2018

Demand and offer of digitization

Clujul Digital

Study conducted among SMEs and IT providers of products for digitization

Study conducted by SC ENCORE RESEARCH SRL

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ENCORE research

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PRIMĂRIA ŞI CONSILIUL LOCAL CLUJ-NAPOCA

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FOREWORD

Voicu Oprean

ARIES Transilvania President

Founder&CEO AROBS Transilvania Software

One of the findings of the study, relevant to the profitability of companies' digitization, and yet very interesting to me, is: "The investment costs for digitization implementation amounted, on average, to 12% of the last year's turnover, most companies investing between 6% and 10% of the turnover. Instead, the share of the current turnover due to digitization is, on average, about 18%, which indicates the profitability of this approach. "

For us, people in IT, this phrase may seem a triviality, but it is a truth that must be repeated with every occasion that arises. Beyond the very interesting figures above, we must all note that digitization leads in any business first of all to connectivity and mobility, secondly to the transformation of data into information. This gives us much greater analytical capacity and, last but not least, creates an innovation-friendly context that is a highly relevant differentiating factor today.

We cannot, however, overlook another very important issue: we are at the bottom of the European rankings that measure the progress of EU countries towards a digital economy and society. Romania, which is a sought-after destination for IT services and products, which has very relevant players on the regional and global market, seems to oscillate between two instances: the innovative industries and the reluctance towards digitization.

These are highlighted in the study, which at the same time certifies that more than three quarters of the IT companies in Transylvania are placed above the average of the innovation scale. Almost two-thirds of the IT industry's turnover comes from companies that are in the area of total innovative activities. Probably the only way to boost productivity and innovation in all industries is education. We need to increase the level of information regarding the undeniable benefits of digitization and, in my opinion, a very important first step is precisely this study published by ARIES Transilvania.

This year, we, at Transilvania IT cluster (former iTech Transilvania) by ARIES T, have decided to run this Digitalisation Study in order to contribute to the creation of an overall image of digitalisation at local and regional level, by presenting updated data, at the level of North-West region, Romania.
In a country with merely no public policy for digitalisation, we think that it is important to see what we can do, as private actors, by proposing some bottom-up actions, which could give information and inspiration for public policy makers.

Apart from being very vibrant, Cluj-Napoca is interesting for several reasons: the industrial landscape is well developed – active clusters which are now looked as the front runners of the regional innovation ecosystems and also the collaborative environment of the quintuple helix.

Bianca Muntean

ARIES Transilvania

CEO

We would like to put here a special emphasis on the topic of Digital Innovation Hubs (DIH), created by the European Commission, which are presented as a network of sites to test and develop digital technologies and skills for all sizes of enterprises, especially SME's.

Transilvania Digital Innovation Hub is an initiative developed by iTech Transilvania cluster by ARIES T in collaboration with relevant stakeholders in the region. This is an initiative perfectly aligned with the Digital Romania Manifesto, launched in November 2016. Transilvania Digital Innovation Hub mission is to identify collaborative projects for digitalisation of all the relevant stakeholders such as: companies, clusters that activate in various areas (creative industries, agriculture, furniture, energy efficiency and agriculture), research institutes and software companies, public authorities, Universities.

For all the interested parts, our objective is to stimulate technological innovative capabilities in order to support them delivering the products/services in the European Digital Single Market. With more than 1300 IT companies, 12 universities and 100 000 students, Cluj is considered to be a strong regional IT pole, the second after the capital, Bucharest.

The development of this digitization initiative in Cluj region represents a first step in supporting an efficient technological development and mapping the city on the European catalogue/map of digitization. In addition, our purpose is to support digitization through collaborations with different sectors of activity through clusters and not only and to establish a culture of co-creation of technological joint solutions and products through a trans-sectoral collaboration, in every field from education and creative industries to robotics, health or agriculture.

We are members in the European Digital Skills and Jobs Coalition, in the frame of which we are organising and providing digitalisation courses for different types of participants.
Given the dynamic of the IT industry, Transilvania Digital Innovation Hub brings added value by the fact that we are interlinking the IT companies from region with other companies that activate in other fields of activity, especially non-IT companies.The creation of these synergies and links represent a step of a technological development oriented to existing products in various sectors of activity, from education and creative industries to health and agriculture. Digitization of industry is one of the future priorities in our region and this will be achieved

through the existing close collaboration for more than five years now between the clusters, members of the Transilvanian Clusters Consortium: energy efficiency, furniture, creative industries, agriculture, new materials, etc.
Like Mr. Bror Salmelin, former EC, use to say: change happens, all the time. What is important is that these changes are driven in a way where a joint win-win game is created. Transformations of society are there, and we all need to be included in it. The changes create new opportunities, and the resistance for the change is less if we are all part of it as co-creators.

Serendipity relates to the fact that we cannot plan the future with traditional roadmaps. We do not master the complexity like we did in old times, where many of our activities were local and timely limited. Connectivity has changed that, digitalization will disrupt even more. The European landscape has a very strong societal component. It is definitely not about technology-driven development. It is about co-creation and simultaneous technical and societal.
Our city and our country, can represent a great bridgehead and support for the road from outsourcing towards innovation and digitalisation.

We would like to thank Cluj-Napoca Municipality and Cluj-Napoca Local Council for their long term partnership and collaboration.

VWe invite you to collaborate with us,

because together we are stronger!

ARIES TRANSILVANIA

ARIES Transilvania (Transilvania Branch of the Romanian Association for Electronic Industry and Software) was founded 14 years ago. It is based in Cluj-Napoca, it covers the North-Western region of Romania and is currently composed of 90 members (industry, public administration, universities, catalysers), the represented companies having over 13.000 employees and a turnover of more than 200 million euros.

Keywords: entrepreneurship, innovation, collaboration, clustering, open communication.

ARIES T is the initiator of the Transilvania Digital Innovation Hub (DIH), a bottom-up approach of the regional stakeholders which aims to position Cluj and Transilvania, based on its competences on the map of EU network of DIH. Also we are members in the European Digital Skills and Jobs Coalition.

During June 2017, ARIES Transilvania was one of the main organizers of Open Innovation 2.0 Conference in Cluj-Napoca and Innovation Dialogue. To continue the knowledge sharing process, ARIES T organized in 2018 the second edition of Innovation Camp, to answer to the challenges of the community, developing innovative solutions to bring the assets to surface.

Innovative projects:

- Transilvania IT (iTech Transilvania Cluster by ARIES Transilvania)
- Bisnet Transylvania - Enterprise Europe Network
- ROCK - Regeneration and Optimization of Cultural heritage in creative and Knowledge cities
- DIH^2 Robotics
- Transilvania Living Lab
- Copernicus Relay
- Regional contact point for SMEs in Horizon 2020
- Earth Observation ClimLab (EO ClimLab)
- AccessPoint - Interconnectivity solutions on an European Level - eDelivery

Some of our main activities are to organize training, participate to international events and fairs to bring visibility to our members, represent the needs of our member companies at a local, regional, national and international level and develop partnerships to bring value to our members.

ARIES T is interested in promoting its members, to meet new potential clients for its members and to find new and innovative projects and opportunities.

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Challenge innovation

Transilvania IT (former named iTech Transilvania cluster) was established in 2013. The cluster is using a bottom-up approach in order to support the development of the community, based on the end-users needs. More specific, the gold labeled cluster represents a bridge on a local, regional, national and international level and has strong links and direct connections with the actors from Transylvania's ecosystem like start-up communities, the local public authorities, technology companies, universities and other clusters and also at international level. Currently it has more than 95 members (over 90% companies, academia, research centers and public administration), the majority being from Transilvania region.

Transilvania IT Cluster is founding member of Northern Transilvania Clusters Consortiums, which has in its componence regional clusters from the following fields: energy, agriculture, production, tourism, creative industries, lifestyle, etc. Transilvania IT is also part of the Cluj-Napoca's IT Innovation and Entrepreneurship Consultative Council, where, together with the Mayor of Cluj-Napoca is discussing about the development strategy of our city and also about the Smart City Strategy.

Through our activities of creating relevant synergies between our member companies and other stakeholders (academia, companies, NGOs, local government, citizens), by promoting an open collaboration, developing partnerships that will promote their area of competences and support their involvement in the community. Transilvania IT provides support for open innovation in the open innovation eco-system as an integrated system, together with local and regional actors, public authorities, universities, research institutes and others from North-West region by being an active part of the Northern Transylvanian Clusters Consortium . Through our member companies, we provide services in the following areas: support services, eHealth, eGovernance, Intelligent Cities Solutions, communication and media, energy efficiency, financial services, education and utilities and others.

Our involvement consist in supporting business development, collaboration in the elaboration and implementation process of regional policies in IT area and have an active involved in the development of Cluj-Napoca's Smart City Strategy.
We strongly support our members to develop their projects and create new collaborative one's through our working groups within the cluster: eHealth, Smart City, Smart Mobility, e-Learning and Open Innovation 2.0.

Some of our main activities are:

- Providing consulting services – marketing plans and consulting services in developing markets, increased productivity, product development for SMEs in the cluster;
- Marketing activities: cluster marketing strategy, participation at various events, fairs, exhibitions and trade missions;
- Activities related to the organization of training sessions (training) and events to facilitate the exchange of experience: mentoring sessions on topics of common interest to all members, events dedicated to the exchange of experience and best practices at national and international level;
- Activities related to offering support to our members in writing and implementing grant applications.

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METHODOLOGY

Data collection method:

- Survey

The investigated Universe:

- Companies and public institutions in the Northwest region

Sample:

the study was conducted on:

- 102 IT companies from the Northwest region. The maximum error margin is +/- 8%,
- 550 companies from other fields than IT and 51 public institutions, from the Northwest region. The maximum margin is +/- 4%.

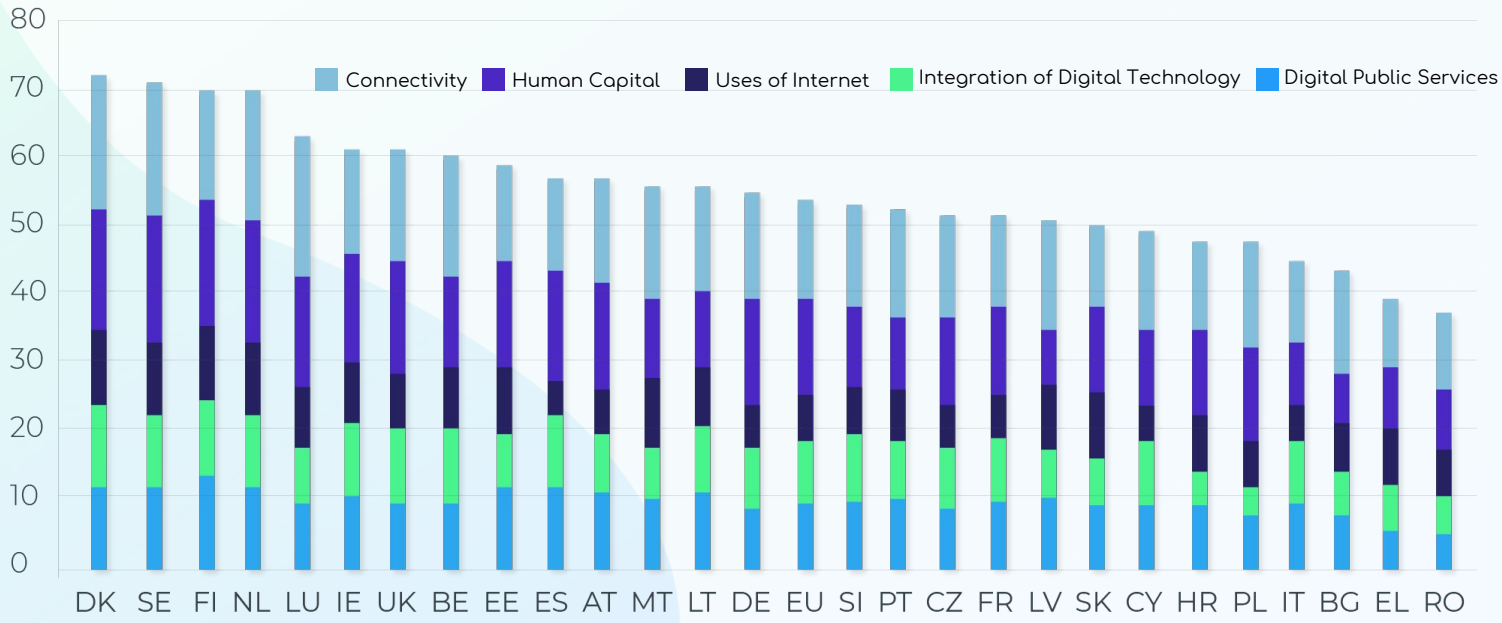
The data collection was conducted by CATI/CAWI, from September 1st to October 15th 2018.

The data were analyzed relative to the structure of the investigated populations.

INTRODUCTION

In April 2016, the European Commission launched an initiative on the digitization of the European industry. This plan aims to support and complement national initiatives, focusing on digital development and the development of local innovation centers across the EU, in order to help industry become more competitive. The digital strategy of European industry covers two key issues: developing the European digital infrastructure and improving the framework conditions for digital innovation. The Digital Economy and Society Index (DESI) is the subject of a comprehensive study conducted annually by the European Commission since 2014, focusing on measuring the progress of EU countries towards a digital economy and society. The DESI index brings together a set of 34 relevant indicators on the current mix of digital policies across Europe, covering several important dimensions: connectivity (broadband, fixed or mobile internet prices); human capital (basic skills related to internet use, advanced skills); the use of the Internet in public services by citizens, online transactions and online communication; integration of digital technology (business digitalization and e-commerce); digital public eGovernment and eHealth services.

According to this study, for 2018, the situation in the EU countries is as follows:



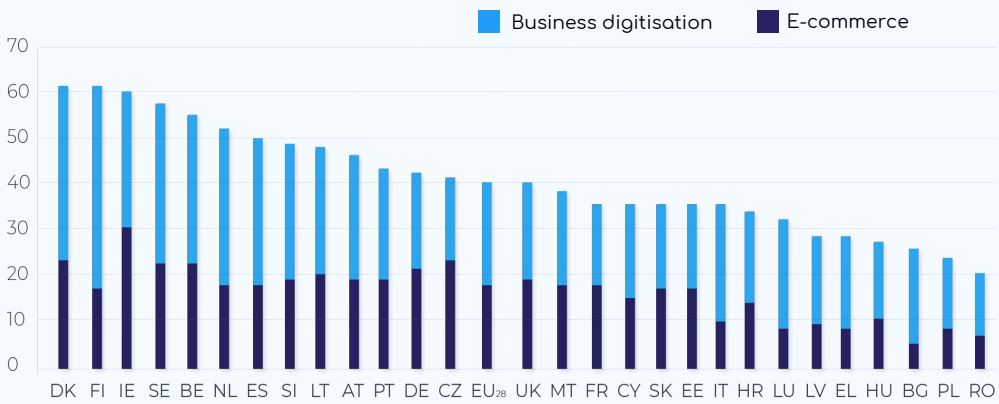
Digital Economy and Society Index (DESI) 2018 ranking

The situation is relatively similar to that of 2017. So, at the level of the Digital Economy and Society Index (DESI), representing the digitization of the economy and society in the 28 countries of the European Union, the most advanced country from this point of view is Denmark, with an aggregate score of 70.68%. The EU average is 52.25%, and Romania has an aggregate score of 33.21%, ranking the last. According to this study, although the DESI index of Romania is not stagnant (higher than the one in 2016), its growth rate is lower than that of other EU states, in other words, Romania digitizes slower than other EU countries.

According to the same study, as far as technology integration is concerned, European companies are increasingly adopting digital technology. This includes the use of business software for sharing information electronically (from 26% in 2013 to 34% of enterprises in 2017), sending electronic invoices (from 10% in 2013 to 18% of businesses in 2016) with customers and partners (from 15% in 2013 to 21% of enterprises in 2017).

This trend is the most advanced in Denmark, Finland and Ireland. At the same time, ecommerce use by SMEs has slightly increased (from 14% in 2013 to 17% of SMEs in 2017). However, less than half of online merchants also work in another EU Member State, most of them operating only in their own country. On the other hand, the ARIES study from 2017 regarding the local, regional and national IT market showed an effervescence of this sector in Romania, the dynamics of this sector being illustrated by the accelerated growth of the number of companies, with nearly 50% more IT companies being registered during 2011-2016. At the same time, forecasts predicted that support programs for the new technology industry will certainly lead in the next three years to practically doubling the number of IT companies in the second decade of the third millennium.

The interrogation of this study starts from this seemingly paradoxical context: why, given the expansion of the IT sector in Romania in recent years (more than 101,000 employees at the end of 2016, the significant increase in the turnover of IT companies), the digitalization degree of the country is far below the IT growth rate? In this context, we were interested in seeing: on the one hand, the characteristics of the digitization demand at the level of the SMEs and the public institutions in the area, which are the needs and the barriers; on the other hand, what are the features of the digitization offer coming from the IT companies in the area, what segment does it target, how connected is the offer of digitization with the digitization demand at local and regional level.



Digital Economy and Society Index (DESI) 2018, Integration of Technology

It is important to mention that the DESI (Digital Economy and Society Index) study focuses on national indicators, and only part of this study refers to the digitization of SMEs and public institutions. This research attempts to capture the regional situation, which may be different from the situation at national level.

General objective:

- To carry out a study on the need for digitalization of non-IT companies at Cluj county level, as well as the offer of services of local IT companies in the field of digitalization.

Specific objectives:

- Assessing the need for digitization of non-IT companies: measuring confidence in digitization, the perceived advantages and disadvantages of digitization, the degree of digitization for SMEs, identifying processes in companies that are more suitable for digitization, identifying barriers in the way digitization;

- Digitization offer evaluation: identification of complex digital solutions offered by the Cluj IT companies, the degree of orientation of the products towards the local / regional market, the perception of the representatives of the IT companies regarding the digitization difficulties of the Romanian companies.

The concept of digitization can address multiple aspects of a company and of internal and external processes. In the context of this study, respondents from the interviewed SMEs were exemplified the many aspects that digitalization can address: the transformation / conversion process at a company level of any analogue or physical information (documents, images, photographs, sounds, signals, location data, identity cards, etc.) in digital format for use through computerized systems (data storage, platforms, applications, etc.).

Digitization at a company level can target all of its key processes: distribution, sales, finance, production, communication, etc. Digitization also involves the transfer of administrative or promotional and marketing practices in the digital environment: for example in the financial and administrative area, digitalized issues are electronic invoicing, electronic signatures, electronic archiving, cloud storage; in the field of communication and sales, digitization also includes the Facebook page, the company's website.

Digitization also means the use of digital services at the level of key processes: ERP solutions (Enterprise resource planning for integrated management of all processes and operations within a company in a single IT platform), CRM solutions (Customer Relationship Management, is a set of tools, procedures and strategies that aim to improve customer relationships); ARP (Advanced Planning & Scheduling) solutions for production planning; BI solutions (Business Intelligence) for data analysis, mobile digital applications for sales team management, e-commerce sales (selling products via an online platform - virtual store), etc.

In order to achieve the objectives, the following activities were carried out in the study: a survey on the representatives of 103 IT firms providing digitization services; a survey of SMEs in the region that included a sub-sample of public institutions. The results of the first survey are presented in Part A of this report and the results of the survey on SMEs and public institutions in Part B.

01. Clients and potential customers of IT services for digitization

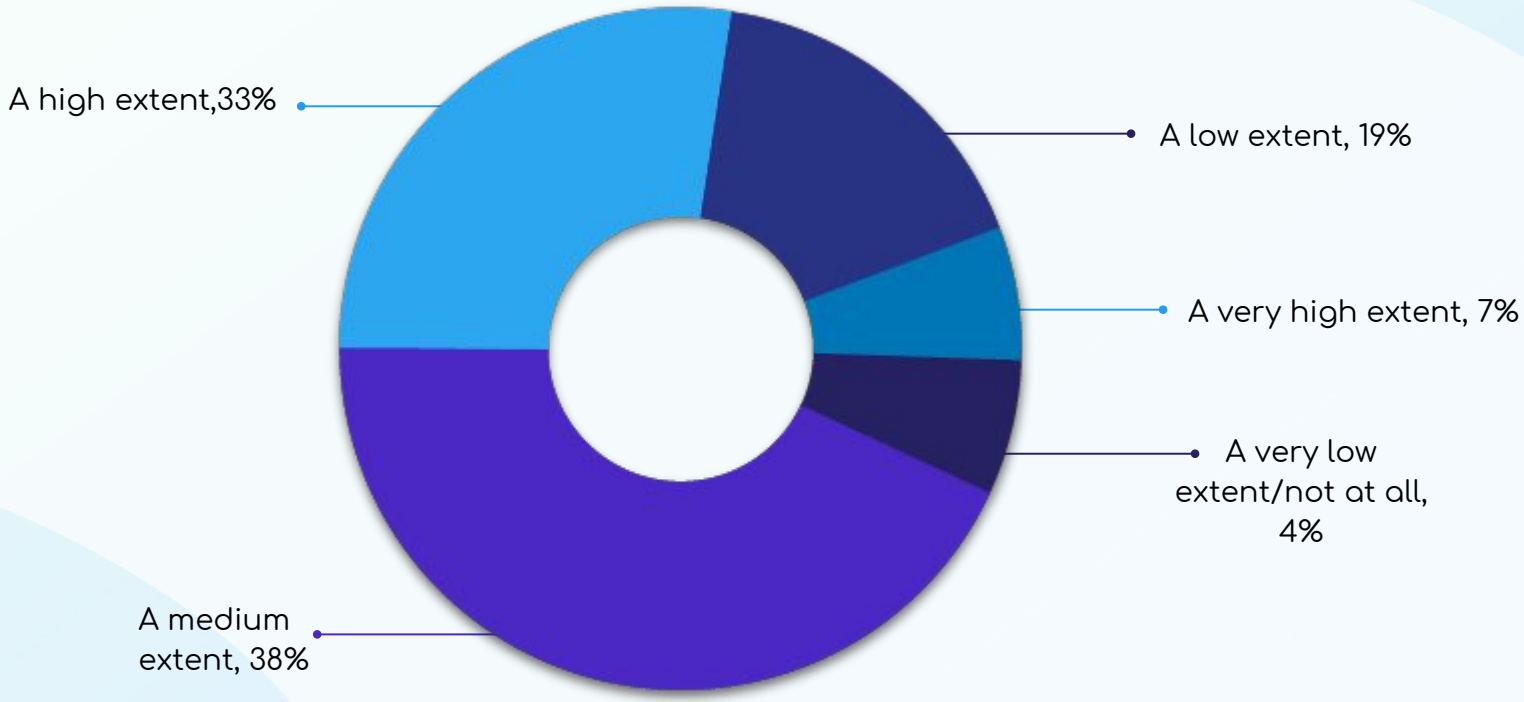
I.Digitization. Knowledge and possibilities of use.

The concept of digitization is known well and very well by about 40% of the representatives of private companies or public institutions. If this percentage is higher for public institutions (53%) or for companies with a turnover of over 6 million lei (41%), the existence of an IT department does not affect the degree of digitization knowledge.

Thus, the information about digitization reaches decision makers through various communication channels, not only through the specialized ones.

1. Chart

To what extent are you aware of the concept of digitization?



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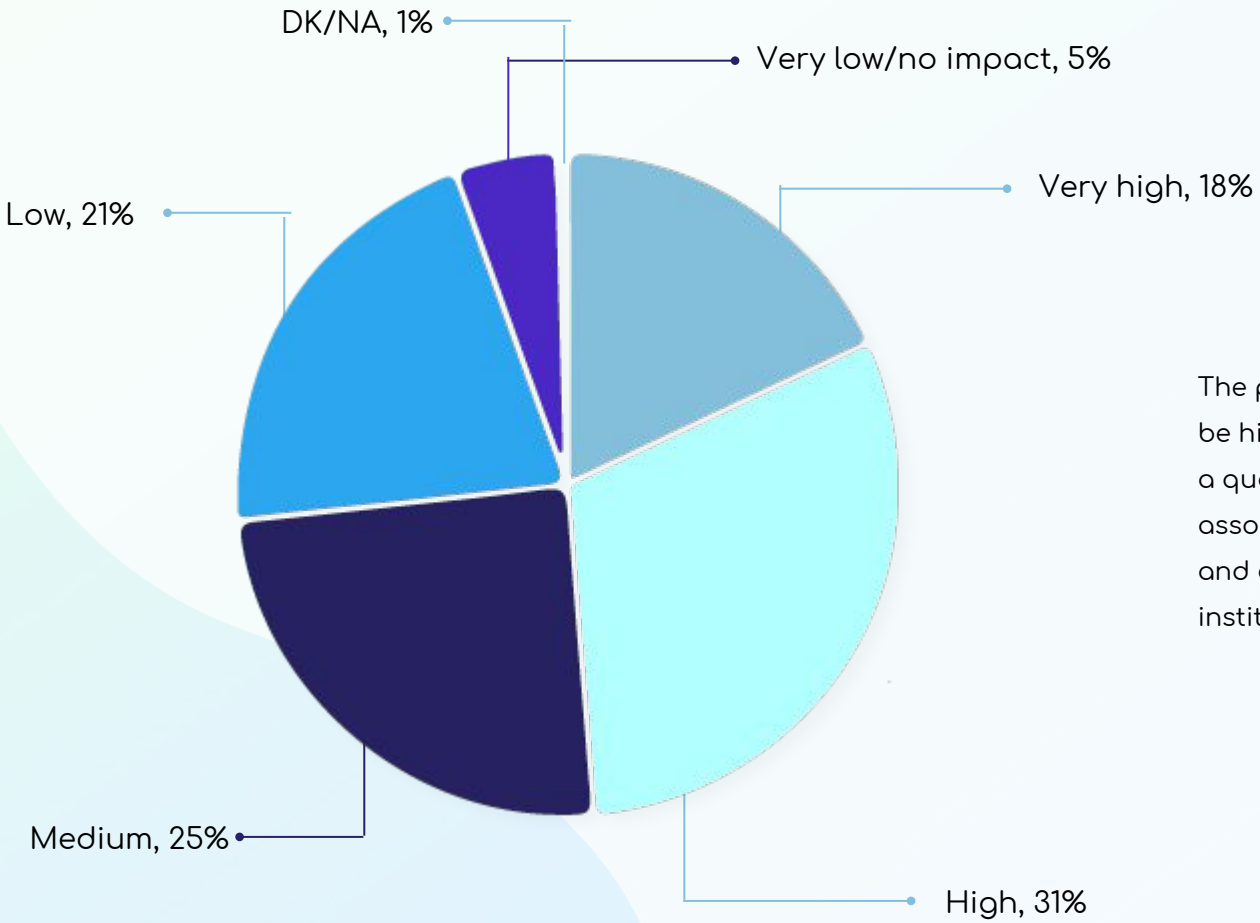
2. Chart

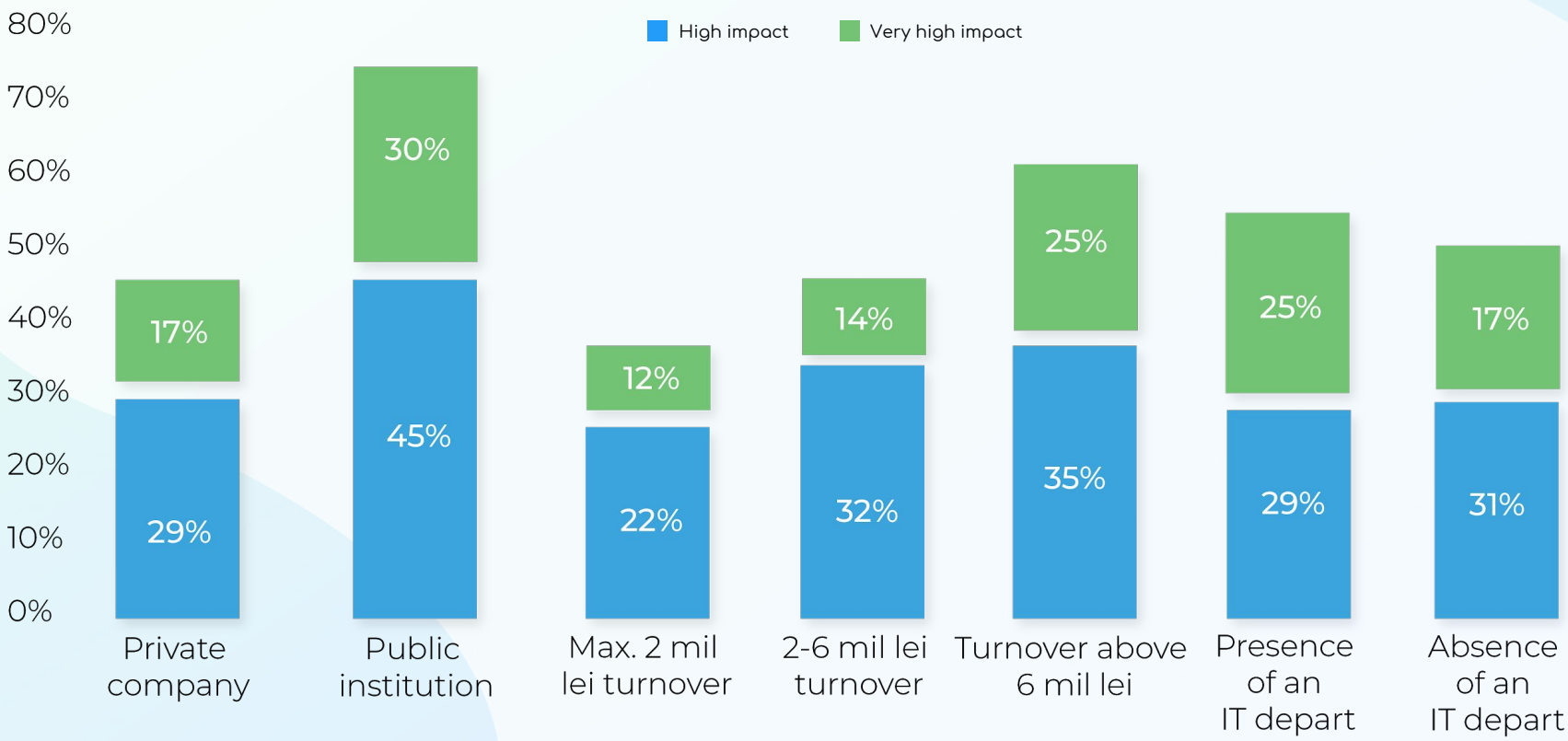
What do you think is the impact of digitization in the sector in which you activate?



The perceived impact of digitization is considered to be high by almost half of the respondents (49%), while a quarter considers it medium. Again we identify an association between the perception of a high impact and certain categories of institutions: public institutions and large companies.

3. Chart

The distribution of the perceived impact depending on the turnover



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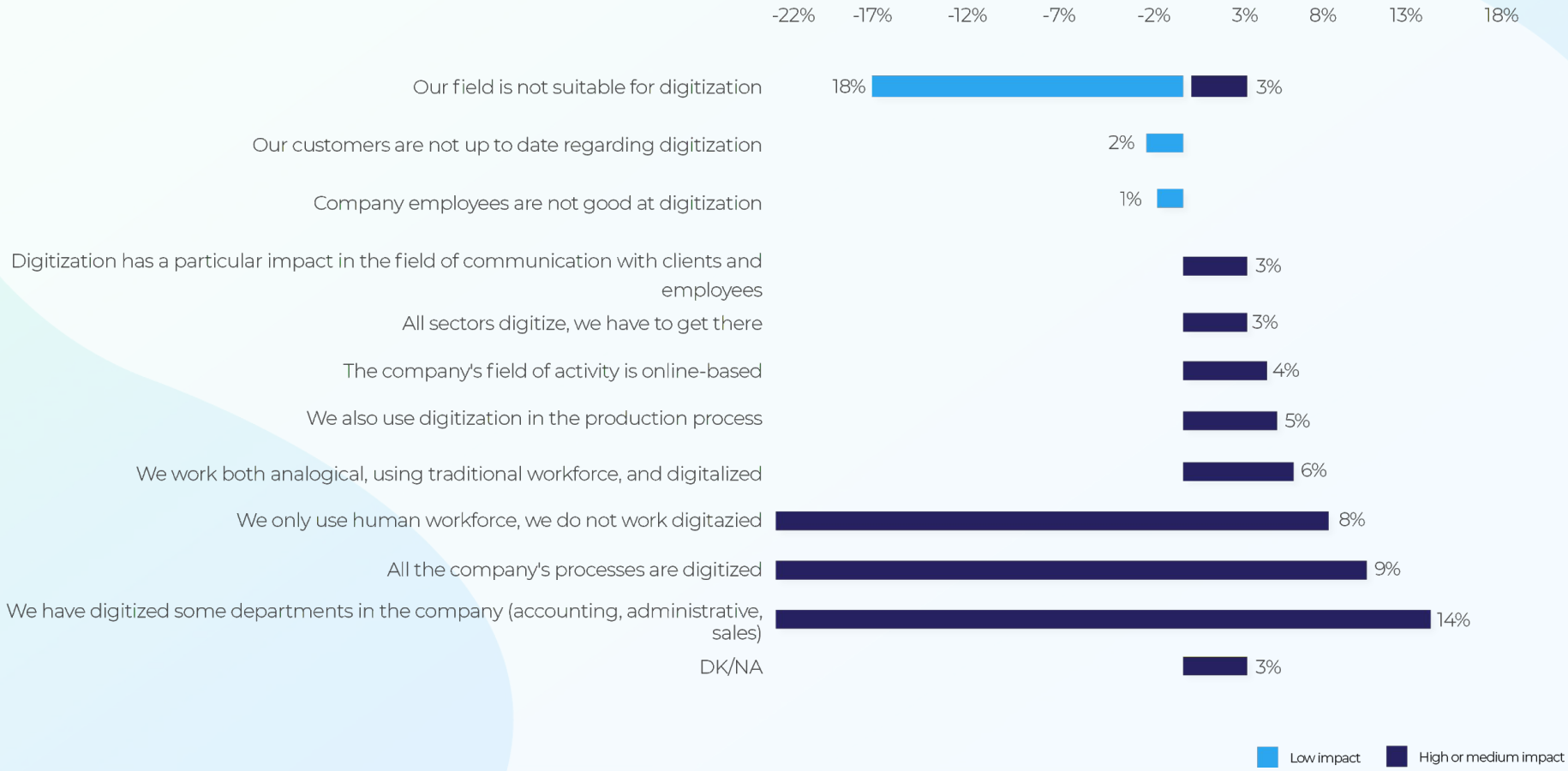
4 Chart

If the impact is medium, large, small, what are you specifically referring to?

Explain what this impact is.

The medium and large impact is motivated by the fact that digitization has already started and that it becomes a universal way of approaching any business field. The small impact is contextually motivated, especially since the field of activity does not allow digitization.

On the other hand, either customers or employees are not yet ready to work in a digital environment.



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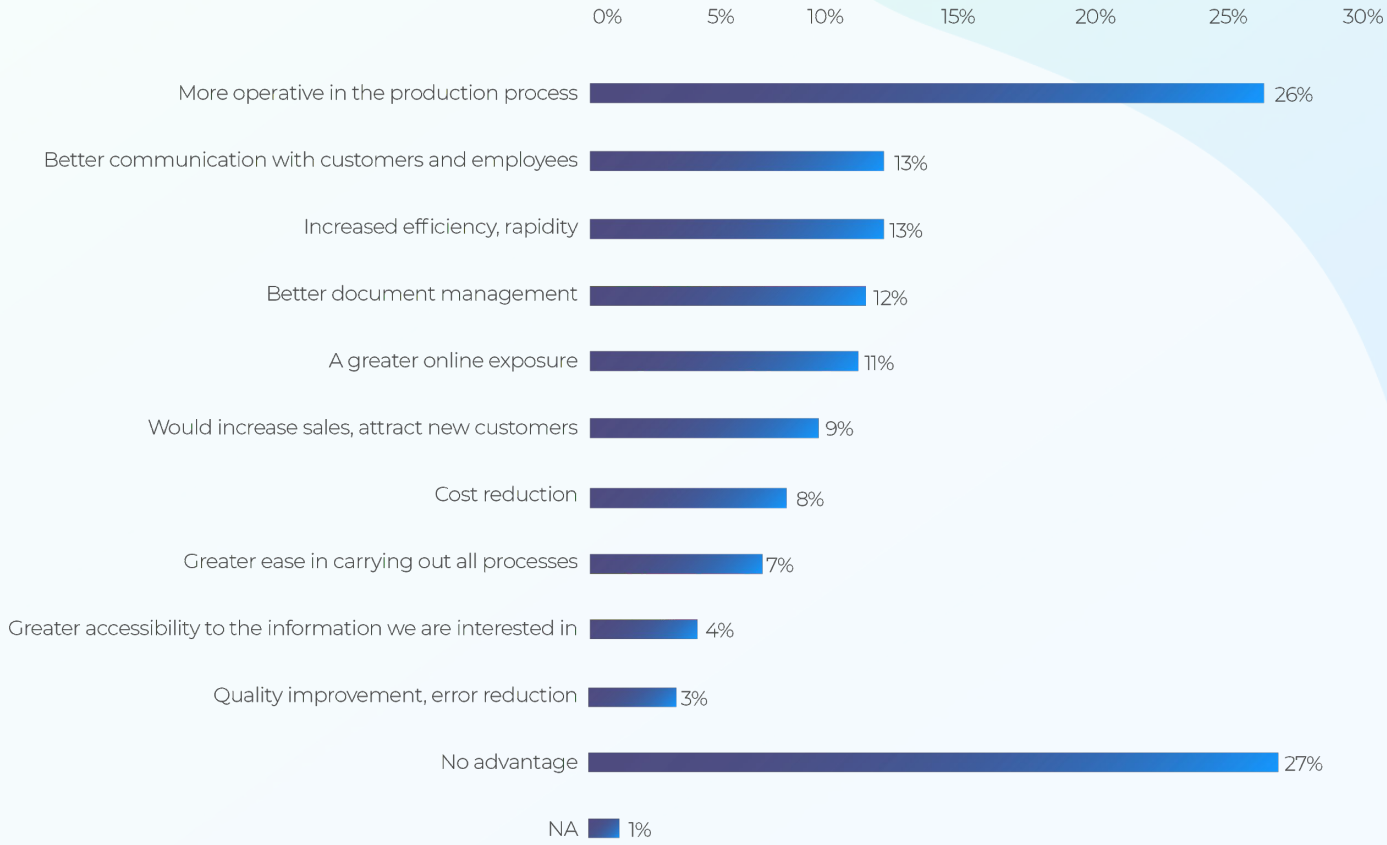
5. Chart

What are the main competitive advantages that your organization / company would derive from digitization?

The main competitive advantages associated with digitization are those related to increasing production efficiency, better communication with stakeholders involved in companies' activity, customers and employees, or increased efficiency of organizational processes. We also notice a significant share of the skeptical ones, 27%, who consider that digitization would not bring any advantage.

They come from small private companies with businesses in areas such as trade or services, with an operating mode focused on direct interaction with customers.



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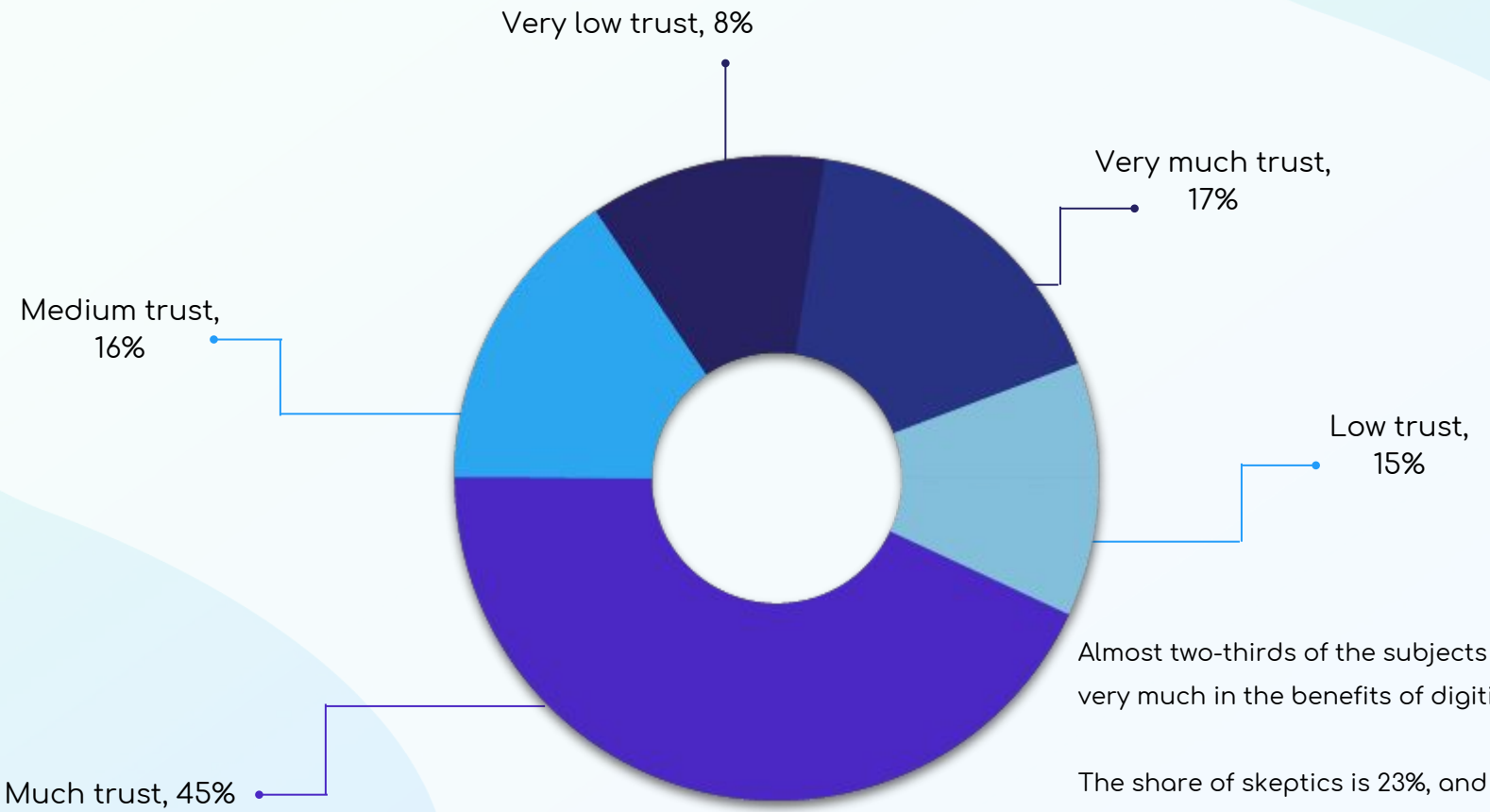
6. Chart

How much do you trust the benefits that digitalization can bring to your company?

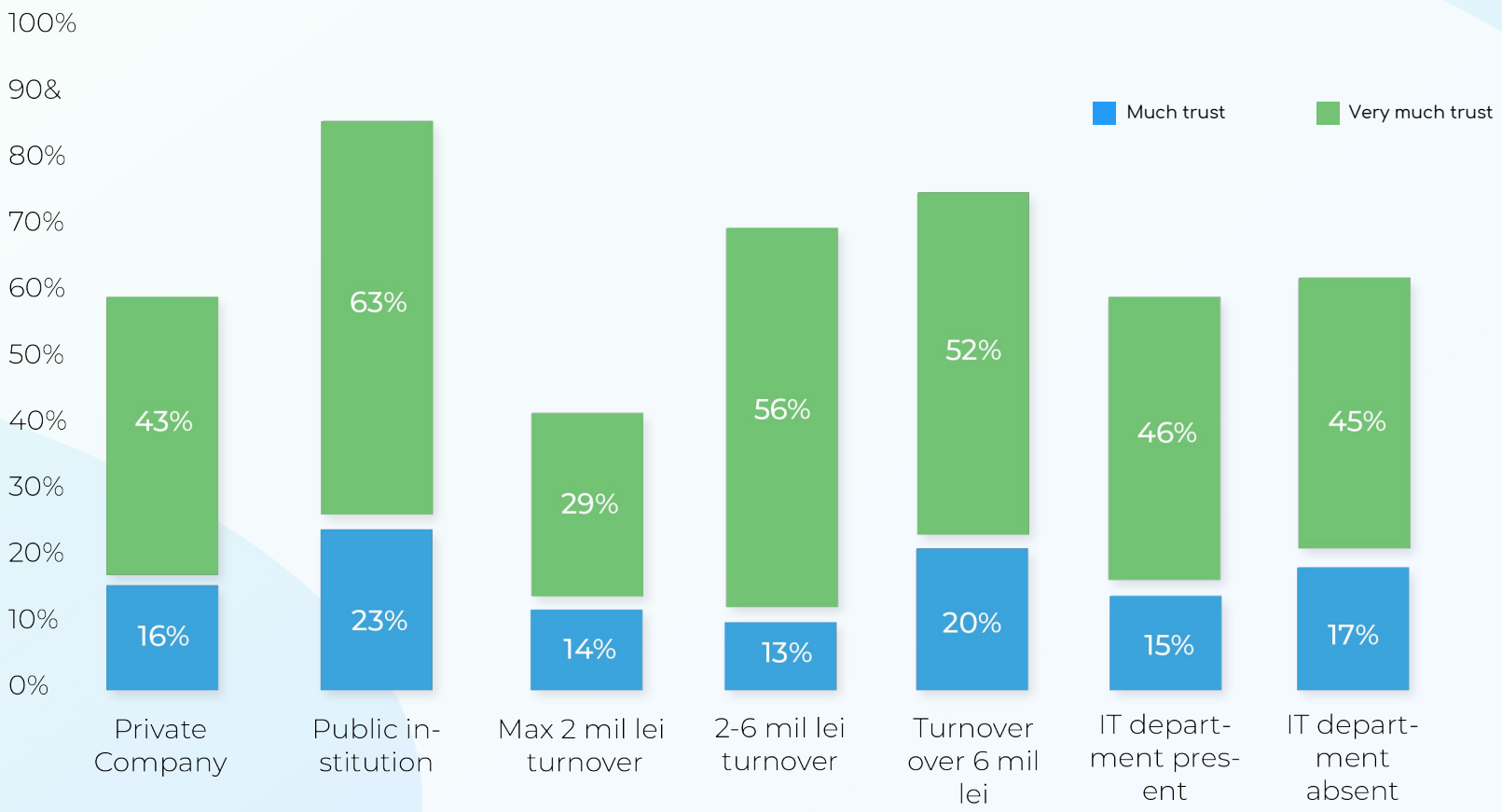


Almost two-thirds of the subjects trust much and very much in the benefits of digitization.

The share of skeptics is 23%, and they have a low level of confidence in the potential benefits that digitization would provide to their own companies.

7 Chart

The distribution of perceived trust in digitization depending on turnover



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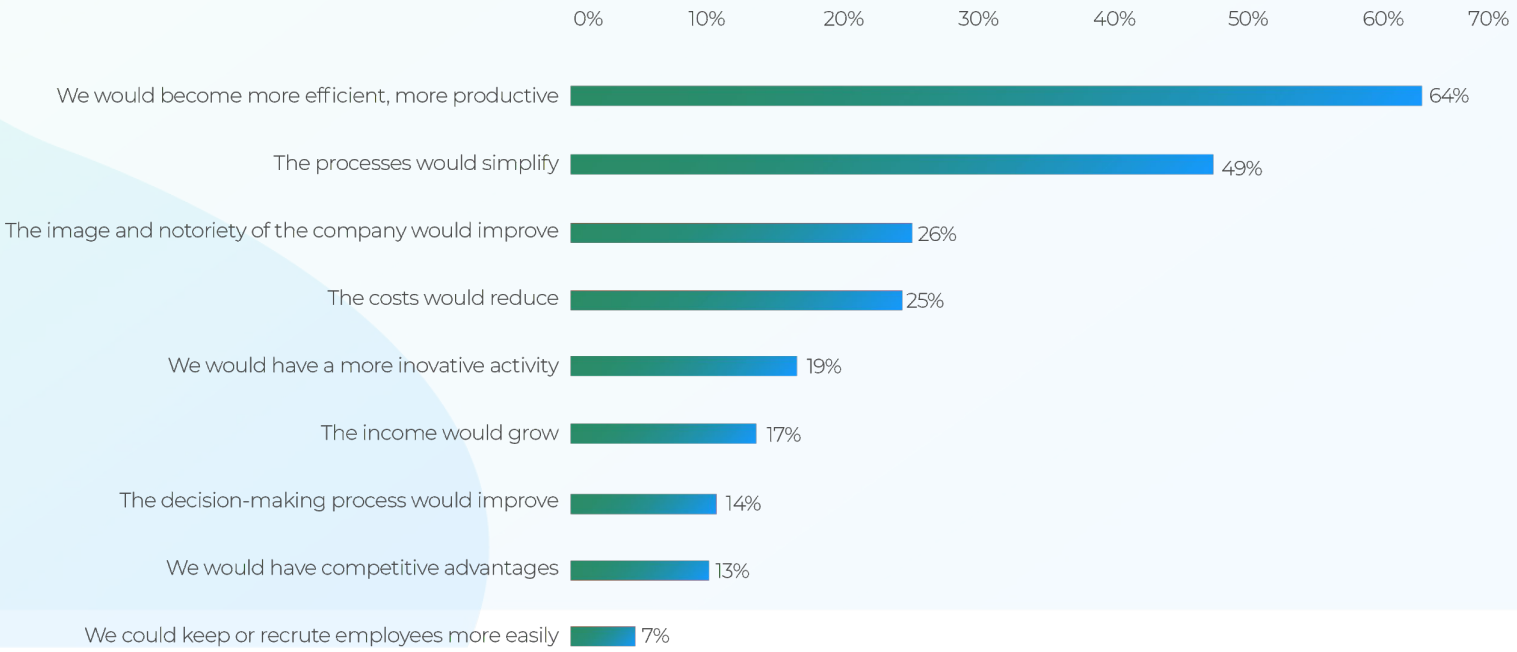
8. Grafic

What are the main benefits that you think your organization / company would derive from digitization?

The spectrum of benefits perceived as being obtained by the company following the implementation of the digitization process is not so high. Efficiency and productivity are the most mentioned aspects, being identified by almost two-thirds (64%) of respondents. The simplification of the processes would be another advantage, as mentioned by almost half of the companies (49%).

We can again see that confidence in digitization is associated with a wider perception of the benefits this process can offer. In addition to general assessments of "increasing efficiency or productivity" or "simplifying the production process", respondents also mentioned some practical benefits: reducing labor costs in the context of a crisis in this field, improving and simplifying communication with customers and suppliers, increasing online business visibility, increased accessibility to business information, more efficient document and stock management, improving internal quality standards by optimizing monitoring processes, increasing sales.



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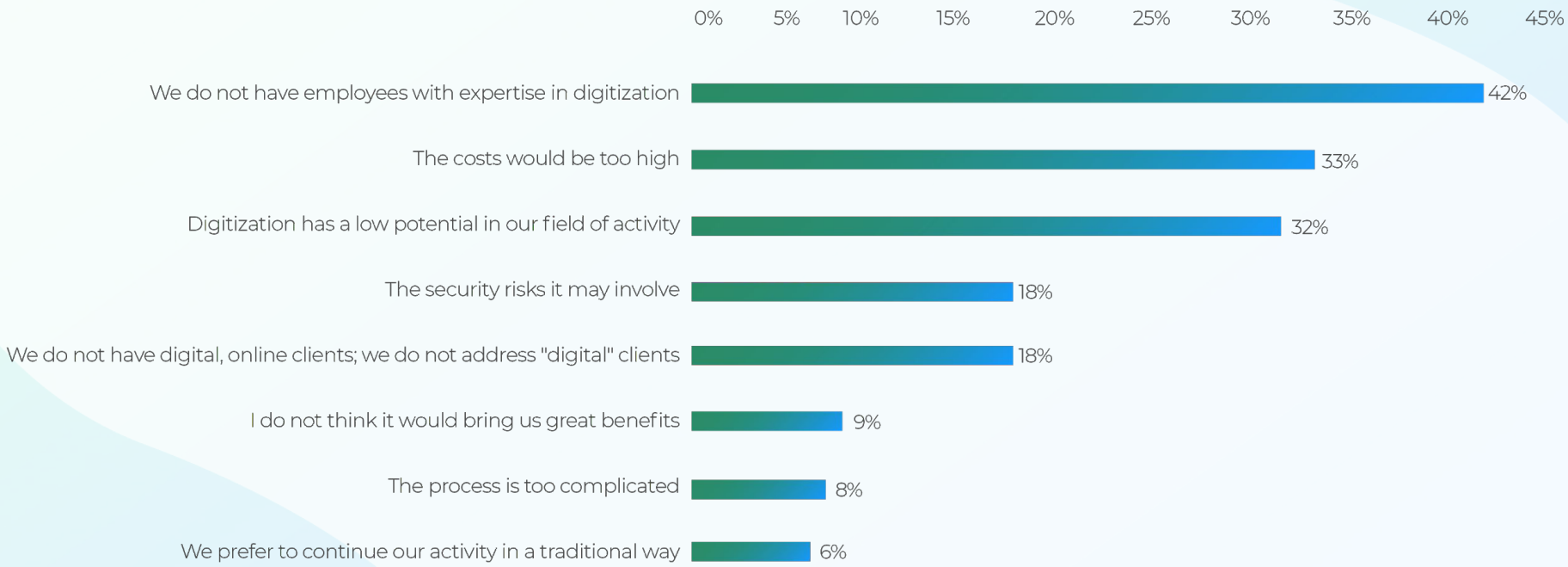
9 Chart

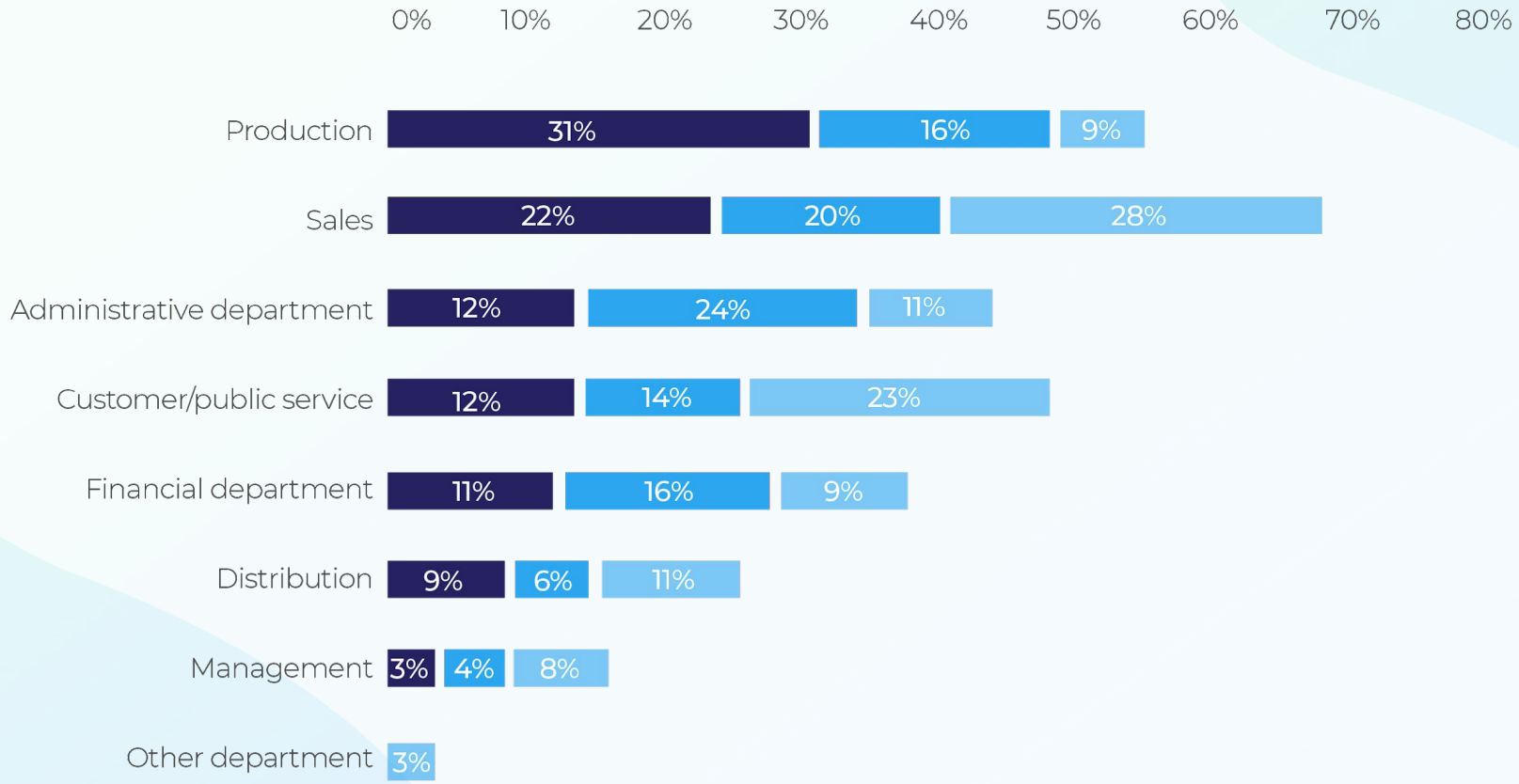
But what would be the main obstacles your organization / company would encounter in implementing digitization?



On the other hand, the main obstacles identified in the digitization implementation process are the lack of expertise of the human resource, the relatively high costs and the somewhat lower potential for digitization in the field of activity.

10. Chart

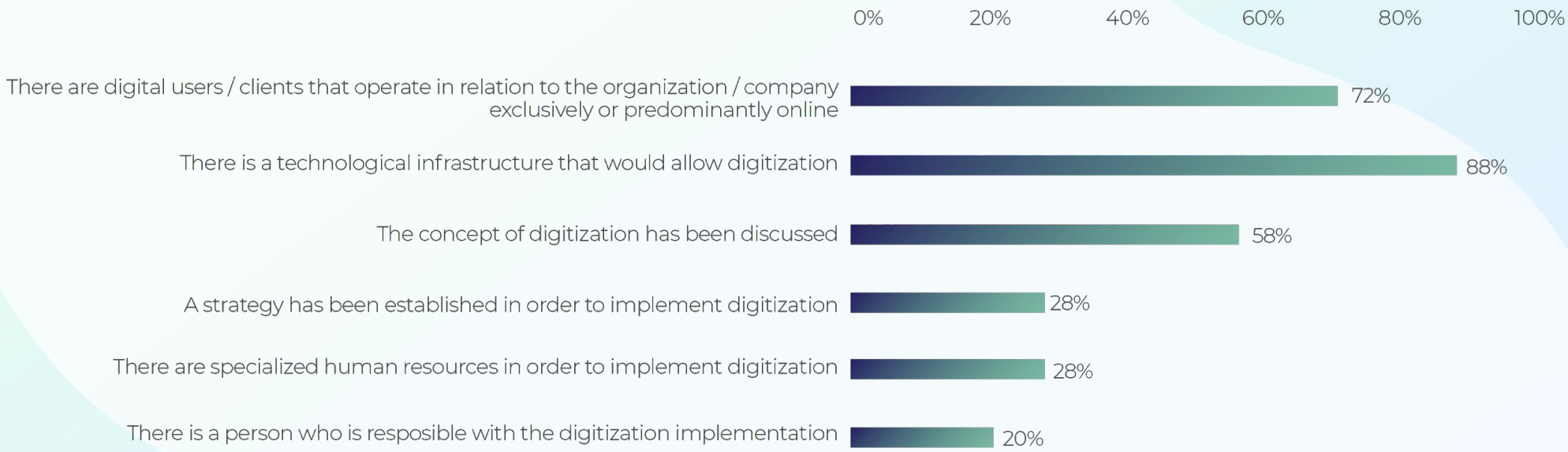
Chart 10. What do you think are the most important processes / domains of a company that should be digitized?



Production and sales are the departments considered as most likely to be digitized. Then the mentions refer to the administrative and communication departments. The management area is still not perceived as important to be digitized, an indicator of a relatively superficial image of the impact that digitization can have in the decision-making area.

11. Chart

In the case of your organization / company, ...?

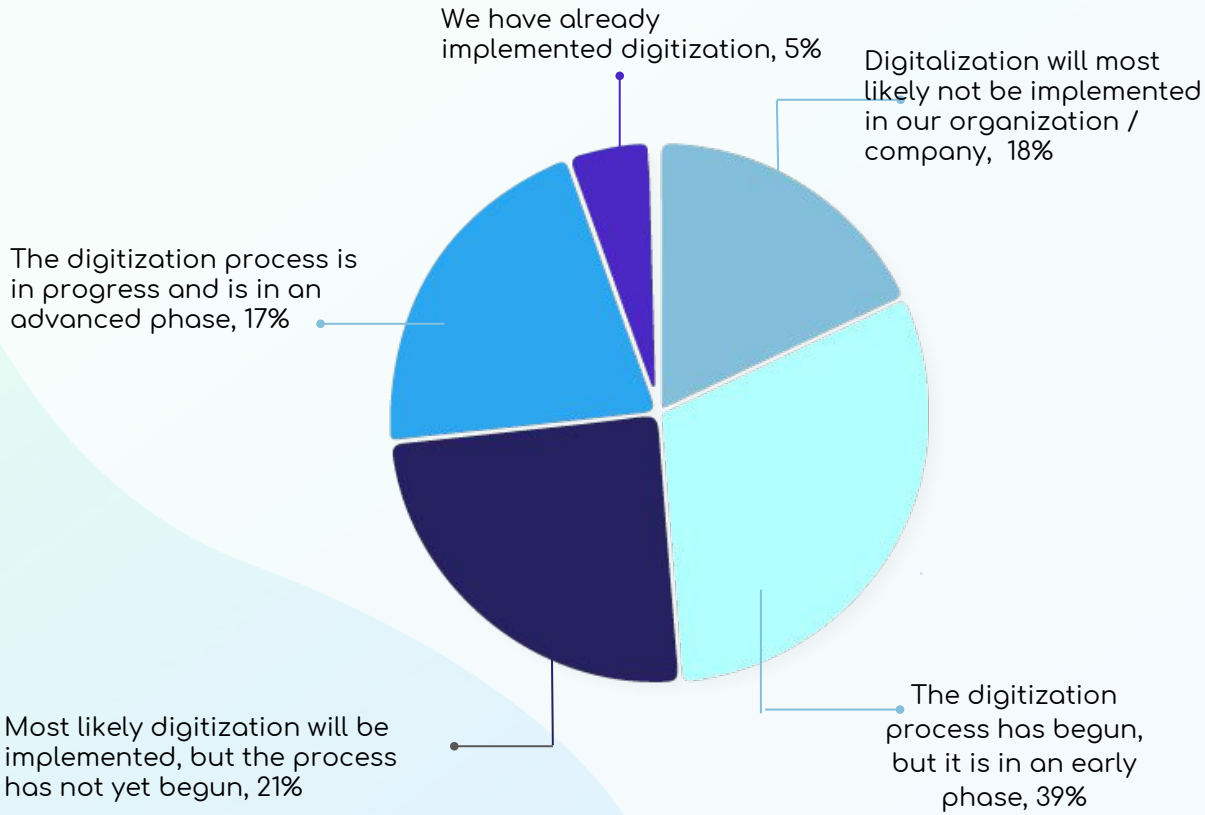


II. Company's digitization degree

Almost three quarters of the surveyed companies declare that there are digital users or customers operating in relation to the organization. For almost 90% of the companies, there is also a technological infrastructure that would allow digitization. The concept has been discussed in over half of these organizations (58%), but only in less than 30% a strategy has been established, there are specialized human resources, but also a person responsible for the implementation of digitization.

12. Chart

Which of the following statements best suits your organization / company?

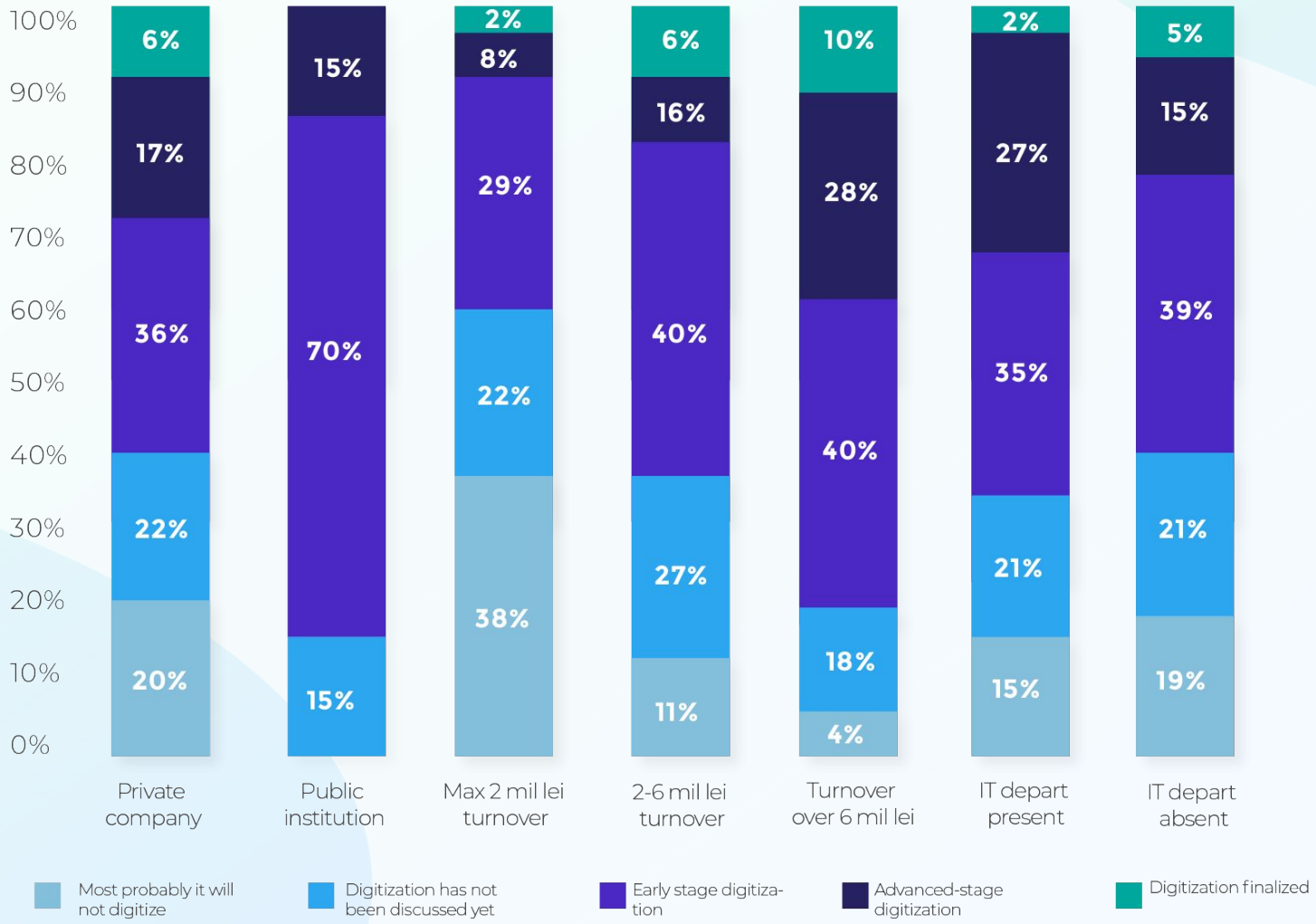


In about 18% of the companies, the decision makers' opinion tends towards not implementing digitization. In another 21%, there is a probability of implementation, but the process has not yet begun. Nearly 40% of the companies have started the process but are in an early stage. Basically, in only 22% of the companies we can speak of an advanced implementation phase, and the process is completed in only 5% of the organizations included in the study.

Practically, digitization has been implemented in a finalized manner only within private companies, but public ones are the ones where, in a much larger proportion (70%), the process is at an early stage. The highest rate of non-digitization comes from the area of small companies with a turnover of less than 2 mil. lei, where almost 40% of respondents do not take this process into account, it not being a priority.

13. Chart

Status of the digitization implementation depending on the company's turnover



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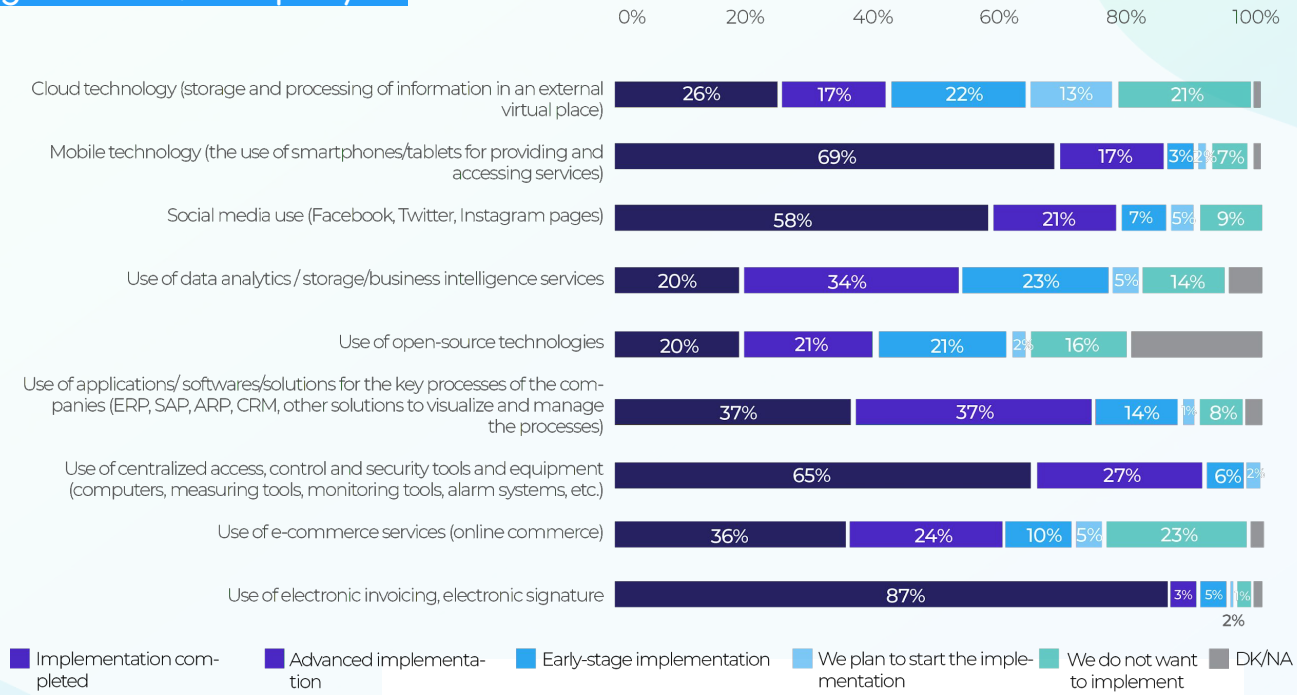
14. Chart

What is the state of implementation of the following digitization services within your organization/ company ...?

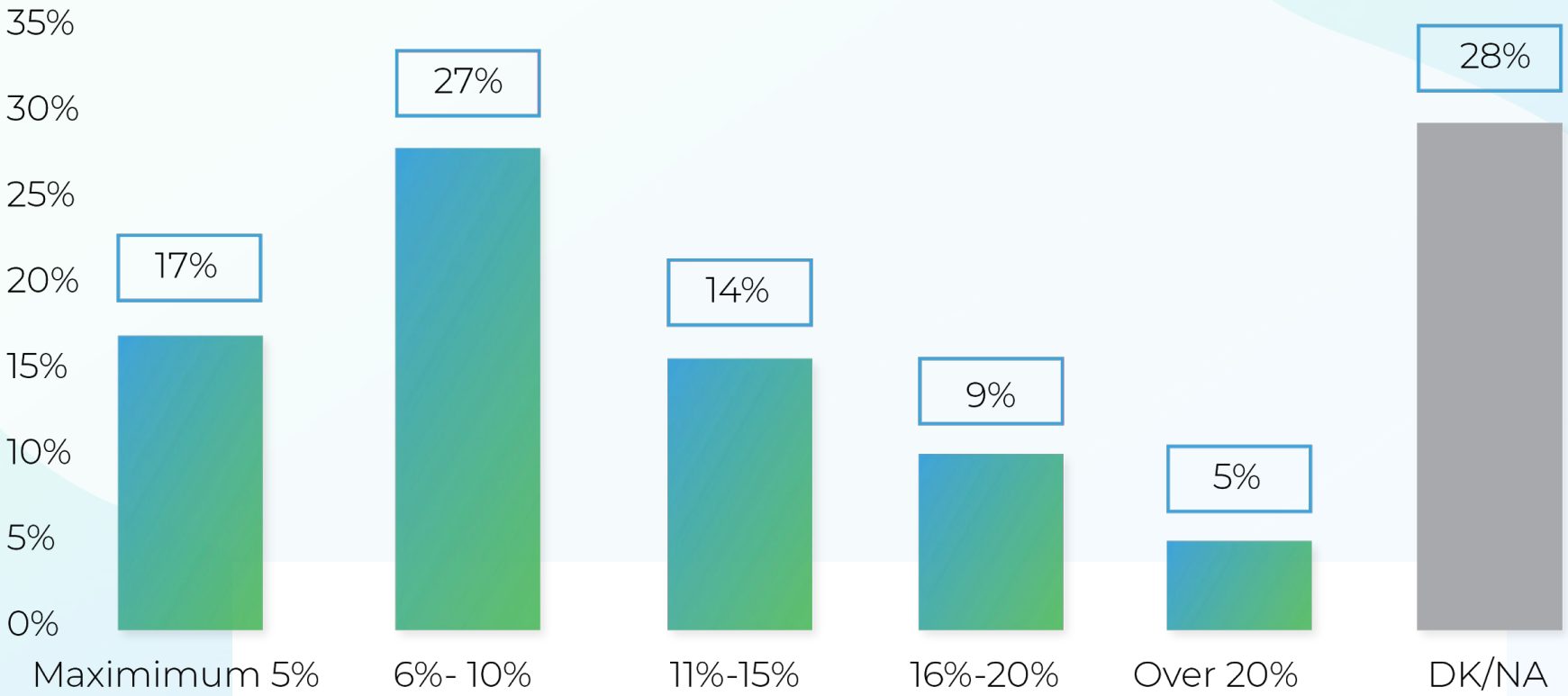


III.Companies in the advanced digitization phase.

Within the companies that are in an advanced stage of digitization implementation, the main services that were introduced are the use of electronic invoicing (87%), mobile technology (69% of them already use it) and the use of centralized access, control and security tools and equipment (65%). We are therefore talking about a primary digitization of the most accessible processes, and using the most accessible devices. The advanced component of digitization (Cloud storage, data analytics or the use of ERP and SAP applications) is implemented only in proportions ranging from 20% to 37%.

15. Grafic

Roughly, what were the costs of the investment to implement digitization? Express them as a percentage of the company's last turnover (2017)



Investment costs for digitization implementation amounted, on average, to 12% of last year's turnover, with most companies investing between 6% and 10% of turnover. On the other hand, the share of the current turnover due to digitization is, on average, about 18%, which indicates the profitability of this approach.

Demand and offer of digitization

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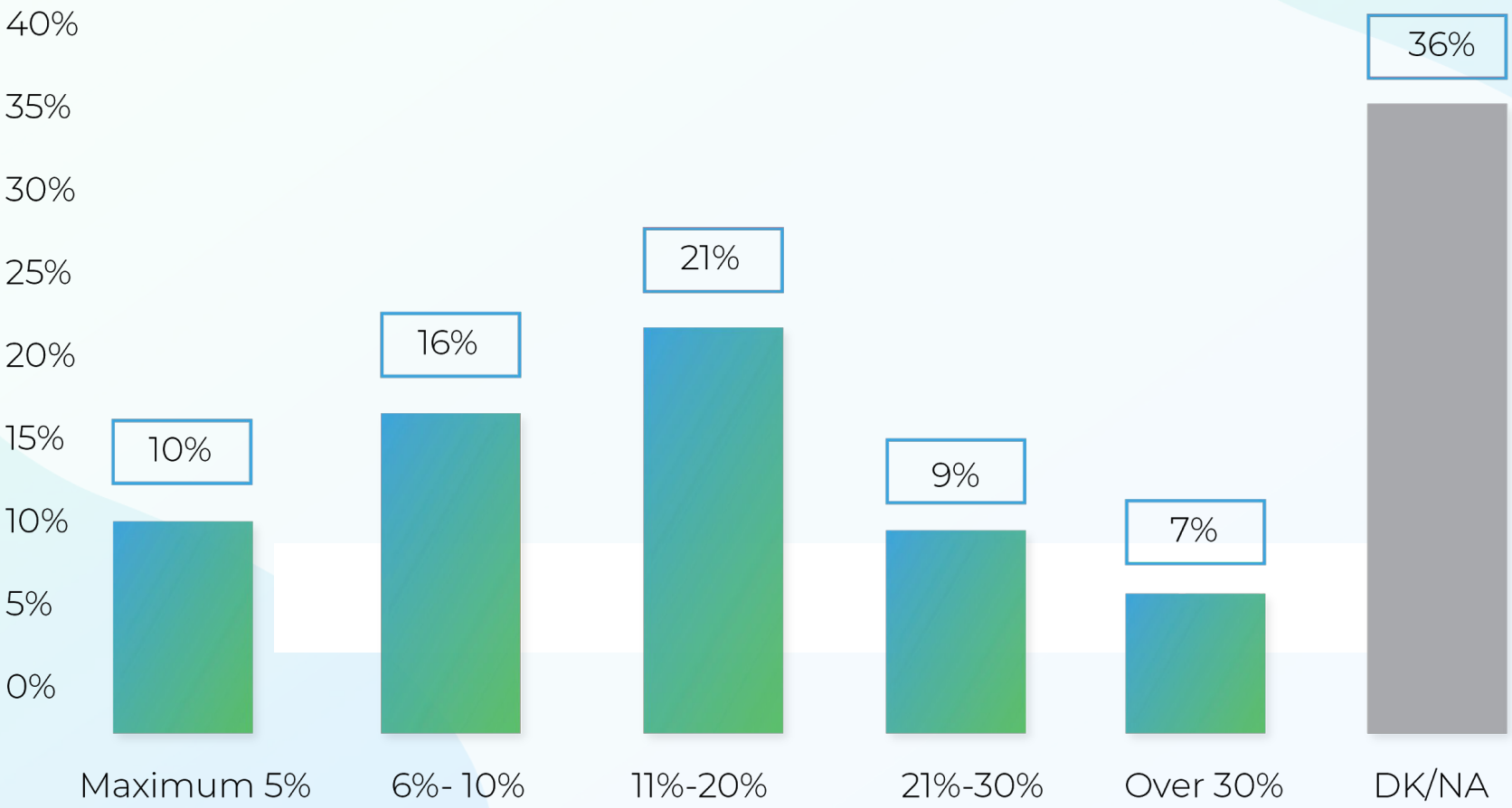
16. Grafic

Chart 16. About what proportion of your current turnover is due to the implementation of digitization / How much do you think the turnover increased due to digitization?



Demand and offer of digitization

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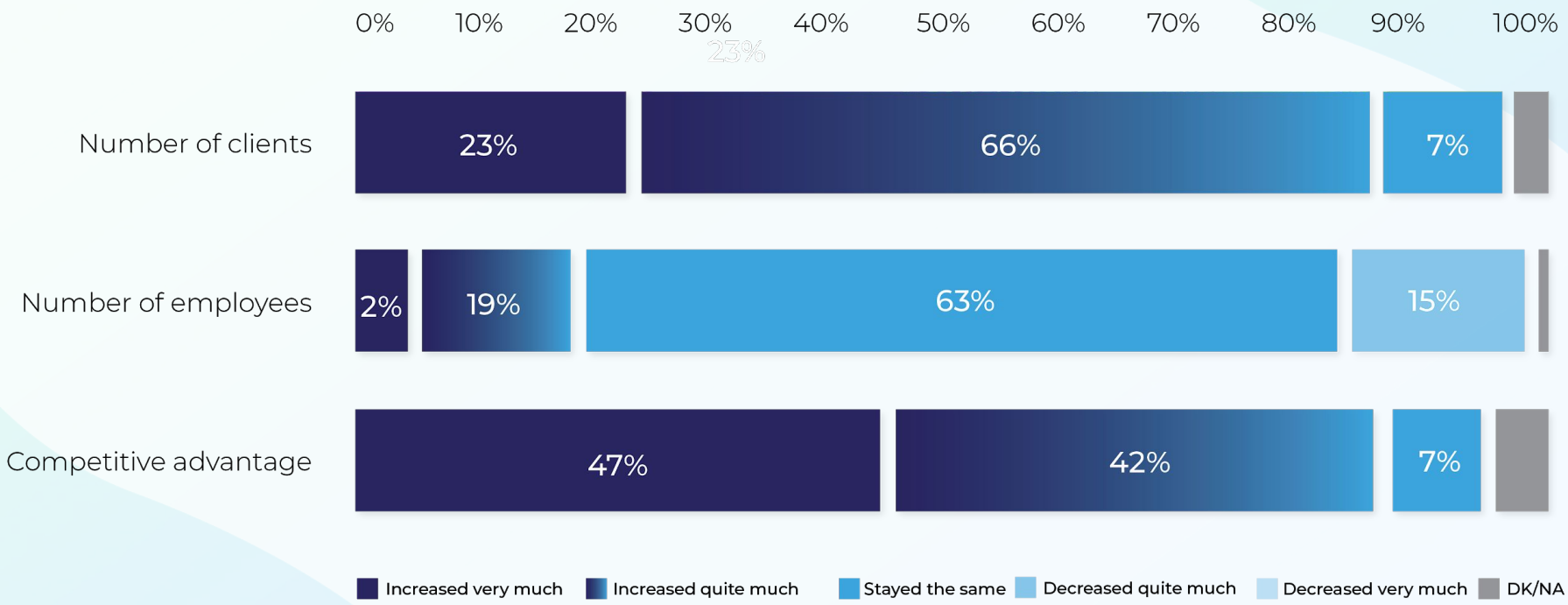
17 Chart

Following the initiation of the digitization process, how have the following evolve ...?



The balance of the digitization effects is exemplified in the chart below. For nearly 90% of companies, it has increased both the competitive advantage and the customer portfolio, while the number of employees remained relatively the same.

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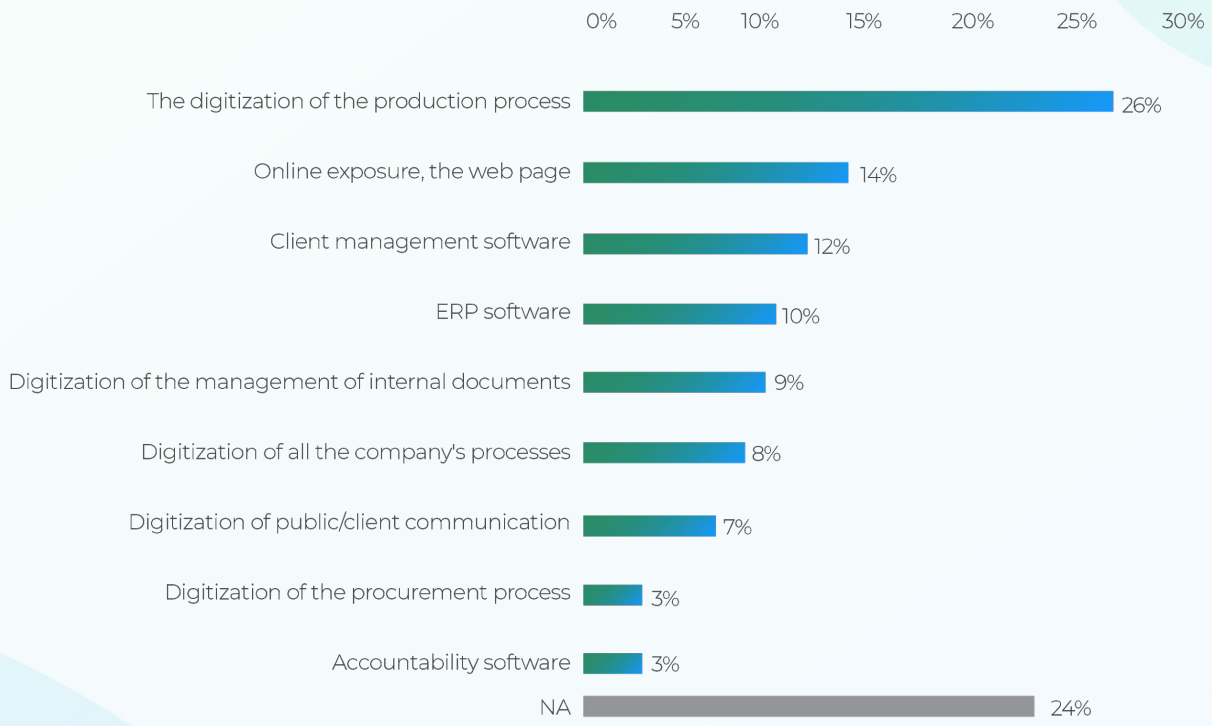
18. Chart

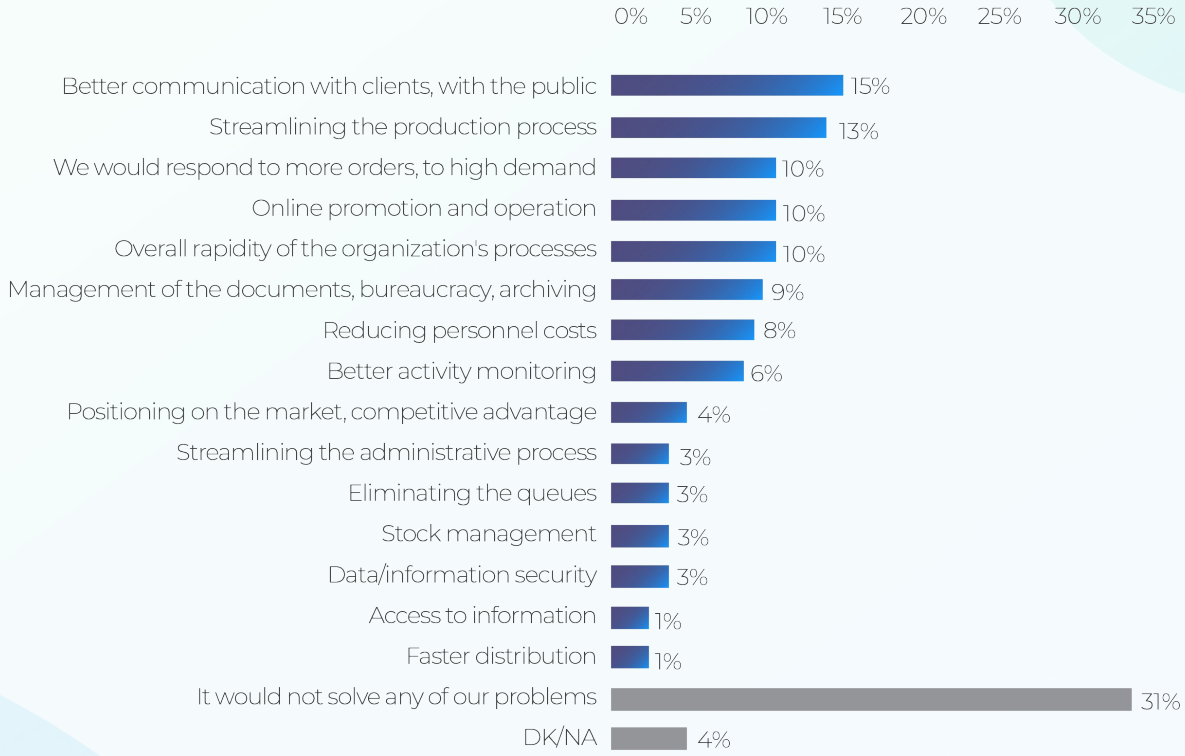
What are the main products / services you obtained from digitization within your company?



Following digitization, the main products / services obtained were the digitization of the production process and the high exposure of the company in the online environment through the web page. Management software applications are implemented by 10% -12% of companies that have either completed the digitization process or are in an advanced phase of it. It is also important to note that the question in the questionnaire was an open-ended one and the categories of responses are not necessarily disjunctive: for example, a category of responses refers to the digitization of all company processes, others refer to actual software purchased for digitization. At the same time, the concept of digitization was perceived differently by the respondents, for many of them the digitization only meaning the "automation of the production process".

19. Chart

What are the two main things that could be resolved by digitization within your company?



IV. Companies in the early stages of digitization or unwilling to implement it.

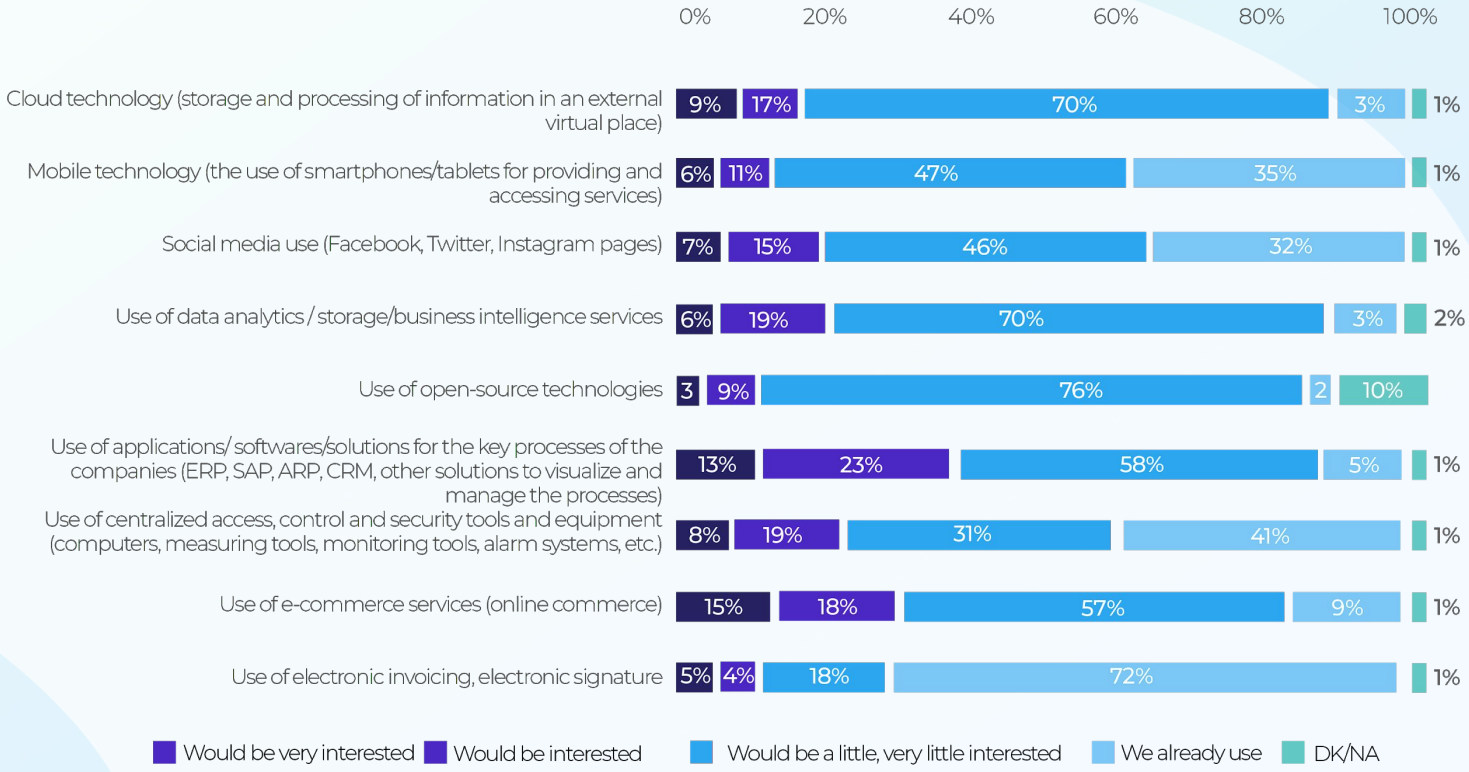
Companies at the beginning of digitization perceive the aspects that can be enhanced by digitization similarly to the others, indicating the same dimensions that were already identified: productivity, production efficiency, management and sales, better external communication and better overall control.

20. Grafic

To what extent would your organization / company be interested in ...?

The interest in certain digitization products rather points to a diffuse positioning of those who are not in an advanced digitization phase.

The most interesting products are applications that target different phases of the production cycle (36% significant interest) and e-commerce services (33%). For other products, interest falls below 30%.



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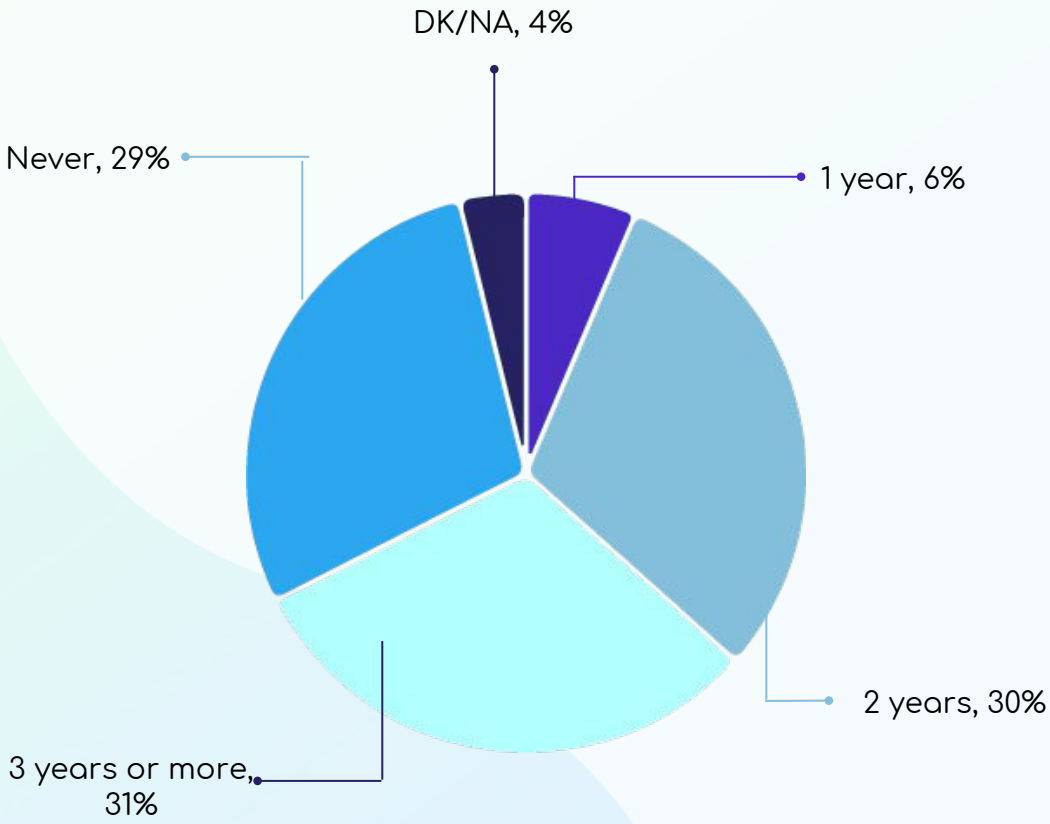
21 Chart

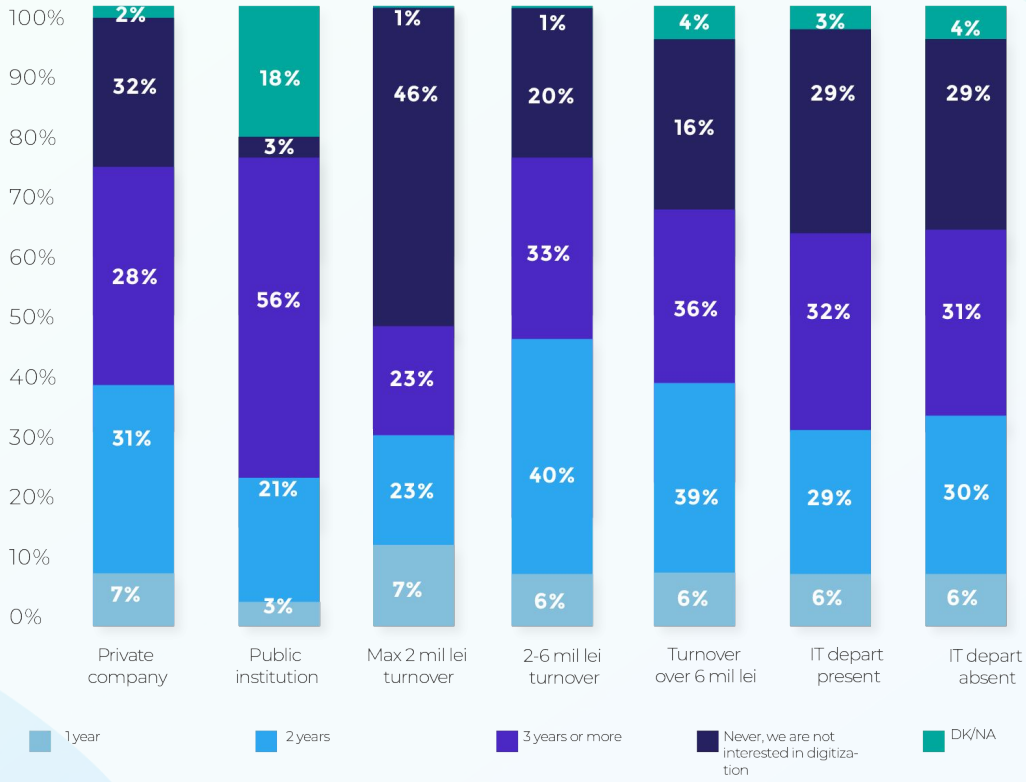
How long do you think it will take your organization / company to fully implement digitization?



One third of the companies that are not in an advanced digitization phase believe that in two years they will fully implement digitization. Almost one third thinks it will take at least 3 years, and 29% do not consider themselves interested in digitization.

22. Chart

How long do you think it will take your organization / company to fully implement digitization? (segmentation based on turnover)În cât timp credeți că organizația / compania dvs. va implementa complet digitalizarea? (segmentare pe cifra de afaceri)



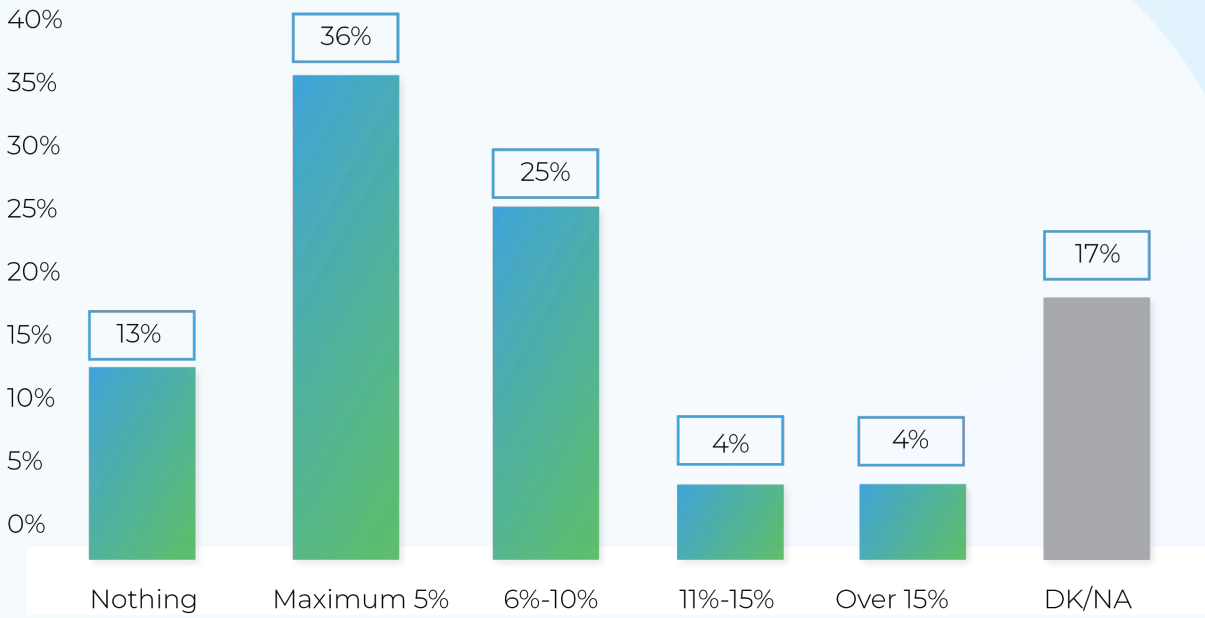
Although they are those who are very interested in digitization (only 3% believe that they will not digitize), the representatives of the public institutions are those who grant at least 3 years for this process. On the other hand, medium and large companies have a similar perception of the process, compared to the smaller ones, which, in a proportion of 46%, do not show interest in digitization.

23. Chart

What percentage of your turnover would you be willing to invest in implementing digitization?

How much would companies be willing to invest in digitization? Only looking at those interested in the digitization process, 13% would not be willing to invest anything, while 36% would invest a maximum of 5% and another 25% would invest between 6% and 10%. The average is 6%. Basically, there is a significant discrepancy between the perceived cost of digitization and the actual costs, which are twice as high.

This may be a discouraging aspect for those who start this process, which may be an obstacle or a reason for abandonment, but if they also have the real and quantified benefit picture they will be able to overcome the barrier of their own perception and plan better digitization budget.



Demand and offer of digitization

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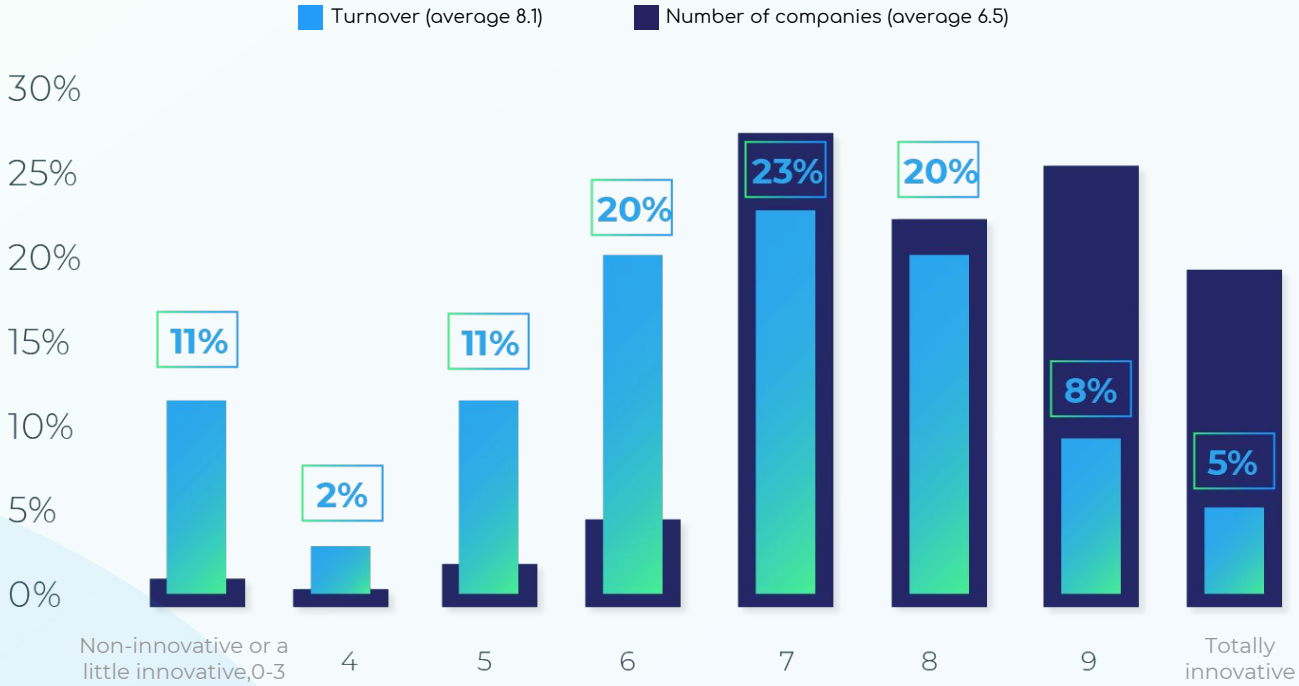
01.

Providing IT services for digitization

01. Chart

If you are thinking about the current activity of the company, to what extent is it innovative or not?

DGive a score of 0 to 10, where 0 means a total non-innovative activity, and 10, a totally innovative one!



The IT industry is defined as an innovative one, with more than three quarters of the companies being placed above the average of the innovation scale. Virtually, nearly two-thirds of the turnover comes from companies that are in the area of total innovative activities. There is a relatively narrow segment, 11%, of IT companies that are out of the innovation sphere, consisting of companies with a rather routine, less creative activities.

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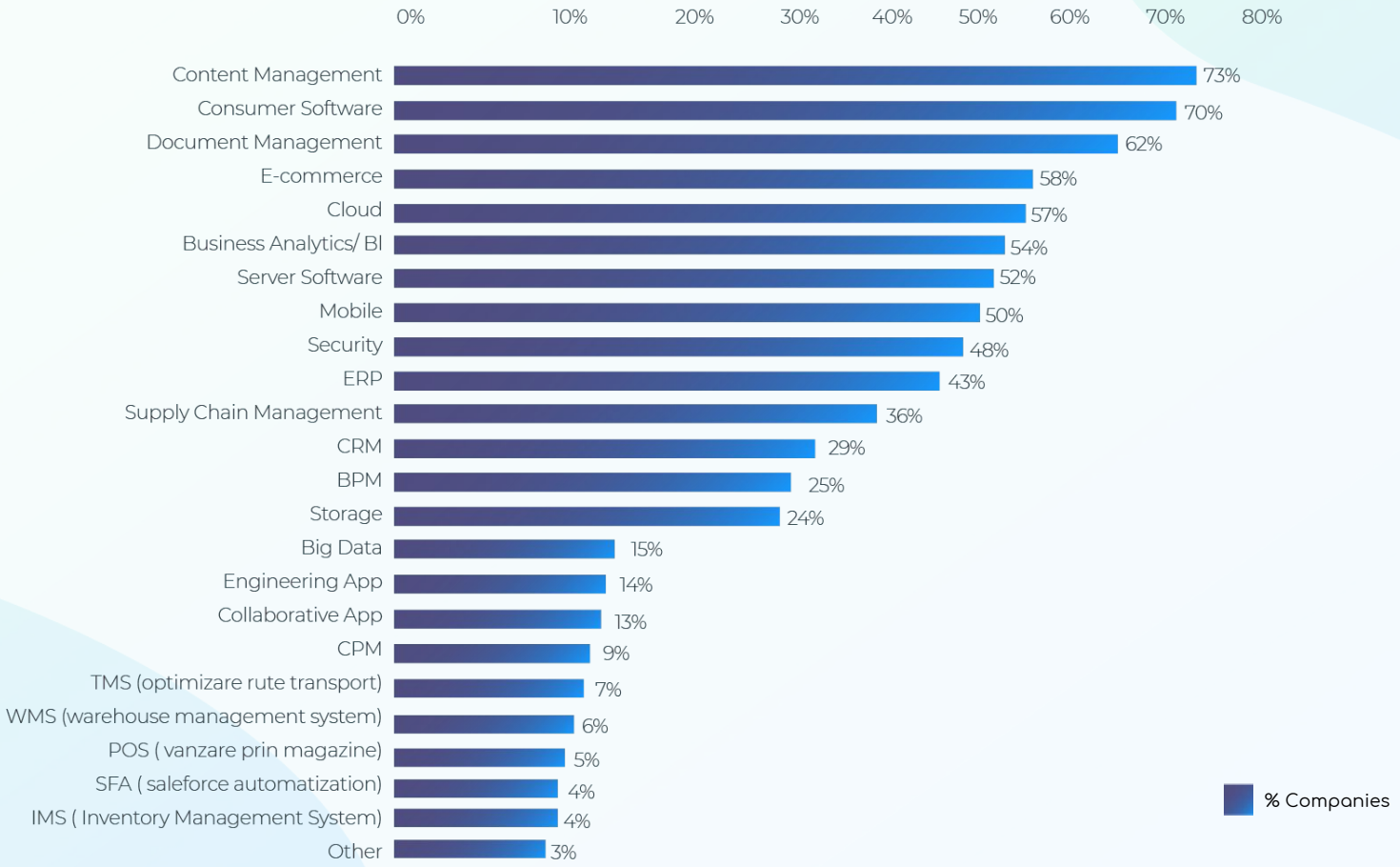
02. Chart

Which of the following categories of product / service / solution are part of your company's portfolio?



The offer of digitization products is diverse, including applications for Content & Document management, Consumer software, E-commerce or Cloud. Niche categories (TMS, WMS, POS, SFA, IMS) are produced by fewer companies, but they belong to the big companies' category.

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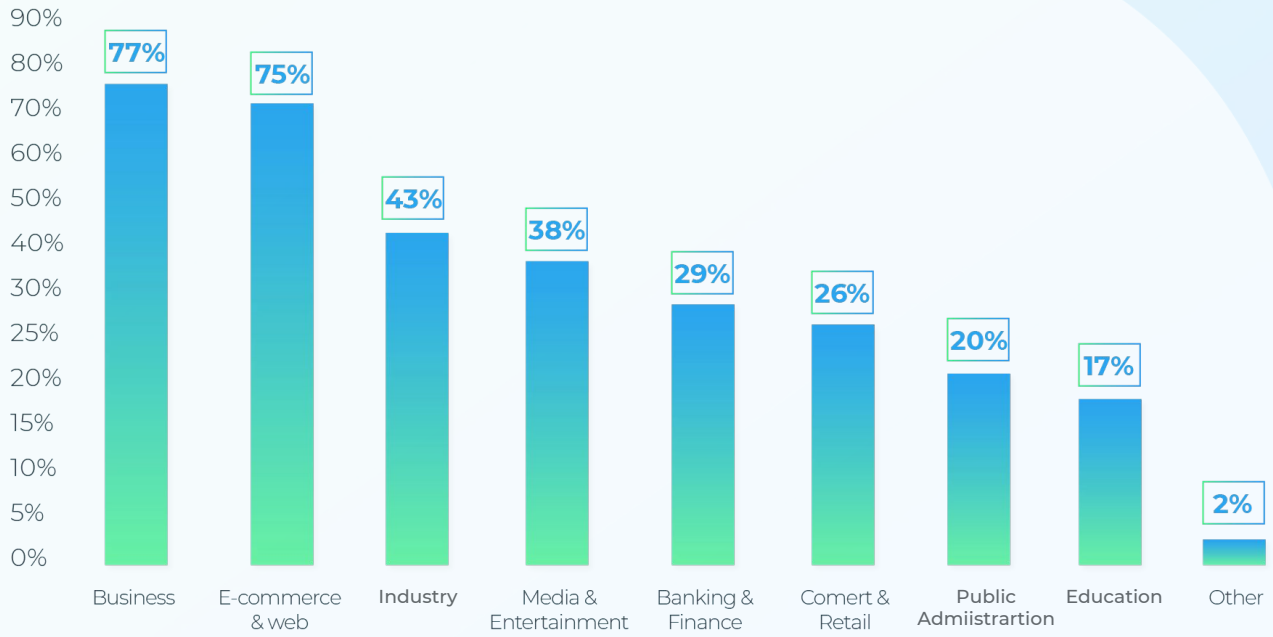
03. Chart

For what sectors does your company offer products/services?

The main areas covered by the offer of the Northwest IT industry are business and e-commerce.

More than three-quarters of IT companies have customers in these areas. Public areas (education, public administration) are those for which the offer of IT companies is lower.



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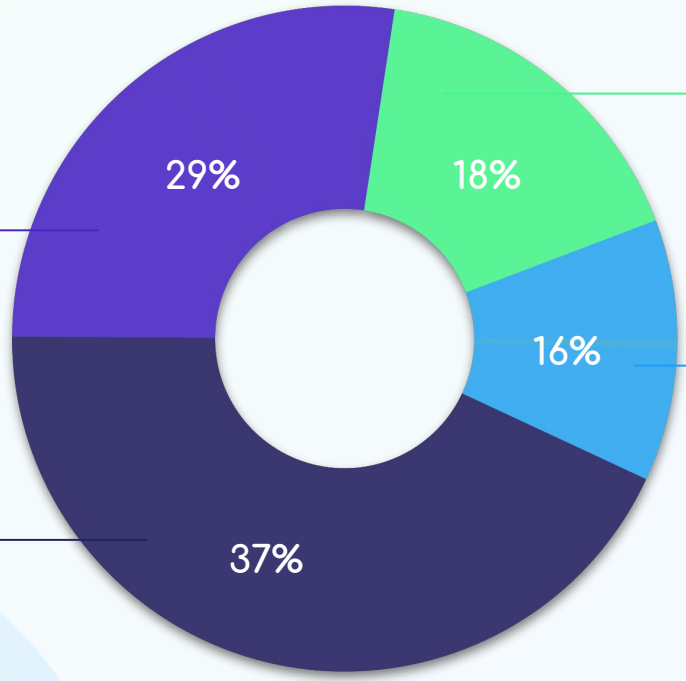
04. Chart

What proportion of your company's turnover is obtained by selling products or services ...? (of total turnover)



National level, in the other regions of Romania, 18%

Globally, on the other continents, 29%

Regional level (Northwest region: Cluj, Bihor, Maramures, Satu-Mare, Salaj, Bistrita-Nasaud), 16%

European level, in the European states, 37%

The geographic segmentation of the IT market is relatively balanced. The national market represents about one third of the total market, being almost equally divided between the Northwest and the other regions.

The European market covers more than a third of the total turnover for the rest of the world, with the market accounting for almost 30%.

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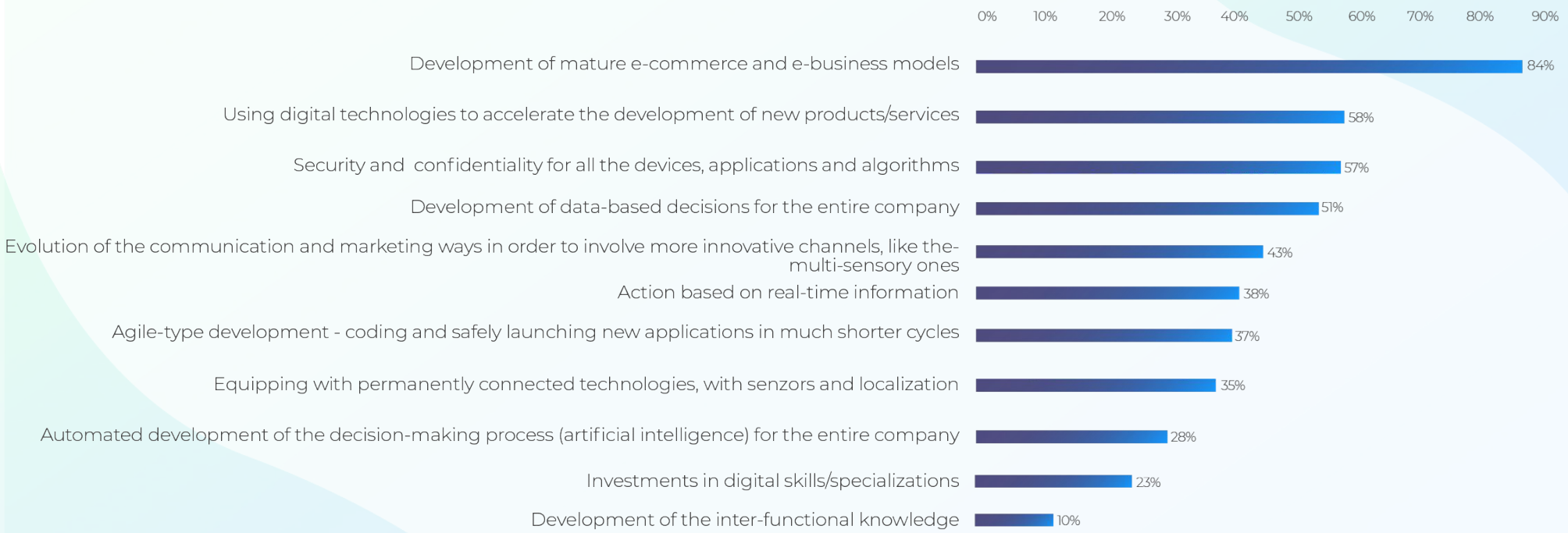
05. Chart

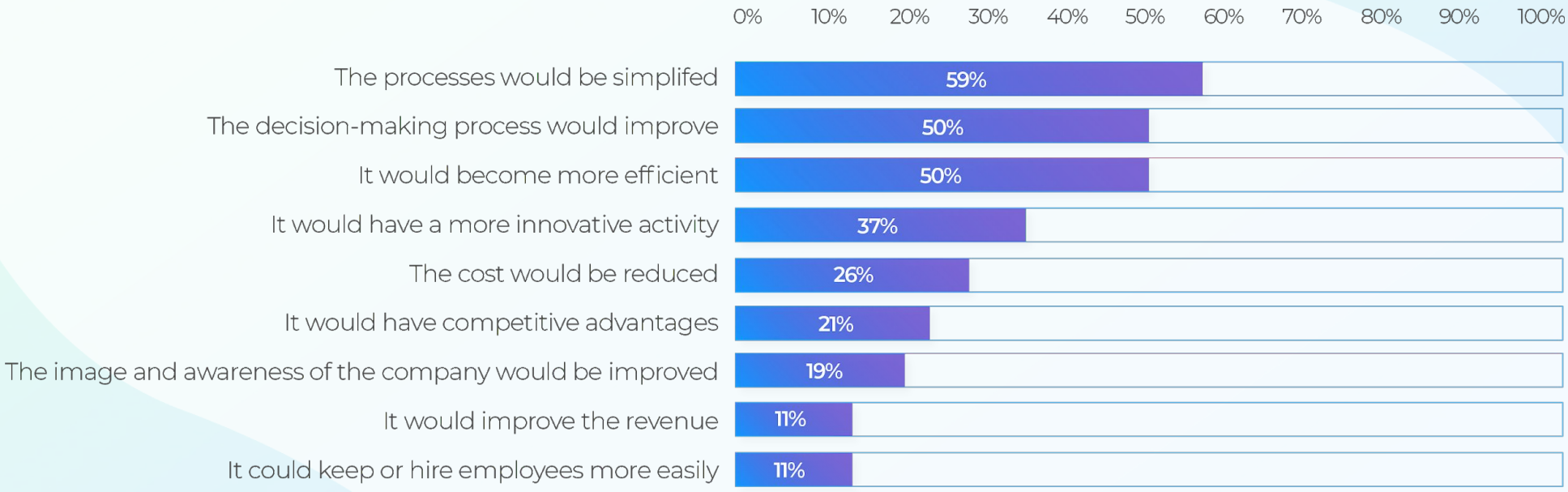
Does your company offer services or products to ensure ...?



The IT industry is focused on helping develop mature models of e-commerce and e-business. This primary dimension is followed by the digital services or products offered to accelerate the development of new products / services, securing the use of devices, or developing data-driven decisions. Automatic AI development, investments in digital specialties or the development of inter-functional knowledge are niches for the regional IT industry.

06. chart

What are the main benefits that an organization / company in this region would derive from digitization?



Process simplification, improved decision-making and efficiency are the key benefits of digitization, according to the majority of the regional IT companies. Revenue growth or employee retention is an advantage mentioned by about 10% of the respondents.

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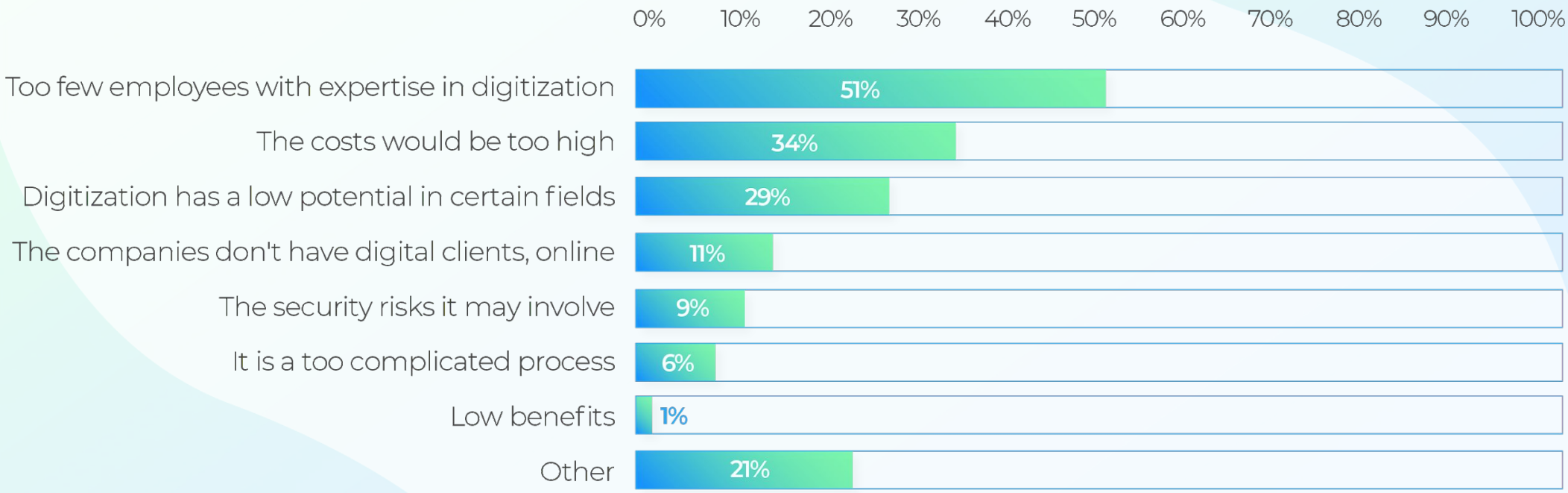
07. Chart

But what are the main obstacles an organization / company in this region would encounter in implementing digitization?



The lack of specialized human resources, high costs and lack of digitization potential in some areas are the main obstacles to digitization implementation. On the other hand, the security risks, the complexity of the process or the low benefits are not high-frequency obstacles.

08. Chart

What are the main obstacles you encounter in selling your digitization products to companies in the region?

(open question, multiple answer, sum of percentages may exceed 100%)

The main obstacles to digitization are those related to customer reluctance over the benefits of this process. Lack of customer education in the field makes the perception of the digitization process diffuse. On the other hand, the alleged costs of implementation or the absence of digitization on the local market are secondary obstacles to the dissolution of digitization products.

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09. Chart

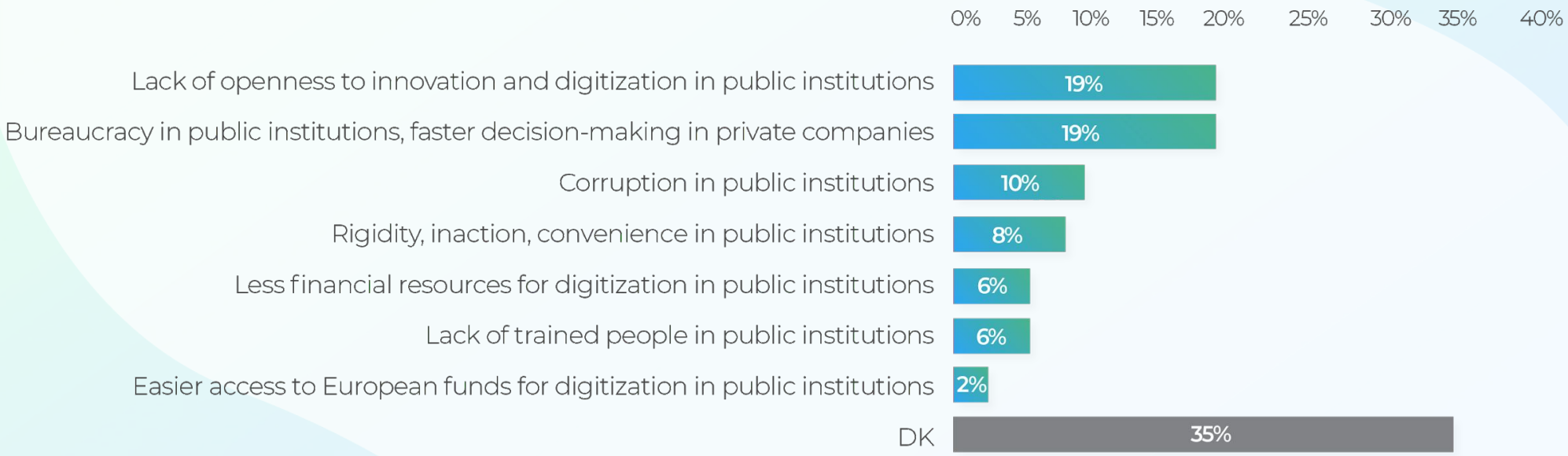
What are the main obstacles an organization / company in this region would encounter in implementing digitization?

Educating potential customers, promoting the benefits of digitization, the opportunities offered, are the basic solutions to increase the potential of the market. On the other hand, a more complex solution would be to integrate these measures into coherent strategies for transforming digitization into an integrated process, providing support both for identifying digitization needs as well as for accessing various sources of funding and further development of the implementation.

10. Chart

What do you think would differentiate public and private companies from the implementation of the digitization process?

(open question, multiple answer, sum of percentages may exceed 100%)

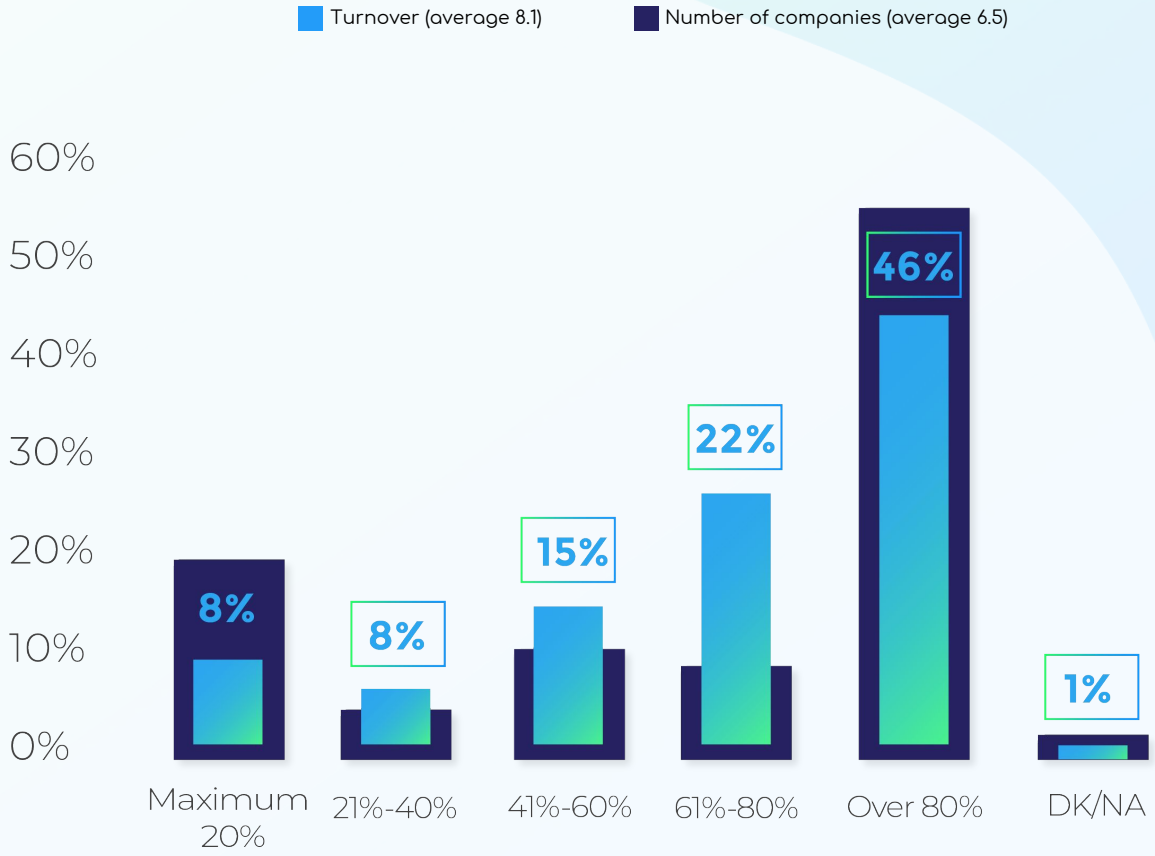


What distinguishes the perception of digitization in public institutions from private ones? Firstly, it is the lack of openness, the vision of the innovative potential that digitization can offer. On the other hand, bureaucracy in public institutions (PI), along with other disparities in the public sector (corruption, stiffness, inaction, training deficiencies) make the process to be perceived differently from a private institution.

11 Chart

What percentage of the turnover comes from selling products or services for digitization?

Digitization accounts for more than 80% of the turnover for more than 56% of IT companies. On average, 76% of the turnover (over 2 billion lei) of IT companies is obtained from the sale of digitization services or products. Large companies cover less of their turnover from digitization products, while the smaller companies have median proportions (40% and 70%).



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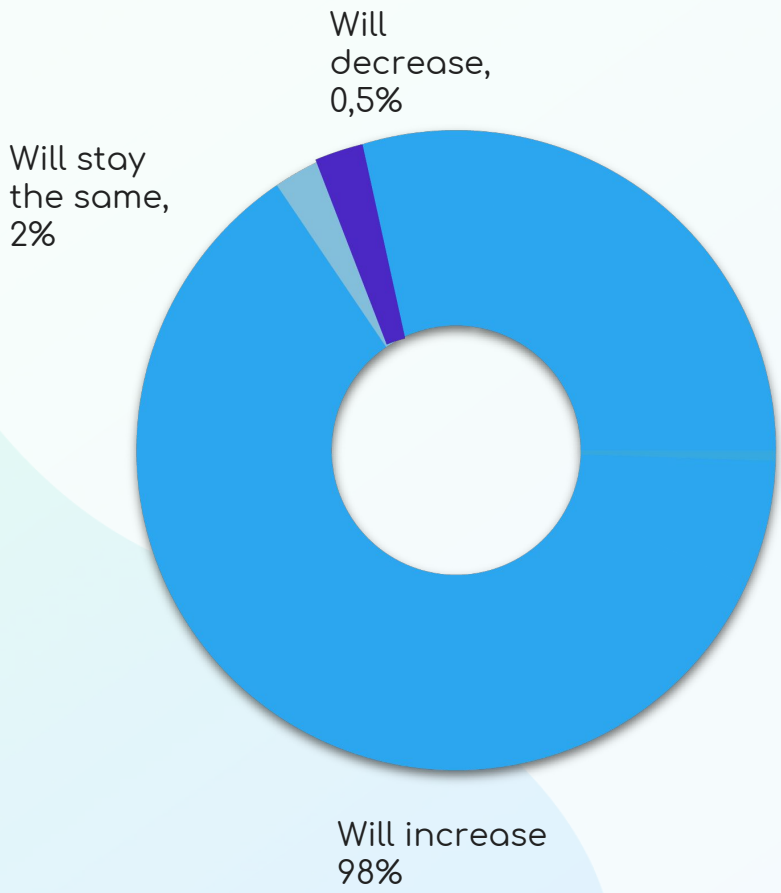
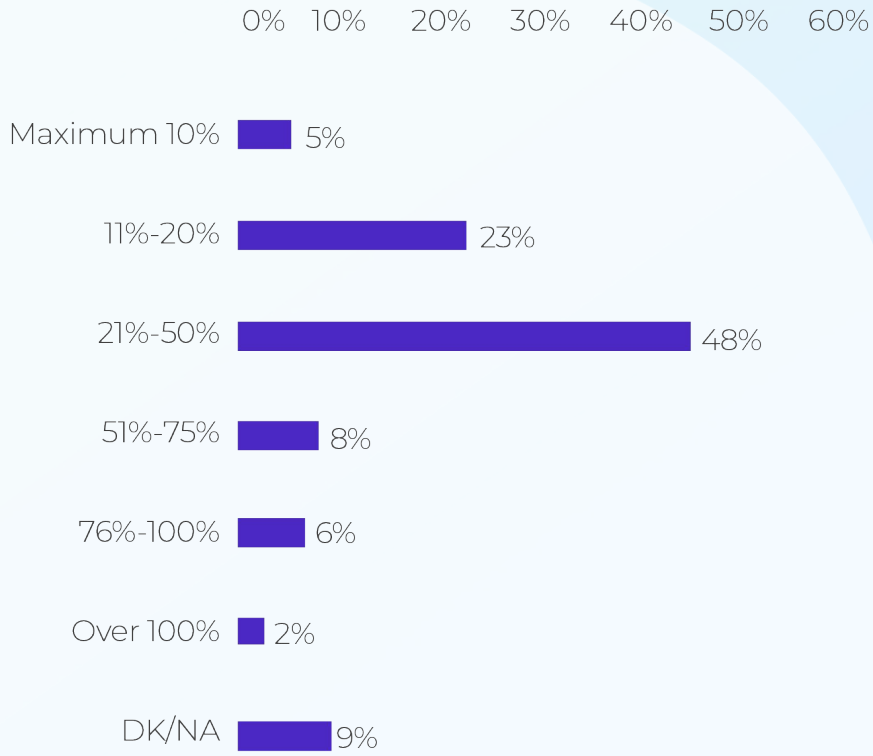
12 Chart

Do you think that in the future (the next 5 years), the number of digitized companies in the region ...? With about what percentage will increase / decrease?



The forecast for the next 5 years is practically unanimous. The number of digitized companies in the region will increase. Regarding the growth rate, opinions are more nuanced. On average, the IT industry believes that the increase in the number of digitized companies will be of 35% -40%.



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CONCLUSIONS

Regional IT is an industry that defines itself as being innovative. Its offer covers in particular the business and e-business segment, being somewhat lower for niche segments.
Only a third of the turnover comes from national transactions. The local potential, although significant, is not fully exploited yet. On average, 76% of the turnover (over 2 billion lei) of IT companies is represented by sales of products for digitization.
The industry has a greater addressability towards the mature segment, aware of the benefits of digitization. These advantages are primarily aimed at simplifying and optimizing processes and facilitating decision-making.

The main obstacles to the implementation of the digitization process are lack of expertise, high costs or incompatibility with the field of activity.
The market signals as the main obstacles in the sale of digitization products, customer reluctance to the benefits, their lack of training, but also limited dedicated budgets. The solutions proposed to overcome these obstacles are aimed at educating clients and developing a complex strategy of attracting resources in order to implement digitization.

In the medium term (5 years), the number of companies that will implement digitization is predicted to grow by about 35% -40%.
At declarative level, customers or potential users of digitization know to a high extent the digitization process and they trust it.

Getting a little into the details of digitization, we note that, although it has a high notoriety, digitization is known quite superficially.
Public institutions and large companies, with a turnover of over 6 million lei, are those who know, trust and see to a large extent the high impact of digitization in the environments in which they operate.
Productivity, efficiency, better communication and the ability to attract more customers are the main perceived benefits of digitization.

As such, companies believe that production and sales are the departments that are most likely to be digitized.There is still a lack of information on the impact of digitization in decision-making, an indicator of a superficial vision of the process. There is also a shortage of human resource expertise, not yet ready to work in a digital environment.

Companies in an advanced stage of digitization implementation are in the area of primary digitization: the main services that were introduced are the use of electronic invoicing (87%), mobile technology (69% of them already use it) and the use of centralized tools and equipment for access, control and security (65%). Products like Cloud technology, data analytics or the use of applications like ERP or SAP are only implemented in proportions ranging from 20% to 37%.
The average costs of digitization implementation is on average about 12% of the previous year's turnover.

The share due to digitization from this turnover is, on the other hand, 18%. Other impact indicators, such as customer portfolio or competitive advantages, have increased significantly as a result of digitization implementation.
Companies that are not in an advanced phase of digitization perceive benefits in a similar way to those that have implemented it, but their interests are much less well defined with regard to digitization products.

36% of these companies see themselves digitized within 2 years, another third allocate at least 3 years for it, and nearly 30% do not seem interested in digitization. For those who want to digitize, the costs they are willing to spend are on average 6% of last year's turnover, standing at half the proportion estimated by companies that have already implemented digitization.

Regarding the interrogation of the study that we started from (Why, given the expansion of the IT sector in Romania in recent years, the degree of digitization of the country is far below the IT growth rate?) the answer is quite clear. On the one hand, IT companies providing digitization services do not necessarily target the internal market (whether national or regional); the expansion of the IT sector is largely due to the demands of external customers, and the digitization offer does not meet local / regional demand.

On the other hand, the demand for digitalization at a regional level is relatively small: local customers still do not know what digitization is and what its benefits are and most of them do not have digital clients either; there is still a digital literacy gap between local and foreign companies as well as between companies in different sectors of activity. This digital literacy gap can also be identified among customers in certain markets, making the transfer towards the digital area to be less useful and valuable.

The focus on digitization is generally contextually driven by the conversion of the immediate activity environment (employees, clients, suppliers) towards the digital area, but can be transformed into a pro-active process of changing the environment by each stakeholder. Access to quality information, the development of a realistic strategy and the possible support of the whole process through a program could be factors that would greatly open the digitization to the niches that are not yet exploited.

Digitalization offer of Transilvania IT's members

AROBS Transilvania Software

Competences: Artificial Intelligence (AI), Hardware technology (RFID, chips, sensors, routers, etc.), Operating Systems, Blockchain and Distributed Ledger Technology (DLT), Robotics, Information Systems, IoT, Embedded Systems and Mobile Devices.

E-mail: office@arobs.com
Web: www.arobs.com

Connatix

Competences: Big Data, Cloud and Virtualisation.

Sectors of applicability: Audiovisual and Media
.
E-mail: camelia.ignat@connatix.com
Web: www.connatix.com

Avangarde Software

Competences: Artificial Intelligence (AI), Hardware technology (RFID, chips, sensors, routers, etc.), Operating Systems, Big Data, Blockchain and Distributed Ledger Technology (DLT), Human Machine Interface (HMI), Cloud and Virtualisation, Robotics, Information Systems, Supply Chain, IoT, Vehicular Systems, Embedded Systems, Mobile Devices, VR/AR/MR.
Sectors of applicability: health, supply chains, financial services, banking, insurance, tourism, public administration and education.

E-mail: office@group-avangarde.ro
Web: www.avangarde-software.com

Fortech

Competences: Operating Systems, Big Data, Blockchain and Distributed Ledger Technology (DLT), Human Machine Interface (HMI), Cloud and Virtualisation, Industrial Control Systems, Information Systems, Supply Chain, IoT, Embedded Systems and Mobile Devices.
Sectors of applicability: defence, health, smart ecosystem, energy / nuclear energy, audiovisual and media, supply chains, financial services, banking, insurance, transport, car-building industry and aeronautic industry.

E-mail: office@fortech.ro
Web: www.fortech.ro

GEBS

Competences: Big Data, Information Systems, IoT, Mobile Devices, Automated reporting and document generation.
Sectors of applicability: defense, space, tourism, public administration, transport, education, retail and sport.

Email: contact@gebs.ro
Web: www.gebs.ro

Industrial Software

Competences: Hardware technology (RFID, chips, sensors, routers, etc.), Big Data, Cloud and Virtualisation, Information Systems, Mobile Devices.
Sector of applicability: digital infrastructure.

E-mail: cercetare@indsoft.ro
Web: www.indsoft.ro

Indeco Soft

Competences: Hardware technology (RFID, chips, sensors, routers, etc.), Operating Systems, Cloud and Virtualisation, Critical Infrastructure, Satellite applications, Information Systems, Supply Chain, Mobile Devices.
Sectors of applicability: space, digital infrastructure, smart ecosystem, financial services, banking, insurance, public administration and education.

E-mail: projects@indecosoft.ro
Web: www.indecosoft.ro

Life is Hard

Competences: Artificial Intelligence (AI), Hardware technology (RFID, chips, sensors, routers, etc.), Big Data, Blockchain and Distributed Ledger Technology (DLT), Industry 4.0, Cyber Defense, IoT, Mobile Devices.
Sectors of applicability: health, smart ecosystem, financial services, banking, insurance, tourism and transport.

E-mail: office@lifeishard.ro
Web: www.lifeishard.ro

Lola Tech

Competences: Big Data, Cloud and Virtualisation, Information Systems and Mobile Devices.
Sector of applicability: tourism.

E-mail: ciprian@lola.tech
Web: www.lola.tech

PITECH+PLUS

Competences: Artificial Intelligence (AI), Operating Systems, Big Data, High-performance computing (HPC), Blockchain and Distributed Ledger Technology (DLT), Robotics and Mobile Devices.
Sectors of applicability: digital infrastructure, smart ecosystem, audiovisual & media, financial services, banking, insurance, public administration and transport
.

E-mail: office@pitechplus.com
Web: www.pitechplus.com

Novitas 3D City SRL Romania

Competences: Operating Systems, High-performance computing (HPC), Cloud and Virtualisation, Satellite applications.
Sectors of applicability: digital infrastructure and cadastral engineering.

E-mail: novitas3dcity@gmail.com
Web: https://www.inovitas.ch/en

PROJETIX SOFTWARE

Projectix Software

Competences: Hardware technology (RFID, chips, sensors, routers, etc.), Industrial Control Systems, Information Systems.
Sectors of applicability: health and public administration.

E-mail: office@projectix.ro
Web: http://www.projectix.ro/

RebelDot

Competences: Artificial Intelligence (AI), Operating Systems, Big Data, Blockchain and Distributed Ledger Technology (DLT), Cloud and Virtualisation, Information Systems, Mobile Devices, .NET, Java, Kotlin, Objective C, Swift, React Native.

E-mail : tudor.ciuleanu@rebeldot.com
Web : www.rebeldot.com

Soft Tech Plus

Competences: Hardware technology (RFID, chips, sensors, routers, etc.), Cloud and Virtualisation, Satellite applications, IoT, Embedded Systems.
Sectors of applicability: health, smart ecosystem, energy / nuclear energy.

Email: office@stplus.ro
Web: www.stplus.ro

7Code Development

Competences: Big Data, Blockchain and Distributed Ledger Technology (DLT).

E-mail: nicu.mardari@7code.ro
Web: www.7code.ro

Yuka Mobili SRL

Competences: Cloud and Virtualisation, Mobile Devices
Sectors of applicability: digital infrastructure and transport.

Email: office@yuka.ro
Web: www.yuka.ro

altran

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E-mail: dan.koblicska@altran.com
Web: www.altran.com/ro

Avaelgo

Avaelgo is a full-service Microsoft managed services provider focused on delivering great customer experiences through the delivery of transformative business solutions.

E-mail: contact@avaelgo.ro
Web: www.avaelgo.ro

Art Dynasty

Founded in 2010, Art Dynasty is an IT company based on specialized design - User Experience Design & User Interface Design. Art Dynasty Studio designs software applications, mobile applications and websites with the focus on the users' experience and interaction.

Email: info@artdynasty.com
Web: www.artdynasty.com

Blugento

Blugento is a Platform-as-a-Service product that builds perfectly integrated and professional eShops in days at a very accessible monthly subscription.

E-mail: support@blugento.ro
Web: www.blugento.ro

Brinel

For over 23 years in IT, they offer to their customers top solutions through integration of applications and technology software, hardware, network equipment and services.

E-mail: cluj@brinel.ro
Web: www.brinel.ro

Centrul de informatica

Their main expertise is developing software applications, training and certifications in IT domain, including technical assistance and Microsoft technologies implementations.

E-mail: mirela.giurea@cim.brinel.ro
Web: www.centruldeinformatica.ro

Invest

The company offers specialized consultancy in risk management for insuring and compensation loses authorization to its clients.

E-mail: office@co-invest.ro
Web: www.co-invest.ro

CoreBuild

Within CoreBuild you will encounter experienced and eager professionals in .NET, iOS and Android, as well as a constant desire to innovate and surpass new technological barriers.

Email: office@corebuild.eu
Web: www.corebuild.eu

ComKnow

ComKnow has started as a Romanian-Dutch company having the goal of providing outstanding concepts for any business challenge in communication and Information Technology area.

E-mail: office@comknow.ro

CraftingSoftware

The team consists of engineers with more than 8 years of experience. They have previously worked on a variety of projects with individuals, groups and organizations from around the globe: places like Silicon Valley, Paris and Tokyo.

E-mail: contact@craftingsoftware.com
Web: www.craftingsoftware.com

Donau

Donau is a Romanian company that offers products and premium software services.

Email: secretariat@donauinvest.ro
Web: www.donauinvest.ro

Fida

As part of software development process, they offer complex services, starting with design of the application, specification analyze, setting up the application framework, coding, testing and quality assurance of the whole process.

Email: office@fidasolutions.com
Web: www.fidasoluntions.ro

Evercoder Software

Evercoder Software was founded in 2012 with contribution of six associates.
The main activity of the company is editing softwares.

Email: andreea@evercoder.com
Web: www.moqups.com

EVOZON

Established in 2005, Evozon has quickly grown ever since, diversifying its service portfolio, which includes consulting, development, support, migration and remote system administration services. While technically speaking Evozon has been founded in 2005, the company's activities began in Australia, over 20 years ago.

E-mail: sales@evozon.com
Web: www.evozon.com

FORDAQ

A team of multilingual wood specialists that follow what is happening on our market and can help you benefit from your access. If you want background information on another member, tips on how to do better business with Fordaq or have any other question our team is at your disposal.

Email: florentina.vladescu@fordaq.com
Web: https://www.fordaq.com

FINO

FINQware is a Romanian fintech start-up that develops technologies, digital products and services to provide European consumers and businesses with better ways of managing their finances. Under our matra "Open Banking at work", the company is in a continuous quest for digital disruption

Email: cosmin.cosma@finqware.com
Web: https://www.finqware.com

Imprezzio Global

Imprezzio Global is a software solution provider striving to meet and exceed the highest expectations of our clients at competitive prices.

E-mail: wedeliver@imprezzioglobal.com
Web: www.imprezzioglobal.com

ITAccent

They listen carefully to understand your needs, and they offer the entirety of IT packs – directed by YOUR policies, organized and structured in YOUR processes and supporting YOUR procedures to design, plan, deliver, operate and control IT services.

E-mail: rc@itaccent.net
Web: www.itaccent.net

Inovo Finance

Inovo Finance operates locally and regionally and was limited to the development of market research and business management & consulting.

Email: birisioana@gmail.com

Lacan Technologie

Lacan Technologies is a fast - growing tech company that operates in the business management area.

E-mail: biuro@lacan.com.pl
Web: www.lacan.com.pl/ro

FreshBlood

FreshBlood is a community aiming to support new startups in healthcare, by merging medical knowledge with technology. They are exploring the potential to solve challenges that healthcare faces nowadays.

Email: hello@freshblood.ro
Web: freshblood.ro

Logiq Design

Logiq Design is a professional E-Commerce and web design company based in Cluj-Napoca, the most developed IT centre of Romania.

E-mail : www.logiqdesign.ro
Web : office@logiqdesign.ro

.msg

Cluj's centres develop projects for the German market, as well as the global market, in several areas and lines of business: SAP-ABAP development, Automotive and Insurance Business line, Java software, automated testing and software development for financial-banking market and auto, SAP Support Services.

E-mail: Radu.Jinga@msg-systems.com
Web: www.msg-systems.ro

ONE IT

ONE IT provides IT services and products on the national and international IT market. For over 15 years, One IT has established a recognized brand for the quality and efficiency of IT products and services it provides.

E-mail: office@one-it.ro
Web: www.one-it.ro

NTT Data

The added value provided by NTT DATA Romania lies within the specific know-how of various business lines. This includes a thorough understanding of the main challenges felt by clients and the current economic environment.

Web: www.nttdata.ro

Online Software Systems

Online Software Systems opens the doors to endless personalization possibilities for Open Source Solutions, like Project Management-, Human Resources-, Web-conference- and Learning Management System - Platforms.

E-mail: office@osystems.ro
Web: osystems.ro

Polysoft

Their goal is to assist the customers to outgrow their competition and to make their activity as profitable as possible with the web and software tools that they provide.

Email: office@polysoft.ro
Web: www.polysoft.ro

Qubiz

Qubiz is a nearshore software development outsourcing company from Romania that delivers custom-tailored IT solutions for growing companies.

Email: hello@qubiz.com
Web: www.qubiz.com

RECOGNOS

To create valuable software applications, to continuously invest in new technologies and innovation, to stay close to customers – are some of the main goals of Recognos Romania.

E-mail: office@recognos.ro
Web: www.recognos.ro

Railsoft

Rail Soft is a young company, established in 2012 in Cluj-Napoca, with the purpose of finding the best solutions for increasing the performance of railroad passengers transport services.

Email: contact@railsoft.ro
Web: www.railsoft.ro

SDL

SDL is the leader in language translation and global content management. With more than 20 years of experience, SDL helps companies build relevant digital experiences that deliver transformative business results on a global scale.

Email: agocan@sdl.com
Web: www.sdl.com

CRM REBS

An online software platform adapted to the needs and processes of real estate companies, which doubles their efficiency. Automatic publishing and promoting on real estate portals; Management and monitoring instruments with automated reporting; Optimized workflow from start to finish.

E-mail: dumitru.sirbu@rebs-group.com
Web: www.crmrebs.com

SHE

SHE Information Technology has as a main objective the development of long term partnerships with companies who are considering outsourcing their IT services to a trustful partner that focuses mainly on quality and transparency.

E-mail: ioana.bora@she.net
Web: www.she-software.com

SOFTECH

Having a 18 years history in programming for specialized customers, Softech is committed to provide excellence across the full software development life cycle.

Email: contact@softech.ro
Web: www.softech.ro

Target E

Target E

Target E is a Roman-German partnership with more than 10 years of experience, grows the online business through IT and professional software developed following the latest trends delivered by a passionate and experienced team using a wide range of technologies such as: TYPO3 CMS, INTREXX, ANDROID, IOS.

E-mail: info@target-e.com
Web: www.target-e.com

Streamaxia

Streamaxia helps developers embed mobile and web applications with innovative live video stream broadcasting toolkits to accelerate their development time and, ultimately, assist developers capitalize on the exponential growth forecasted for mobile live video streaming broadcast and WebRTC technologies.

E-mail: contact@streamaxia.com
Web: www.streamaxia.com

TEC Software Solutions

Digital transformation is the profound and accelerating transformation of business activities, processes, competencies and models to fully leverage the changes and opportunities of digital technologies and their impact within your company, in a strategic and prioritized way, with present and future shifts in mind.

E-mail: office@tecss.com
Web: tecss.com

The Informal School of IT

The Informal School of IT is an initiative that brings together interested parties in conceptualizing and building up a community of IT professionals.

Email: info@scoalainformala.ro
Web: www.scoalainformala.ro

The Genuines

The Genuines develops innovative concepts with applicability in the digital, creative and visual arts industries.

E-mail: office@thegenuines.ro
Web: www.thegenuines.ro

Target E is a Roman-German partnership with more than 10 years of experience, grows the online business through IT and professional software developed following the latest trends delivered by a passionate and experienced team using a wide range of technologies such as: TYPO3 CMS, INTREXX, ANDROID, IOS.

ARIES Transilvania Members

Transart

Transart is a privately held Romanian company, whose main activities are software development and distribution, and Information Technology consulting.

E-mail: office@transart.ro
Web: www.transart.ro

Altom

Altom

Their company provides services in offshore outsourcing and near-shore software development. Besides these services the company provides software solution for the Hospitality Industry, a hotel management solution and a restaurant solution.

E-mail: office@altom.ro
Web: altom.com

Wolfpack

Wolfpack

They transform business ideas into stunning digital products that acquire, retain, and engage your customers.
They do this by being your most valued strategic partner, with a product-oriented team constantly working to offer you a powerful product with clean code and outstanding visuals.

E-mail: contact@wolfpack-digital.com
Web: wolfpack-digital.com

ambo

The company provides services in offshore outsourcing and nearshore software development for businesses and customers in many industries worldwide.

E-mail: info@ambo.ro
Web: www.ambo.ro

Yonder

Yonder, part of TSS, develops software for the most prominent software companies; they empower software companies to improve their business and enable technological innovation.

Email: info@tss-yonder.com
Web: www.tss-yonder.com

ART PROGRAM

ART PROGRAM has been founded in 2004 and is a dynamically growing IT service provider. Their core business are customized IT solutions, which covers a large area, from consulting to software development and outsourcing.

E-mail: tamas.furdek@artprogram.ro
Web: www.artprogram.ro

ArtSoftcomknow

ArtSoftcomknow is a dynamic Romanian IT solution prvider company focused on custom software development and BPO services with excellent references on the international market.

E-mail: office@artsoft-consult.ro
Web: www.artsoft-consult.ro

hypermedia

Starting as a small software company in 2006 and continuing like a Swiss-Romanian enterprise, HyperMedia kept focus on rich internet applications, video collaboration tools, multimedia interactive systems, cloud computing, big data, mobile development and web platforms.

E-mail: contact@hpm.ro
Web: www.hpm.ro

arxia

Since 2005 their TYPO3 developers speak TypoScript as good as their mother language, enjoy TYPO3 extension development, love building large portals with lots of traffic and are always ready to find the best solution for their clients.

E-mail: office@arxia.com
Web: www.arxia.com

taz.ro

IT outsourcing company with a steady growth throughout its over 10 years' of existence: IT support and large infrastructure development, fully equipped datacenter based on IBM Flex solutions, cloud and virtualization, hardware and software provider, Knowledgeable and experienced with a variety of customers' IT requests.

Email: office@taz.ro
Web: www.taz.ro

DUAL IT

DUAL IT is a professional software solutions provider, with an enthusiastic and experienced team, prepared to establish new correct and fair partnerships for near shore software outsourcing. They create a work environment based on trust and honesty, with respect for each one's potential and dignity.

E-mail: office@dualit.ro
Web: www.dualit.ro

LAITEK

LAITEK offers services and solutions for moving and storing medical image and document data from legacy PACS archives when legacy systems are retired. Our Migratek® Data Migration Services bring comprehensive knowledge of DICOM and imaging informatics to bear on each data migration project.

E-mail www.laitek.ro
Web : cvs-romania@laitek.com

SoftVision

With over 1000 employees, they are the leaders in the Romanian consultance market and software outsourcing. We developed innovative projects for companies in USA and Europe: start-up companies as well as Top Fortune 500 companies.

Email: contact@softvision.ro
Web: www.softvision.ro

Email: office@cccluj.ro
Web: https://cccluj.ro

Email: cristian@clujhub.ro
Web: https://clujhub.ro

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