

Digitalisation of Enterprises

2023



Foreword

Welcome to **Digitalisation of Enterprises 2023**, the second year of this report, which analyses the state of the Czech market for enterprise information (ERP) systems and the level of digitalisation of processes in the business sphere. Last year's first report had a very positive response, so we have decided to build on it and provide readers with updated information about the Czech market and the first year-on-year comparison.

Allow me to start with a brief macroeconomic summary of the past year, which will then be dealt with in more detail in the individual chapters of the document. 2023 was once again not an easy one. After two „COVID“ years, this was the second „war“ year, which, like the first, brought with it strong inflation, increased energy prices and the resulting significant market uncertainty. Like the previous year, 2023 was marked by uneasiness, which had a noticeable impact on the performance of companies during the year. Again, phases of investment retrenchment, fearing further developments, alternated with phases of easing.

The Czech economy, like the German one, was teetering on the edge of recession. Quarter-on-quarter GDP growth oscillated around zero, and while the German economy technically escaped the recession after the revision of the second quarter data, only to fall into it after the end of the year, the opposite was the case in the Czech Republic. After the -0.5% GDP decline in Q3, we were in recession, while preliminary data from the CZSO speak of the closing of the last quarter of 2023 with modest quarter-on-quarter growth of +0.2% (year-on-year, however, still -0.2%).

The development of the ERP market, especially in the most vibrant SME segment, i.e. smaller and medium-sized companies, corresponded to this. Uneasiness about high energy prices, inflation and the subsequent huge upward pressure on wages manifested itself in a major hesitation in investment during the year. Some easing came at the very end of the year, but it is really hard to predict whether the upward tendency is already a trend.

So again, I remain only a mild optimist for now. However, I am still convinced that digitalisation of businesses can bring significant relief on the side of streamlining processes. And it can certainly alleviate the pain of rising energy costs and low unemployment in the Czech Republic, resulting in labour shortages and rising costs for existing workers.

Digitalisation is simply the best way out of these problems right now. Again, I believe the data in this report will help managers take steps in the right direction.

I wish you an inspirational read

Jiří Hub

Executive Director and Chairman of the Board of Directors of Asseco Solutions, a.s.



Foreword

After another year, I welcome you again to the opening pages of the Digitalisation of Enterprises report. After a year that was on the one hand economically difficult once again, on the other we were fascinated by the technological leaps, especially in the field of artificial intelligence and machine learning. This contrast fills me with hope. It shows that even in difficult times we can respond and move forward, that economic challenges have solutions in the form of innovation and progress. This is especially true for the engine of the economy - the business segment, for which digitalisation is no longer a "nice-to-have" issue, but a critically necessary solution for any company that wants to remain competitive.

In times of wars in Ukraine and the Middle East, unpredictable input prices and stagnant economies, it is a way to increase financial efficiency or reduce complex processes or the amount of data useful for managing and growing a business. Above all, however, it is a step that gives the entrepreneur a greater degree of control over his business and helps offset the uncertainty arising from the aforementioned threats.

In my opinion, the Czech Republic is at a turning point. In order not to be left behind by global competition, it is necessary to implement digital technologies as quickly and widely as possible in the everyday activities of business and the public sphere. Of course, this brings with it a number of complications and dead ends, but the world will not wait and there is no alternative. I believe that this report by Asseco Solutions will help to accelerate the digitalisation process. I therefore wish it as many attentive readers as possible who can put the information covered in practice and thus contribute to the modernisation of the Czech economy.

Zdeněk Zajíček

**President of the Chamber of Commerce
of the Czech Republic
President of the ICT UNION**

Digitalisation of Enterprises 2023 from the perspective of Asseco Solutions managers



Michal Andraško

Sales Director

When I look at 2023, there were more problems, concerns and risks. Some of them we can influence, but unfortunately many of them we could not and cannot influence. The most important factor was rising inflation.

No one would have thought we could ever reach those numbers. Inflation has logically had an impact on the value of real wages as our real purchasing power has been shrinking, which has put pressure on employers to raise wages. Finally, this phenomenon

has been reflected in the strategy of companies that have postponed certain projects or investment decisions in order to maintain their workforce.

The ongoing war in Ukraine and the renewed Middle East conflict are also having a negative impact on inflation and especially on energy prices.

Problem of the Year:

INFLATION

No one would have thought that they would ever reach such numbers.



Martin Kršňák

Business Development Director at Asseco

Automation, robotisation, digitalisation, AI, machine learning, RPA, data mining, ChatGPT... What do all these „buzzwords“ have in common? They co-create new market opportunities through their ability to adapt quickly and reduce costs. They use technology to move us forward quickly.

Many companies have already decided to invest in innovation using one or more of these technologies. It turns out that a key success factor for these projects is the ability to integrate them quickly into the routine

and ideally automated processes of any company. IT is opening up even more, and simple and fast integration is crucial for success. The systems themselves, while important to the operation of the business, limit the speed and ability to change. The combination of individual smart tools or applications to form a functional and beneficial whole, an ecosystem if you like, seems to be the ideal way to go, which ultimately means a shift from systems to application platforms.

Opportunity of the Year:

RAPID INNOVATIONS

IT is opening up even more,
and simple and fast integration
is crucial for success.



Jiří Panec

Head of Product Management and R&D

If I had to choose a word that best describes 2023, it would be „intelligence“.

Intelligence has become a key factor in many areas of technology. We see this, for example, in the field of artificial intelligence (AI), which is increasingly being used to automate tasks, improve decision-making and personalise user experiences. Intelligence is also the backbone of machine learning (ML), enabling computers to learn from data and improve their performance over time. Machine learning is used in many different applications, including image

recognition, speech recognition and recommender systems.

Last but not least, intelligence is an important factor in robotics, helping to automate tasks in industry, healthcare and other fields.

I expect intelligence to play an important role in technology and R&D in 2024 and beyond. Smart technologies are becoming increasingly advanced and capable, which will have a profound impact on the way we live and work.

Word of the Year:

INTELLIGENCE

Smart technologies are becoming increasingly advanced and capable, which will have a profound impact on the way we live and work.



Andrea Kovářová

Director of Business Processes & HR

If I had to pick one specific number that would best characterise the 2023 HR trends, 80 comes to mind.

One of the very topical issues is employee engagement, which in my opinion should ideally be at 80%. An engaged employee comes to work with positive thoughts and ideas, looks forward to seeing their colleagues and, most importantly, understands their role and its meaning and importance to the company. He or she likes to offer constructive thoughts and ideas and any good supervisor or colleague is happy to receive them. Although it cannot be

promised that all of them will be implemented, it is the positive attitude and enthusiasm that is very important and essentially irreplaceable for employers.

The second „80s“ trend in HR is investment in digitalisation and automation. According to a PwC survey, 80% of CEOs were interested in investing in the digital skills of their employees in 2023. Companies are also confirming their interest in investing in artificial intelligence or data analytics to improve and streamline HR processes.

Number of the year:

80

An engaged employee comes to work with positive thoughts and ideas, looks forward to seeing their colleagues and, most importantly, understands their role, its meaning and importance to the company.



Digitalisation of Enterprises 2023 from a data perspective



In the following chapter, we will look at the digitalisation of the business sector last year through the lens of numbers. We will use data from two representative surveys. Primarily from the report „Use of Information and Communication Technologies in the Business Sector“, published by the Czech Statistical Office in January 2024, with data collected among a total of 7380 enterprises with ten or more employees.

In the second part of the chapter, we draw on exclusive research prepared for Asseco Solutions by Median, which surveyed the personnel responsible for the purchase and selection of information systems in December 2023. The data from this survey is representative of all 13,444 medium and large companies in the Czech Republic.

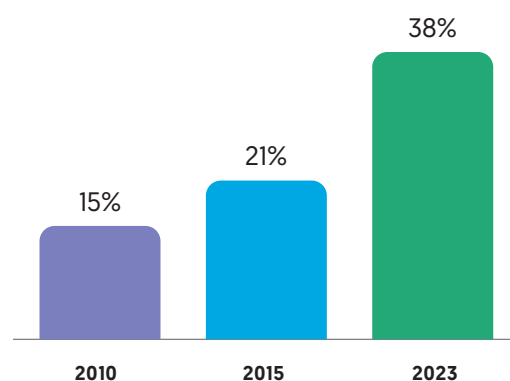
Czech Republic: the European leader in electronic information sharing

Electronic information sharing with suppliers and customers is the exchange of company data via web interfaces, applications, electronic data interchange (EDI), smart sensors or within an integrated supply chain management information system.

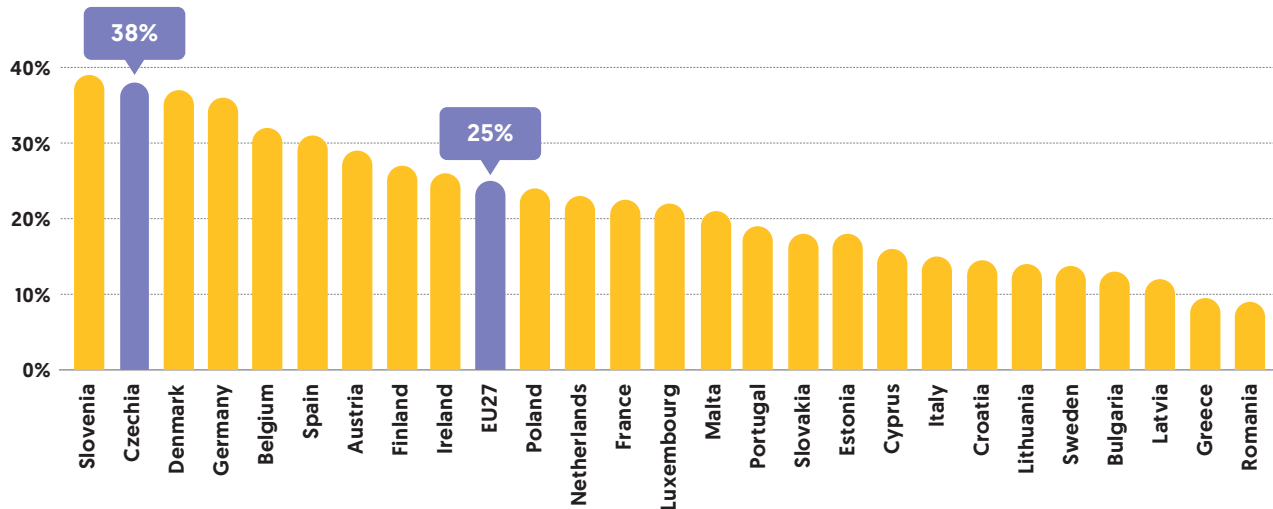
According to data of the Czech Statistical Office, 38% of all businesses with more than ten employees shared information in this way, which represents an almost twofold increase compared to the last measurement in 2015. In terms of sectors, it is used most by manufacturers of cars and other means of transport, where it is used by two-thirds of companies, while it is least represented in the woodworking, paper and textile industries.

Although the value of 38% is not staggering, it should nevertheless be taken into account that the average of the EU countries is only 25% and that the Czech Republic ranks second in electronic information sharing within the EU-27, only a few tenths of a percent behind Slovenia.

TOTAL ENTERPRISES (10+ employees)



Businesses in the EU27 that share information and data electronically with suppliers or customers

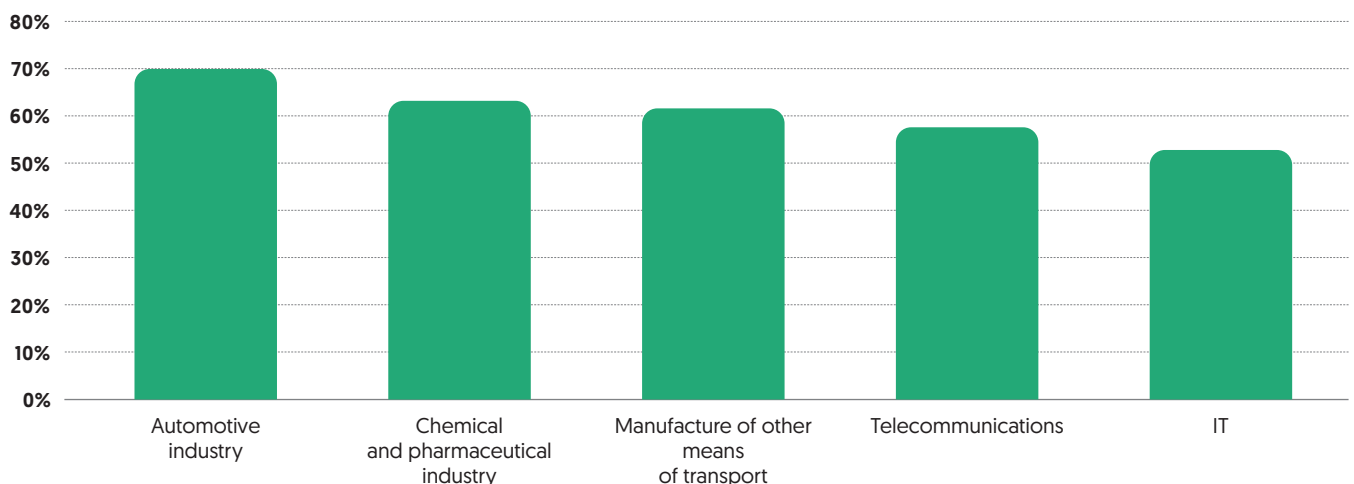


ERP reports a decline

The situation is different for ERP systems. Here, the Czech Statistical Office recorded a rather surprising drop compared to the values described in the previous report Digitalisation of Enterprises 2022. At that time, 38% of companies with more than ten employees reported using some form of ERP system; now only 29% do. In addition to the actual abandonment of ERP by some companies, the different sample of selected companies and the heterogeneity in the understanding of the concepts may also have an impact here.

However, it is still true that large enterprises use ERP overwhelmingly and only one in ten can do without it. In terms of segments, the automotive industry has found the largest use, while outside the manufacturing industry, telecommunications and IT also report high numbers. And finally, the European context, where, unlike the electronic exchange of information, the Czech Republic belongs to the EU average of 43%. And in leading Denmark, for example, two-thirds of companies use ERP systems.

Top 5 industries in ERP usage

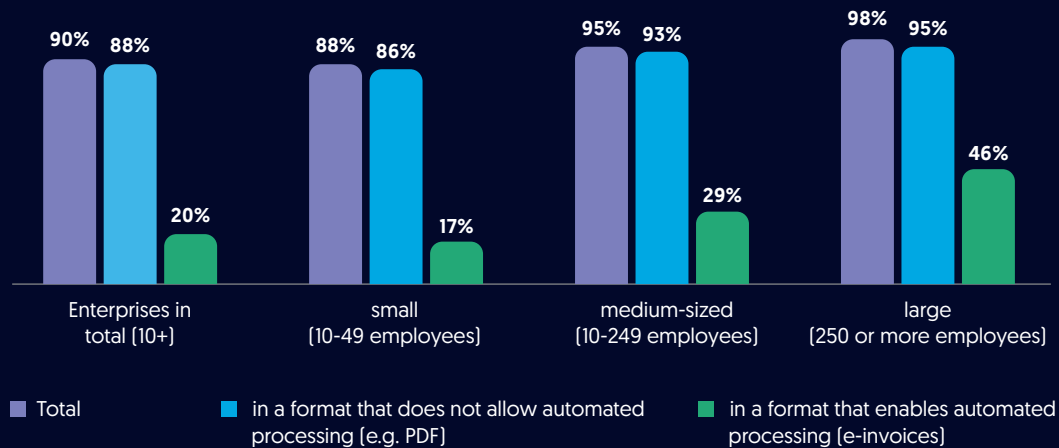


PDF reigns supreme for invoices

The last piece of the Czech Statistical Office data we will focus on in this report are invoice statistics. Nine out of ten companies already issue their documents in electronic form. This might sound progressive, but less so after adding the fact that the vast majority of them do not allow automated processing and are usually

email attachments in PDF. In 2023, 88% of companies used this option, while a fifth of companies sent at least one e-invoice that allows automated processing; e-invoices accounted for only 10% of the total volume of tax documents sent. The larger the company, the more it uses this type of invoicing.

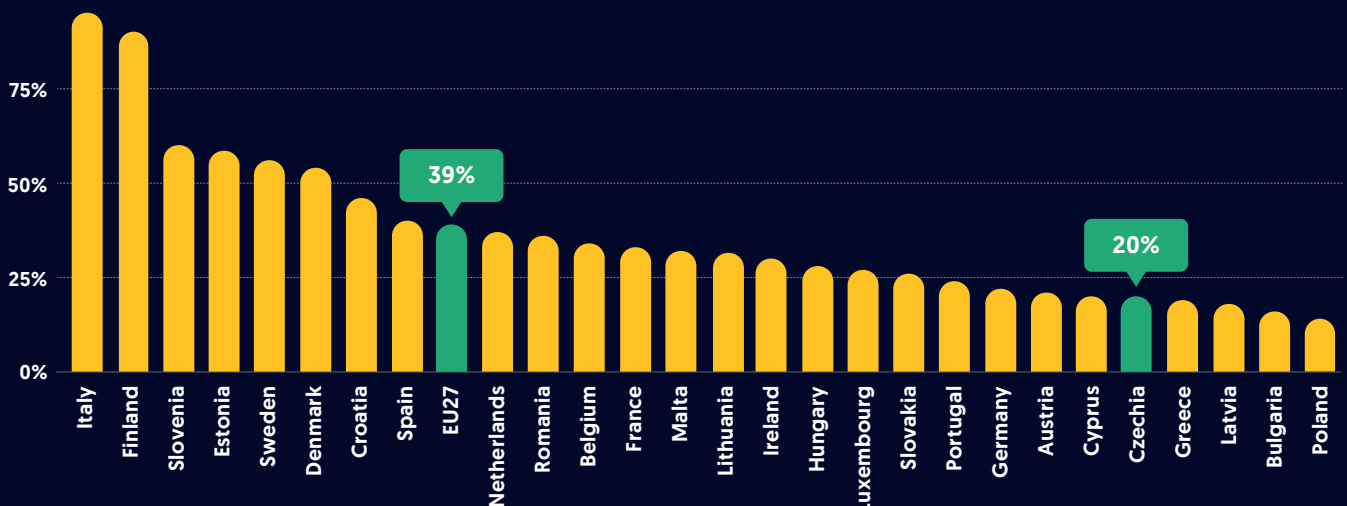
Companies in the Czech Republic sending invoices in electronic form



It is not surprising that the Czech Republic is at the tail end of the European Union in the use of e-invoicing. While 97% of businesses in Italy issue their invoices in

this way, 93% in Finland and the EU average is 39%, only Greece, Latvia, Bulgaria and Poland rank behind the Czech Republic's 20%.

Businesses in the EU27 sending invoices in a format that allows automated processing (e-invoices)



% of the total number of enterprises with 10 or more employees in the given country

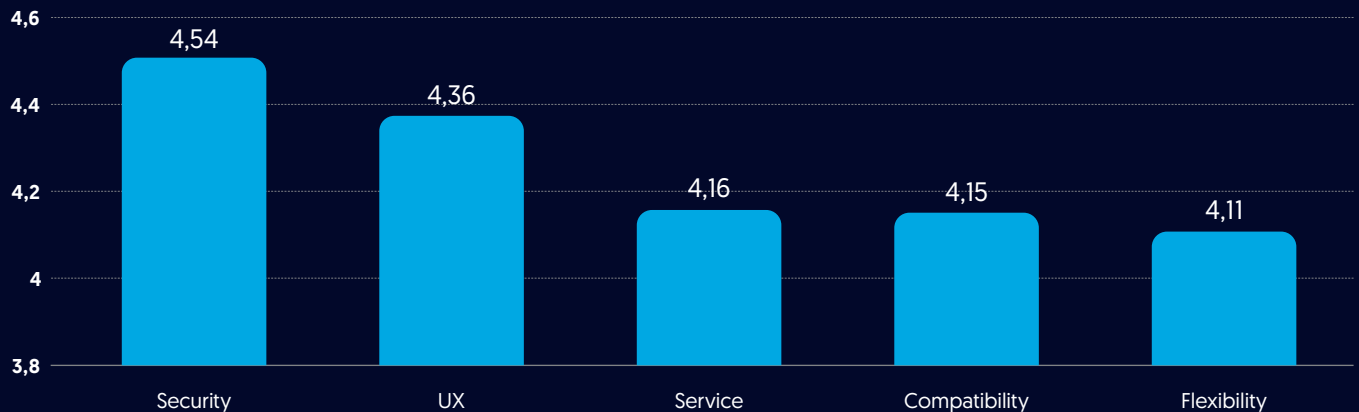
And be warned, paper receipts are still being used, with 69% of businesses issuing them last year, usually in combination with some type of e-invoicing, of course.

Choosing an ERP system? Companies want security above all

On a scale of importance of 1-5, the vast majority of respondents identified security as a key parameter in choosing a new IS, with an average score of 4.54. User-friendliness, customer care, compatibility with other solutions and system flexibility followed. Thus,

the functional features of the IS were preferred; on the other hand, the appearance of the system and the image and experience of the supplier were at the tail end of the evaluation with scores of 3.51 and 3.53 respectively.

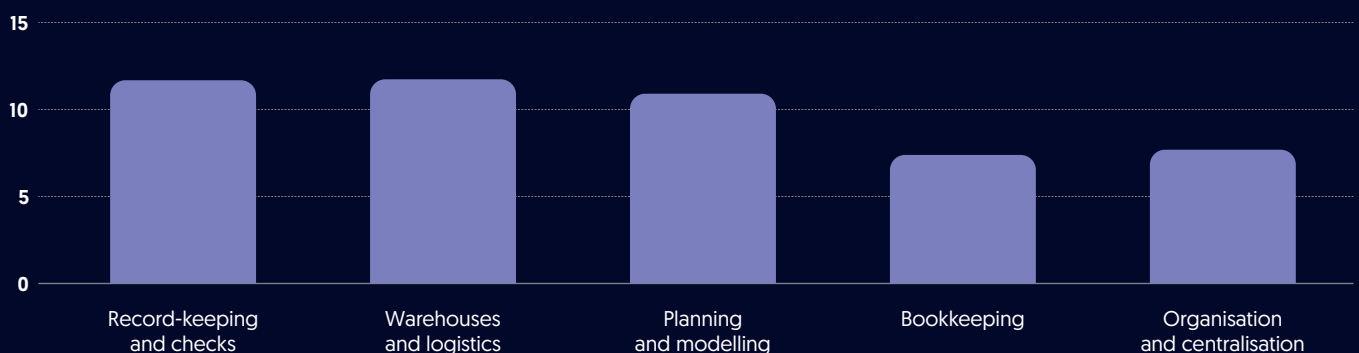
Top 5 key IS parameters



The survey also asked respondents about the benefits they expect from an enterprise information system. Most of them (12%) said that records, reports and controls should be more efficient, and that more efficient warehouse and logistics management is also important for companies. According to the

respondents, ERP systems should also significantly help with company planning and organisation and with bookkeeping. On the other hand, the lowest expectations are in the area of automation efficiency or increased security of the organisation.

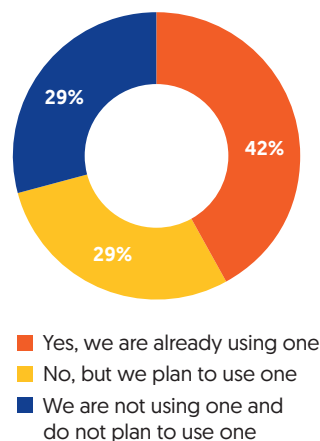
Top 5 expected process improvements



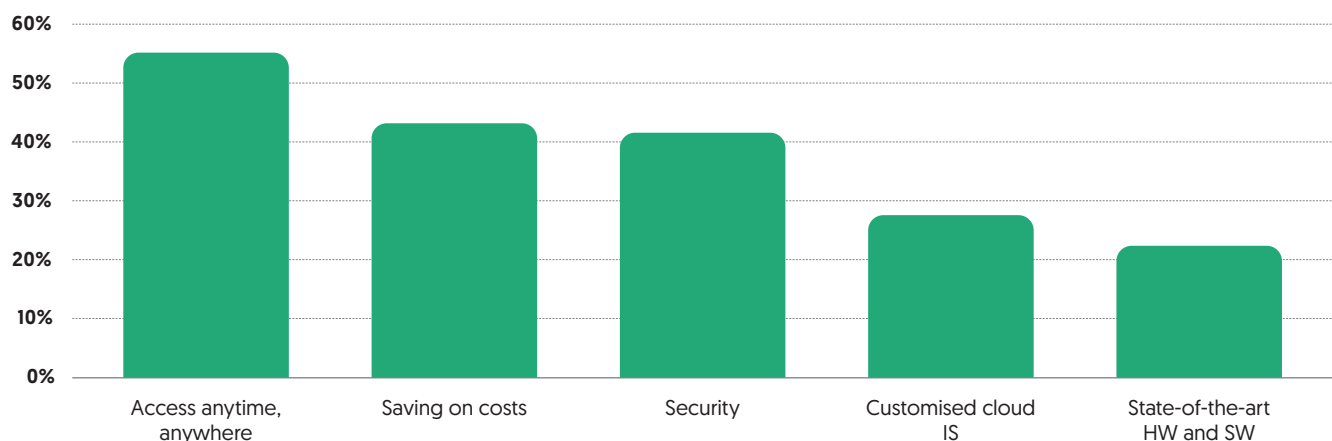
Cloud in the winning campaign

The information system in the cloud is no longer an outlandish solution, on the contrary, it is slowly becoming mainstream. Almost half of the companies use it and almost a third are planning to use it. The island of resistance that does not have and does not plan a cloud solution has shrunk to only 29% of the surveyed companies. Representatives of companies overwhelmingly appreciate the cloud solution of the enterprise information system for its lack of space and time constraints, as well as significant cost savings and higher security. On the other hand, neither scalability of performance according to current needs nor speed of deployment is important to them, which was mentioned by only 20% of respondents.

Do you use a cloud-based information system?



The main benefit of a cloud-based system

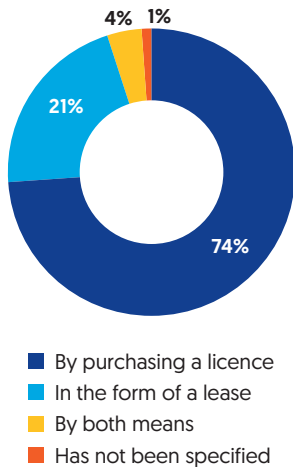


Leasing? Better a licence without subsidies for now

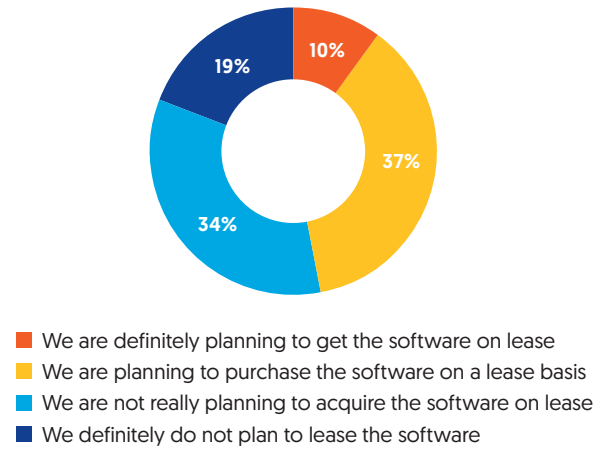
The dominant form of acquisition of an information system for companies is still the purchase of a licence, which was carried out by three quarters of the

surveyed companies. However, there is a relatively significant market potential for leasing - 47% of companies definitely or rather plan to use this form.

How did you acquire the existing IS?



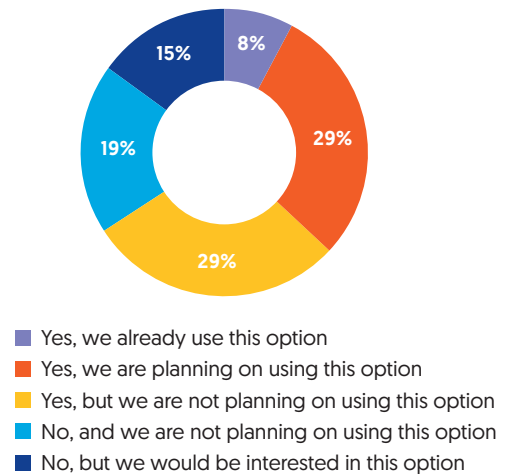
Are you planning to acquire IS by leasing?



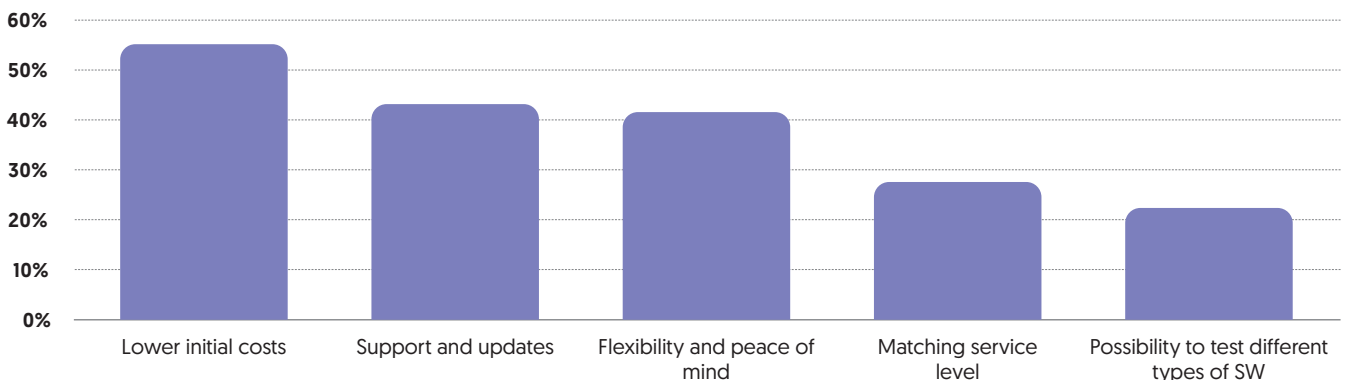
More than half of companies say the main reason for renting software is the lower initial investment, and they also value support with regular updates and high flexibility without hassle. As with the cloud, the role is essentially scalability, which has been cited only by 23% of them.

A widely discussed business topic is subsidies. Companies are divided on this issue related to the purchase of software. An overwhelming majority of them use or would use it, with 37% of them knowing about this option and using or planning to use it, and another 15% of the total not knowing but would also use it. Regardless of knowledge, 48% were negative.

Do you know about the possibility of financing the purchase of software from grants or giants?



Top 5 reasons for SW leasing



AI and BI will grow massively

One of the most-used buzzwords of 2023 is artificial intelligence (AI). As its spread to the mass public and rapid improvement continued almost day by day, AI gave the impression of ubiquity. However, the reality, at least in the Czech corporate sphere, is somewhat different according to the data. By the end of 2023, only 14% of respondents were using artificial intelligence. This is not a high number, however, in previous research by Median for Asseco Solutions in the spring of 2022, AI users were only 4%, and if we take into account the set that is about to be introduced, i.e. another 40%, we are likely to see a massive penetration of AI into the functioning of companies.

The percentage of current users is higher for business intelligence (BI) and reporting tools, with three out of ten companies now using them. The potential for growth then shows similar data to AI, with 40% of companies surveyed planning to implement BI.

Do you use **artificial intelligence (AI)** in your business?

14%

Yes, we are already using it

40%

No, but we are planning on using it

46%

No and we are not planning on using it

Do you use **business intelligence (BI)** in your company?

29%

Yes, we are already using it

39%

No, but we are planning on using it

32%

No and we are not planning on using it

Half of the companies have experienced a cyberattack, but feel safe

Half of the companies surveyed have experienced a cyberattack at some point, be it phishing, ransomware, or other types of attacks. Interestingly, 92% of respondents definitely or rather trust the

security measures implemented in their company. For those who have already been exposed to a cyber attack, the figure is as high as 96%.

Has your business ever been subjected to a cyberattack?



Do you have confidence in your company's security measures?



Digitalisation of Enterprises 2023 from a legal perspective



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“But we cannot really count on the legislation being ahead of technological development, even in the Czech Republic. Thus, in the near future, a healthy degree of self-reflection on the defensibility of the chosen approach will be required for many applications.”



Michal Kuk

Lawyer and Innovator, Frank Bold

Legal challenges in the era of artificial intelligence

Last year's boom in the availability of AI-based tools, particularly language models, raised high expectations in the legal field. There has often been talk of replacing lawyers, or at least making legal services more efficient and cheaper. However, the reality so far is different. Artificial intelligence will undoubtedly affect legal services, but has your lawyer reduced his hourly rate because of it? It is nevertheless noteworthy that this time, in the context of the „new“ technology, not only its legal aspects are discussed, but also its potential for the law as such.

As Frank Bold Advocates, we began testing language models last spring, including a public experiment in the form of a legal question answering tool. One of the main lessons that came out of it was that people often tended to be very positive and willing to evaluate answers that were legally flawed. Law is a field where individual actors are very protective of their know-how, so it is not surprising that the scope for AI tools to „learn“ something practically applicable about law is limited and the knowledge, if available, is rather academic.

Changes are on the horizon

Thus, the legal field, like the rest of business, remains in the phase of using AI tools within internal processes, rather than tools that the client interacts with directly. The risks of the opposite approach were demonstrated by airlines in Canada, for example, whose AI-driven chatbot promised users nonsense that a court ordered the airline to actually deliver. For example, we have also seen a court ruling that an image created by AI is not a standard copyright work.

In addition to court decisions, specific legislation is already emerging, the most visible in Europe being the AI Act. This regulation, aimed at difficult-to-predict technological developments, began to emerge long before last year's boom and had the difficult role of tightening up regulation prepared for a different reality. One criticism of it was that the AI Act was aimed at regulating the technology rather than the activity itself, which is short-sighted in such a volatile area. However, the regulation is not expected to take effect until 2026.

It can also be expected that the further development of the use of AI and new implementations in various fields will require changes to various industry regulations. Rather, we cannot count on the legal regulation being ahead of the technological development, even in the Czech Republic. Thus, in the near future, a healthy degree of self-reflection on the defensibility of the chosen approach will be required for many applications.

As in all areas, in law, the availability and quality of data will be the alpha and omega for the effective use of AI. Lawyers will thus have to outsource their know-how. Perhaps this will finally allow us to see a greater number of legal-technology projects and startups.

Digitalisation of Enterprises 2023 from the perspective of Asseco Solutions clients



Client: KOMA Modular

Digitalised with the help of:
HELIOS iNuvio



Reasons for implementation

Process automation, efficient document management, record-keeping, unified processes



Modules used

Cash register, Property, Payroll, BI, Reporting.cz, Warehouses, HR, Transport, Forwarding, Goods records, Production modules, Using NNTB platform



Main benefits of implementation

The cost of the HELIOS iNuvio system has already paid off for KOMA Modular after nine months of operation. The system has increased the efficiency of the company, streamlined warehouse records and accelerated the preparation of forwarding. At the same time, it provides a range of data for production planning and allows you to keep all your accounting records in one place.

CLIENT'S COMMENTS

“I consider the benefits of the introduction of the HELIOS information system to be substantial, and after three quarters of a year of operation, this information system has already paid for itself. Apart from the compulsory accounting module, I would like to highlight the contribution of the Technical production preparation and Production control modules, which are prepared at a very high level. We have recently supplemented HELIOS with automated collection of information about the position of modules on the production line. And in the future, we want to use HELIOS iNuvio as a data source for planning with the Plant Simulation software. Last but not least, we are planning to create a company web portal displaying information for production management, which will also be drawn from the HELIOS system.”

Ing. Luděk Ohnoutek

Head of Innovation and Processes
KOMA Modular s. r. o.

Client: Albatros Media

Digitalised with the help of: HELIOS Nephrite

CLIENT'S COMMENTS

“The information system is the most important link in the robust technological ecosystem on which the traditional publishing house Albatros Media stands today. Primarily, all book data is processed in HELIOS and a birth certificate of sorts of each book in data form is created. Thanks to it, we are able to automate all publishing, production and distribution activities. Today, however, it is no longer just about classic books, but also about audiobooks and e-books, the production of which has become a standard part of publishing. Here, the HELIOS Nephrite information system transmits the book data to our e-shops and handles the communication and distribution of orders to bookshops and customers. Thanks to a high degree of automation, we are able to supply the book market smoothly even in the peak selling season.”

Ing. Tomáš Trefný

IT Director
Albatros Media a. s.



Reasons for implementation

Streamlining and optimising all processes in the production, distribution and sale of books



Modules used

Basic [Economics and Accounting, CRM, DMS, Workflow, Operations, Contracts], Business Warehouse, Projects, Archiving, Assets, Web Portal



Main benefits of implementation

We process data from all company processes and are always on hand for operational decisions and important strategic planning. This helps us to respond flexibly to sudden events and the changing nature of the book market. At Albatros Media, information technology in general is an important tool for efficiency and productivity and supports the growth of our company.

Client: město Choceň

Digitalised with the help of: Spiska Records Management Service



Reasons for implementation

Reduction of paperwork, more time for communication with citizens, unification of processes



Modules used

Scanning Module, eMailroom, Signature Book, File Plan, Connection to Czech POINT, Document to PDF Conversion, Shredding, Daily Snapshots, eIDAS, Type File, Data Format Analysis



Main benefits of implementation

The Spiska records management service has radically changed the processes of processing documents and closing files in Choceň. Thanks to its features, all 14 established organisations were also able to join the system. This has significantly increased efficiency and unified processes in the city.

CLIENT'S COMMENTS

“Spiska has brought significant improvements in the processing of documents and files, as well as in their closure. Thanks to it, our organisation has better control over the document process and is able to rely on the system. We see the eIDAS and Signature Book modules as particularly useful. The eIDAS module helps our organisation to keep track of electronic elements, their recognition and validity, which facilitates daily work and increases confidence in electronic processes. The signature book simplifies electronic signing and approval of documents, which increases work efficiency.”

Mgr. Pavel Adamec

Secretary
Town of Chocen

Conclusion: together in 2024



This is how the Czech business sector digitalised in the turbulent year 2023. And it is safe to say that it will not take a breather this year either. Uncertainty stemming from the international political environment and ongoing conflicts, the rapidly emerging technological revolution in the form of artificial intelligence and robotics, or persistent economic challenges of both a local and global nature. All this will have to be faced by Czech entrepreneurs. Our clients.

And our heroes as well. By the nature of Asseco Solutions' business, we are in almost constant contact with them and we are continually fascinated by their drive to innovate and their desire to move their businesses forward in all directions. Even the „old schoolers“ are beginning to understand that pen, paper and sometimes Excel are not enough for effective business management. Not to mention the ability to recruit the best employees who want to work with modern tools today and not waste valuable time in a work environment reminiscent of the 1990s.

That is why we are full of optimism. We are ready to help those who are just now deciding to take a decisive step towards digitalisation of their business, as well as those who are already on it but need direction and a broader range of options. We're excited to see what this year brings, and we'd love to be by your side with our solutions.



Asseco Solutions

Asseco Solutions, a.s. is the largest producer of enterprise information systems on the Czech and Slovak markets, and in 2023 it celebrated its 33rd anniversary. The software solutions produced by the company are also distributed in other Central European markets.

The Company not only focuses on development, but also on implementation and support of specialised systems for organisations of any size, active in the most diverse business sectors. Its product portfolio ranges from information systems for a diverse range of companies involved in production, trade or services, to products for public administration and products covering the specialised needs of companies, such as television production.

All products are complemented by a wide range of services and partner solutions. In addition to basic modules and functionalities, they also provide applications for individual business areas, known as industry solutions. Asseco Solutions maintains ISO 9001:2015 and ISO/IEC 27001:2013 certification and is a member of the multinational Asseco Group. The turnover of Asseco Solutions, a.s. for the fiscal year 2023 amounted to CZK 870 million and 400 people worked for the company.



asreco
SOLUTIONS