology	57	22	10
Wearables	47	31	8
Voice Control	47	25	10
Virtual Reality	15	29	24

Time horizon: trends in warehouse automation (in %)

2022	2025	2027
45	24	17
39	20	24
36	21	16
27	15	26
24	14	33
14	14	20
	45 39 36 27 24	45 24 39 20 36 21 27 15 24 14









"The future of logistics is to have all processes without scanners and other devices that delay people. The vision is to look for projects and technologies that will replace them, identify exactly what is happening in the warehouse in real-time and minimise human error.

A comprehensive approach, where data is collected from sensors and cameras and further processed using machine learning, will help to eliminate repetitive activities such as scanning. The aim is to bring together people, computer intelligence and automation technology into a single functional unit."

Rostislav Schwob

Supply Chain Solutions Director Aimtec



"There are clear benefits to companies from the focus on machine vision and automated sensing on lines or at exit controls, as well as the development of autonomous mobile robots (AMRs) that can be used for many logistics operations such as order picking, bulk picking and replenishment, cross-docking and other pallet transport workflows.

Cloud-based solutions provide an additional advantage by providing insight into the wealth of data collected, which provides management with essential information for subsequent streamlining of processes and workflows."

Marek Písečný Channel Account Manager CZ&SK Zebra Technologies CZ













of the companies surveyed plan to invest in new technology in the next 12 months. In 2020, this figure was 70%.

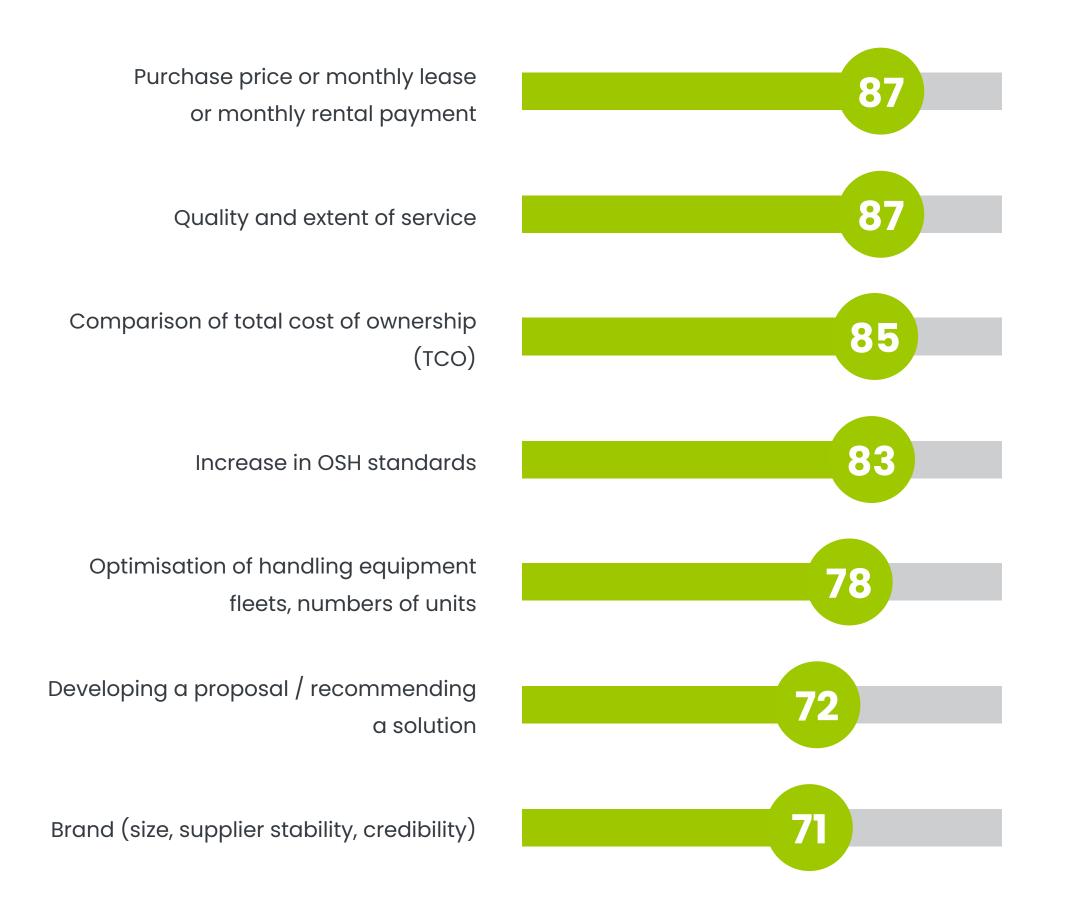


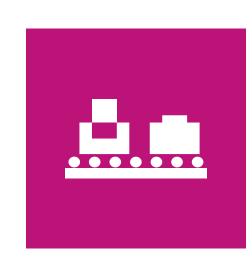






Importance of criteria in the selection of warehouse equipment (in%)





This year's study also confirms that the most important factors for companies when selecting a technology are the purchase price, TCO - a comparison of the complete operating costs and the quality & range of services provided.









The covid-19 pandemic and the conflict in Ukraine have significantly influenced the needs, possibilities, ideas and plans of companies in the field of warehouse solutions and equipment. Many larger and smaller players, for example, have realised that without streamlining warehouse operations, they cannot keep up with customers' fast pace and increasing demands.

That is why more and more companies are moving towards automation to help overcome the challenges of today by speeding up processes and reducing employee workloads. In their planning, they consider not only the cost of equipment and solutions but also the cost of individual operations and possible downtime.

One of the trends is the emphasis on the "circular economy", the need to secure the purchase of older equipment that will find another use on the market after refurbishment. Proper selection of equipment, accessories and services will ensure long-term and sustainable use of technology with a minimum of unforeseen situations and downtime due to undersized hardware. Due to the comprehensiveness of the solution, applications for mass management of fleets of devices are an advantage, ensuring the manageability and visibility of technology across the entire spectrum of hardware, from industrial readers and cameras to mobile terminals and printers to AMR. There also appears to be a need to secure the downstream operation of equipment, for example in the form of a service contract extending the standard warranty, which can also include coverage to repair accidental damage to equipment, even initiated battery replacement in the event of poor battery life to ensure continued operation.

"Companies need to become less dependent on human labour, optimise warehouse operations more and reduce errors. Understandably, these are factors that are crucial for companies when choosing new technologies for their warehouses. It is, in short, an investment that cannot be made without a structured plan.

The first step should definitely
be detailed planning of the most
suitable solutions with experienced
experts in the field. The fact that more
than two-thirds of the companies
surveyed plan to invest in new
warehouse technology in the next
twelve months is very good news."

Tomáš Hnízdil

Commercial Director and Authorised Representative of the company STILL ČR









"Companies often neglect the requirements of the environment in which the device is deployed and purchase a so-called consumer device (e.g., mobile phone, tablet), where, for example, an automatic operating system update will disrupt application compatibility. This then causes downtime and additional costs - i.e., a loss.

Therefore, we are constantly trying to educate users on this issue so that they understand the difference to the so-called enterprise device, which prevents the above-mentioned situations. There are devices on the market with up to a decade of life that carry a lot of weight when discussing TCO. Of course, full control of the operating system is now beyond the scope of standard commercial devices, as well as bulk management of updates and changes."

Marek Písečný

Channel Account Manager CZ&SK Zebra Technologies CZ





02. Warehouse analysis and its optimisation

Companies are interested in comprehensive solutions for internal logistics processes with high-added value

The most important thing when choosing a partner is their experience.

Companies have realised that internal logistics works as a system.

The reconfiguration and optimisation of one sub-process can strongly influence other processes and the function of a system. Therefore, a comprehensive analysis is necessary to design the optimal solution.

68%

of companies surveyed plan to invest in warehouse analysis and its optimisation in the next 12 months. In 2020, this figure was 71%.









Importance of criteria in the selection of suppliers (in %)





Companies are mainly looking for a stable supplier with relevant references and the ability to implement the proposed solutions.









Internal logistics and warehousing are trying to adapt to the growing demands of production and sales. This often leads to ad hoc measures – additional staff are hired, equipment is purchased, and warehouse space is expanded.

Often this is done only when a problem arises and individual measures and changes are implemented into the existing system without regarding the overall strategy. The consequence is that costs associated with internal logistics increase and the quality of output decreases. When this situation becomes untenable, the only correct approach is to carry out a full audit of internal logistics, detailing the processes that take place, including the use of historical data. A logistics audit includes a description of the material and information flows, technical and personnel support for the logistics processes and how they are managed. Subsequent analysis of the information and data collected will enable bottlenecks to be identified and optimisation measures to be proposed based on production and sales plans, which will also reflect future requirements for the storage and transport of materials.

"The question is whether it is within the power of the logistics department to conduct a comprehensive analysis as part of its daily operational activities. It is therefore advisable to consider outsourcing these tasks to an external provider with sufficient experience and know-how. Even so, it is essential to set up a project team on the client's side to work with the external supplier to find the right solution."

Karel Šprojcar company director JK Logistika











"There is a significantly growing demand for warehouse optimisation using smart technologies with high added value. The current glut on the demand side is leading to suppliers being selective about which demands they respond to. Well-prepared tender documentation based on a professionally prepared analysis of the current situation with recommendations on the appropriate technology is also a decisive criterion.

A storage capacity development plan for five years or more shall also be included. The preparation of the analysis is not a task for an individual. Logistics solution providers, the integrators, have competent teams with a qualified overview of the available technologies and a comprehensive approach to evaluate all necessary aspects of future optimisation."

Libor Mihalka LogTech













of the companies surveyed plan to invest in workplace safety in the next 12 months. Thus, 2/3 of the companies surveyed are aware of the importance of this investment, despite the tight economic situation. In 2020, this figure was 73%.

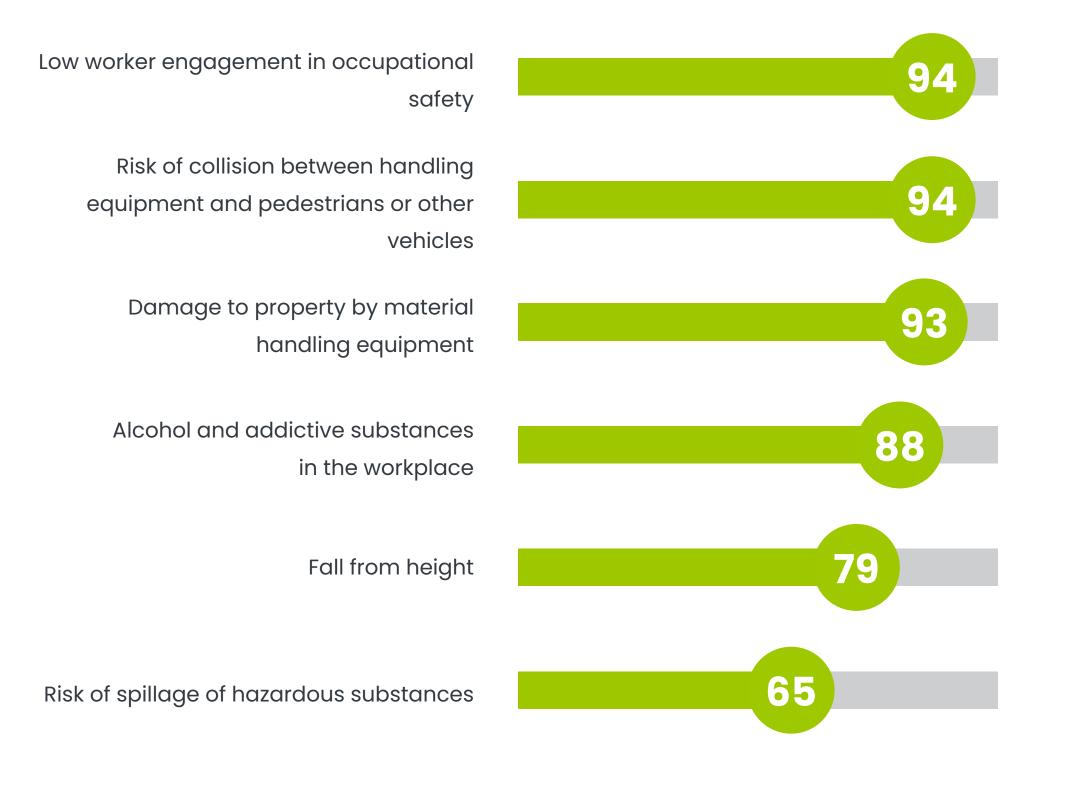


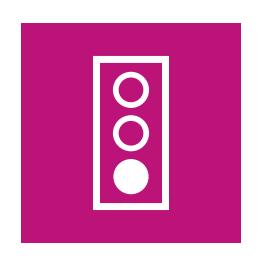






Areas important for companies to ensure safety at work in the warehouse (in %)





Biggest risks in terms of occupational health and safety in logistics operations are considered by companies to be the employees' lack of interest or minimal involvement in OSH and the risk of colliding with handling equipment.

Essentially, equally important to them is the protection of warehouse equipment or assets from damage.









When it comes to the focus of investment, the protection of people and warehouse equipment against a collision with handling equipment clearly leads the way.

In practice, this primarily involves safety signage, safety barriers, mirrors, projectors and various types of anti-collision systems. Research has also shown a significantly increasing willingness to invest in increasing workers' interest in workplace safety. This is a development in the right direction, as it is the imperfect human factor behind the vast majority of injuries and accidents. It is also further proof that safety culture is becoming common practice in the Czech Republic.

"Investments in occupational safety are among the first to be postponed under economic pressure. This is why we see a slight decline in the willingness to plan investments in this direction compared to 2020.

On the other hand, despite today, there are still two-thirds of companies willing to continue to develop occupational safety in the coming year. And that is very good news from my point of view, which shows that the work culture in this country is still moving in a Western direction. I'm pleased that our company offers comprehensive solutions in all of the above areas and that we are experiencing strong growth in demand despite the difficult times."

Ondřej Sobička

Director of Sales and Marketing HAPPY END CZ











of the companies surveyed plan to invest in WMS in the next 12 months. In 2020, this figure was 53%.

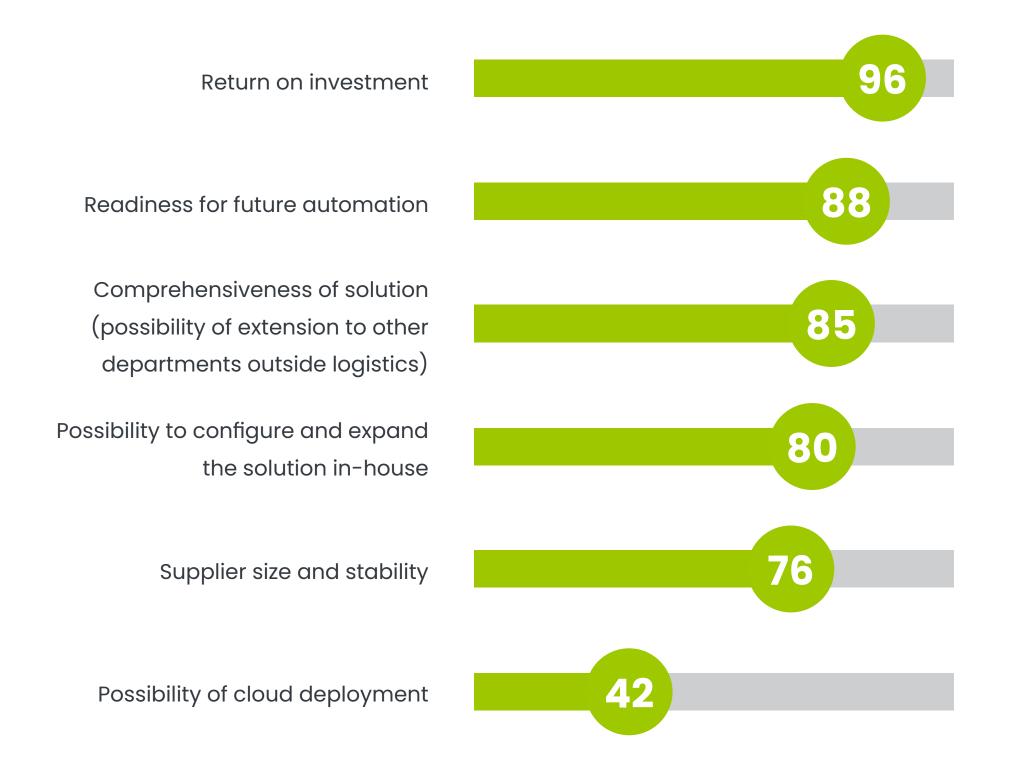


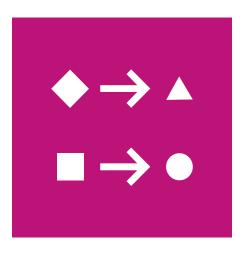






Importance of criteria when selecting a WMS (in %)





The return on investment in the project, readiness for future automation and possibility of expanding the system to other departments are the main criteria for selecting a WMS.

Compared to the last edition of this study, the pressure on the project's return on investment and the comprehensiveness of the solution has increased.









Mastering automation technologies and robots is a key strategic skill for the future. WMS and its suppliers must reflect this trend.

Today, information systems are already increasingly moving to the cloud and even complex projects that require real-time control can be managed remotely from a "central brain." The necessary functionality is also the solution's flexibility, which often supports the rapid implementation of many changes on the customer side. To a large extent, the customer wants to be able to configure the system by themselves and rely on the in-house team.

"Automation can take place in companies fully or in phases, with companies planning to incorporate new or existing legacy technologies providing different capabilities from multiple vendors. It will be necessary to connect these technologies with people and manage everything from one place. That's why we see the Warehouse Management System as part of a digital platform that, for example, receives and distributes tasks for each of the aforementioned resources and manages and monitors their activities."

Rostislav Schwob

Supply Chain Solutions Director Aimtec













05. Warehouse premises

The warehouse premises market is preparing for a turbulent period

The increasing costs, uncertain development of energy, building material and fuel prices, as well as rising inflation are affecting tenants and companies in the industrial and logistics sector. However, the sector as a whole will grow. And it will innovate. The stagnation of e-commerce will be offset by the expected expansion of multinational companies. The industrial and logistics segments are part of the critical infrastructure and remain the backbone of the economy.

45%

of the companies surveyed plan to invest in new warehouse premises in the next 12 months. In 2020, this figure was 50%.









Importance of criteria when choosing warehouse premises



- **4.** Labour availability
- **5.** Energy performance of the building / Sustainable Building Certification
- **6.** Facility Management Services



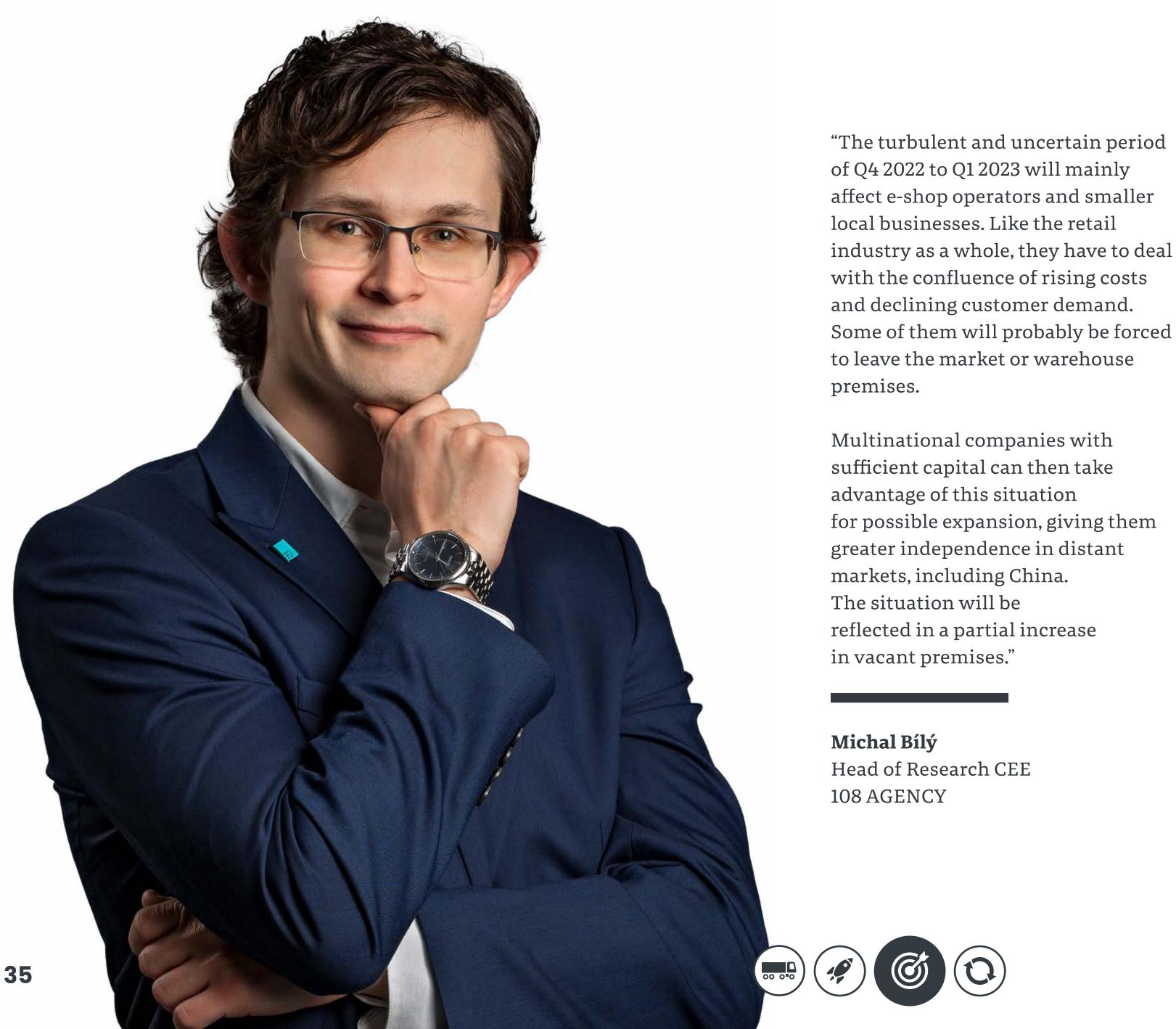
Companies choose warehouse premises depending mainly on their location, price and transport accessibility, which influences the possibility of obtaining the necessary workforce.











The trend towards increased energy independence will continue. The installation of renewable energy sources, most commonly photovoltaics, will help reduce energy costs and the carbon footprint of developers and tenants.

The end of the "industrial boom", which took place primarily in 2021 and early 2022, will also be accompanied by increased automation and other innovations that reduce operating costs, including rising wage demands.

Head of Research CEE



32%

of the companies surveyed plan to invest in warehouse automation in the next 12 months. In 2020, this figure was 76%.

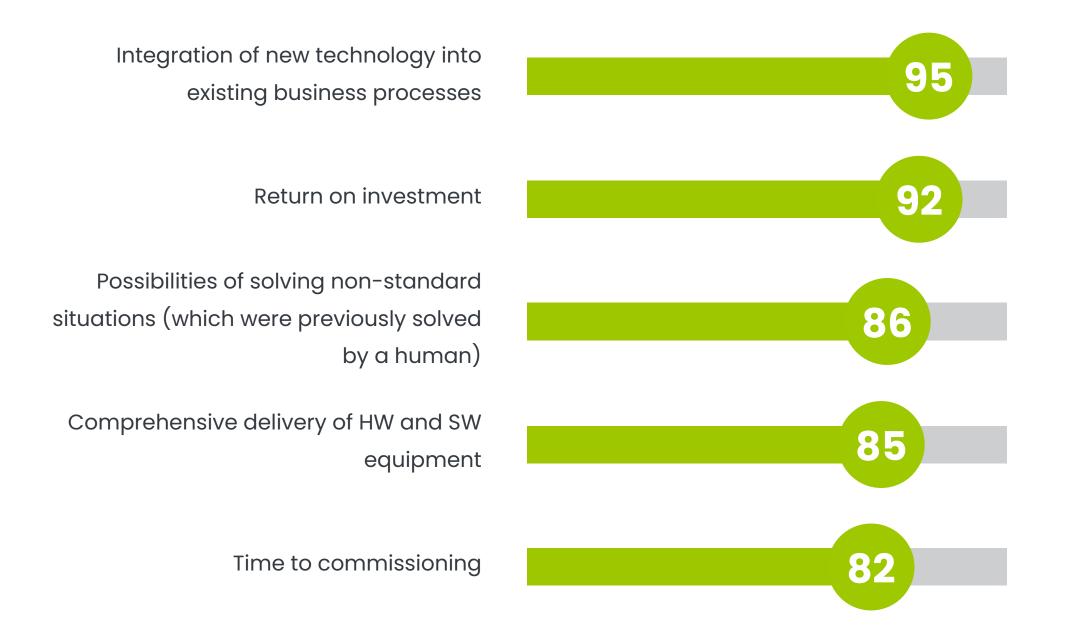








Importance of criteria in the selection of warehouse automation tools (in %)





Return on project investment, ability to deal with non-standard conditions and integration of new technology into existing systems are the main criteria for selecting a warehouse automation solution.









The current situation on global markets, the deteriorated availability of components and the shortage of a skilled workforce are encouraging companies to look for longer-term solutions to overcome the current difficulties in the modern business environment.

Warehouse automation opens up new standards and opportunities for logistics development. At the same time, however, it brings increased pressure on companies to introduce significant changes in processes and define clear competencies within teams, which also point towards the necessary flexibility and degree of improvisation. Automation brings with it, despite the high initial investment, lower operating costs and higher operational efficiency. One of the most recent trends in automation is the use of artificial intelligence. The emphasis on integrating new technology into existing business models shows that companies are finding it more difficult to decide which automation method to choose when selecting technological solutions.

"Companies are deciding whether, for example, goods handling should be handled by AGVs, AMR trucks or conveyor systems. Should robotic handlers, shelf stackers or moving racks be involved? This points to the need for competent consultants who would be able to suggest the optimal concept to companies and select the most suitable technical solution based on their input data and requirements for warehouse capacity and throughput. This is where the advantage of end-to-end solution providers who have an overview of all the different technologies and processes comes into play."

Zdeněk Bláha

Managing Director, CEO Blumenbecker Prag















"By analysing historical data on logistics operations and machine learning, AI helps, for example, to de-fragment inventory, divide the automated warehouse into zones according to the speed of goods turnover, enable automatic scoring of items according to historical data on item movement, or even pre-prepare goods for the first picking before the start of the shift.

The AI system also helps reduce errors when picking materials or goods with features such as weight checking, where the system does not need to know the weight in advance but learns it as it is used. Artificial intelligence is also able to warn of suspicious operations and alert the operator of possible errors. All this leads to faster and more efficient logistics operations."

Libor Mihalka LogTech











07. Warehouse security

Basic guards are gradually being replaced by security technology operators

Companies see the greatest potential for reducing costs and increasing security efficiency in deploying technology. However, this still requires skilled operators.

25%

of the companies surveyed plan to invest in warehouse security in the next 12 months.

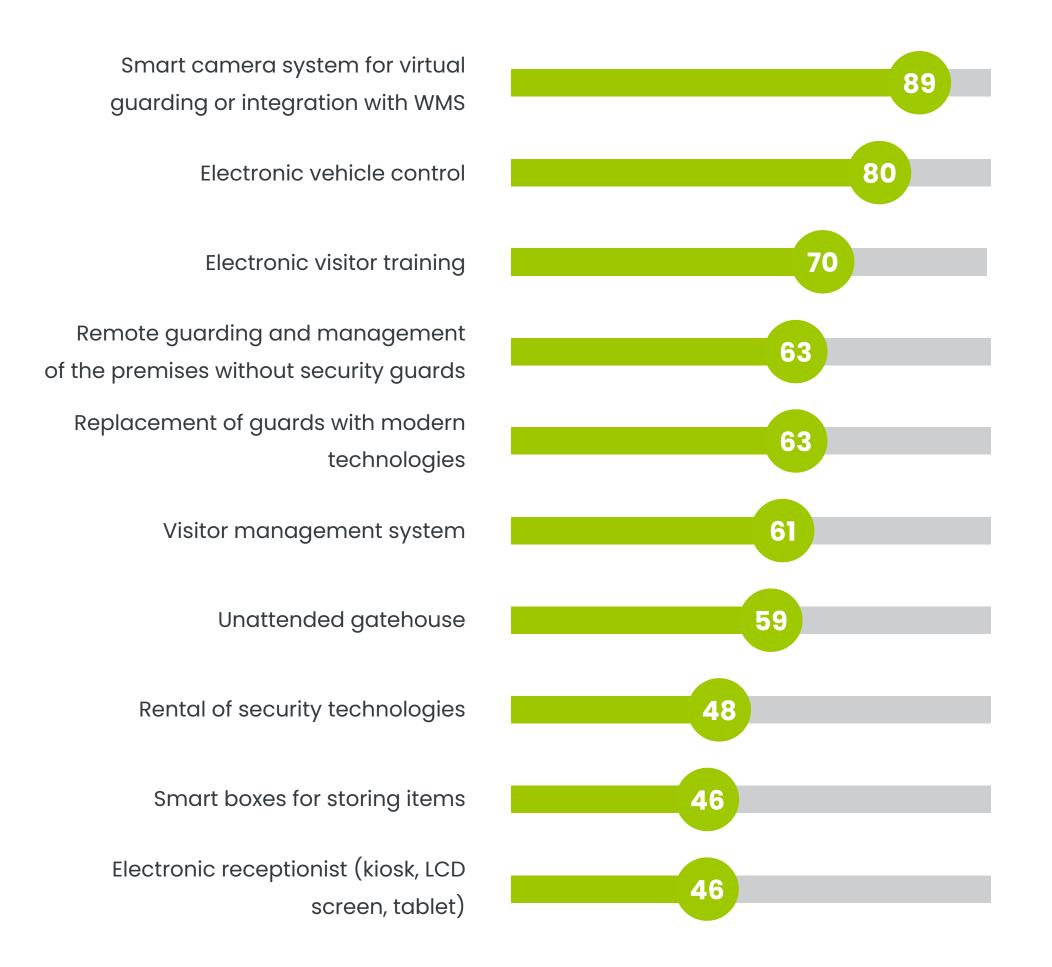








Interest in areas that will reduce costs and increase security efficiency (in %)





Surveyed companies are most interested in smart camera systems enabling integration with WMS and electronic vehicle control.









The cost of human labour is rising faster than the cost of security technology, and this is still true in 2022 for physical security.

Although there are currently problems with delays in component delivery, the arguments for deploying smart cameras, e-receptions, e-gatekeepers and other automated security solutions are clear - companies can use them to save on security costs and, most importantly, increase their efficiency. Just compare the service of a basic type of guard, who makes rounds at set intervals, with a camera system equipped with video analytics and speakers. Cameras never sleep, and such a system's remote operator, which only monitors reported alarm conditions, can react within seconds of an incident and directly address a potential intruder. The efficiency of the solution is almost 100%, the risk of human failure is much lower and so is the monthly cost. Despite some fascination with unattended systems, companies are finding that technology cannot ultimately do without the skilled services of guards – but these may be fewer in number and more akin to technology operators. Where physical security or the presence of a doorman or receptionist is still required on site, these workers' activities can be digitally recorded.

"At SECURITAS ČR, we completed the digitalization process on orders for our clients in the logistics sector last year. This means that each guard always has a mobile device with a system in which he/she records his/her actions. For the warehouse operator, this means instant access to all data, better planning, no more paperwork and ultimately significant savings."

Michal Kubín

Sales Director SECURITAS ČR











The current turbulent times are not bringing any fundamental change in the direction of internal logistics towards full warehouse automation, but rather accelerating this change.

Due to the rising costs of materials, energy, human resources, etc., the pressure to optimize warehouse operations is very high - companies are looking for savings not only in energy management (replacement of LED bulbs, installation of heat pumps, photovoltaics), but also in optimizing the movement of goods / manpower in the warehouse.

This means a higher demand for detailed warehouse data analytics. A potential obstacle on the fast track to automation is the in-house capacity of programmers / IT experts. It turns out that technologies for warehouse equipment, analysis and optimization are key topics for companies, as they were in 2020. Compared to the last wave of the study, the pressure on project payback and solution complexity has increased even more, as well as the importance of integrating new technology into existing business processes.











"It is still the case that investments in technologies with a practical and quick impact on the efficiency of the overall process are most often planned - for example RFID technology or automated handling equipment. Where the Czech logistics industry will move depends on what we expect in the next year or two."

Petra Troblová Executive Manager, SKLAD



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The SKLAD Association members are:



















