

Empirical Research Regarding the Importance of Digital Transformation for Romanian SMEs

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ABSTRACT

As the need for digital transformation becomes more and more self-evident with the rapid change of the business environment and the increased number of industries disrupted by digital advancements, we find it increasingly important for small and medium sized enterprises to recognize the emergence of threats and, most importantly, opportunities that arise from the dynamism of this phenomenon. Our research aims to uncover opportunities for Romanian SMEs to break apart and benefit from the diverse tools that are now within their reach in order to become successful on the global and European markets. Our survey was distributed to over 160,000 Romanian SMEs and netted 598 unique responses, representing the perception of digital by Romanian SMEs across 7 industries. We conclude that, despite their high awareness of the phenomenon of digital disruption, Romanian SMEs are yet to employ strategies of digital transformation that will bring them to the next level of competitiveness.

KEYWORDS: *business mode, digital transformation, organizational change*

JEL CLASSIFICATION: *D02, D22*

1. INTRODUCTION

Digital transformation, defined as “a continuous complex undertaking that can substantially shape a company” (Christian et al., 2015), is also “fundamentally not about technology but about strategy. Although it may require upgrading your IT infrastructure, the more important upgrade is to your strategic thinking” (Rogers, 2016).

Declining cost of technology, making digital technology accessible to large organizations as well as small and medium enterprises, combined with the increase in terms of capabilities and ease of use of digital technologies constitute an equalizing force in the marketplace, revealing great opportunities for small and medium sized businesses. Innovation creates an acceleration effect of technological progress (Christensen, 2013). Mobile, cloud, internet of things, sensors and robotics as well as analytics have a combined effect on the pace of technology innovation, putting pressure on both incumbents in the marketplace as well as new entrants to innovate in order to remain relevant to clients and consumers.

IDC (International Data Corporation) published a study conducted in January 2016 that consisted in a worldwide survey of 3,210 small and medium enterprises and points out the fact that there is a clear connection between digital transformation of SMEs and revenue growth, underlining that “over half of fast growing small and midsize firms are actively engaged with digital transformation”. Digital impacts the structure, processes, products and

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services as well as the infrastructure of SMEs (Zimmmermann, 2000) and will raise the bar for competition between incumbent and new enterprises forcing them to re-evaluate their business models (Iansiti et Lakhani, 2014).

Romania is part of the common market of the European Union and has the potential to capitalize upon the opportunities presented by the digital economy through encouraging its small and medium sized enterprises to engage in digital transformation that can increase their chances of succeeding in the markets that they operate in.

Our research aims to describe the degree of digital adoption by the Romanian small and medium sized enterprises and to uncover opportunities for further developing Romanian SMEs as meaningful players on the global and European markets.

2. DIGITAL TRANSFORMATION

Digital transformation is an imperative to all companies, large and small, and there's a strong need for the researchers and business leaders to create models and roadmaps for business managers and owners to successfully integrate digital in their organizations. The most prominent areas of transformation are business models, operating models and successfully attracting and retaining digital talent. (World Economic Forum, four themes of becoming a digital enterprise <http://reports.weforum.org/digital-transformation-of-industries/becoming-a-digital-enterprise/>).

In the new context of the emergence of disruptive business models fueled by digital opportunities, customer-centric businesses, the ones that are able to re-shape customer value propositions become differentiated from companies that merely target customers well. Also, business that are able to develop a new portfolio of capabilities for flexibility and responsiveness to fast-changing customer requirements have a higher likelihood of success (Bernard, 2012).

One of the main challenges that businesses undergoing digital transformation try to overcome is the shortage of talented human resources. The European Union is encouraging programmes that help with the development of human resources through education. In 2013, the European Commission issued a press release announcing the launch of the "Opening up Education" initiative to encourage digital skills in education, skills which, according to the press release, 90% of jobs will require by 2020 (http://europa.eu/rapid/press-release_IP-13-859_en.htm).

3. EMPIRICAL RESEARCH

3.1 Research methodology

The research, conducted between June 2016 and July 2016, consisted in the distribution of a questionnaire by email to over 160,000 small and medium size enterprises in Romania and collecting 598 unique responses. The research method used was that of proportional quotas for the geographical distribution and the optimum stratified method for the distribution by industry. The goal of the research is identifying the current degree of digital adoption by the Romanian SMEs by industry and finding the areas of opportunity.

The majority of respondents hold senior management positions, over 80% having a title of owner, administrator or director.

Digital affects all industries and our goal was to identify by industry where Romanian SMEs have opportunities for digital transformation.

3.2 Research results and data analysis

The research conducted through a questionnaire distributed to Romanian SMEs aims to help gain an understanding of how important the enterprises consider digital technology and digital transformation. The questions refer to usage of digital technologies and to sentiment regarding the need to adopt and implement changes that would take the companies on the path to digital transformation.

To start, we asked the survey participants to express the degree and the perceived need for the company to invest in digital technologies.

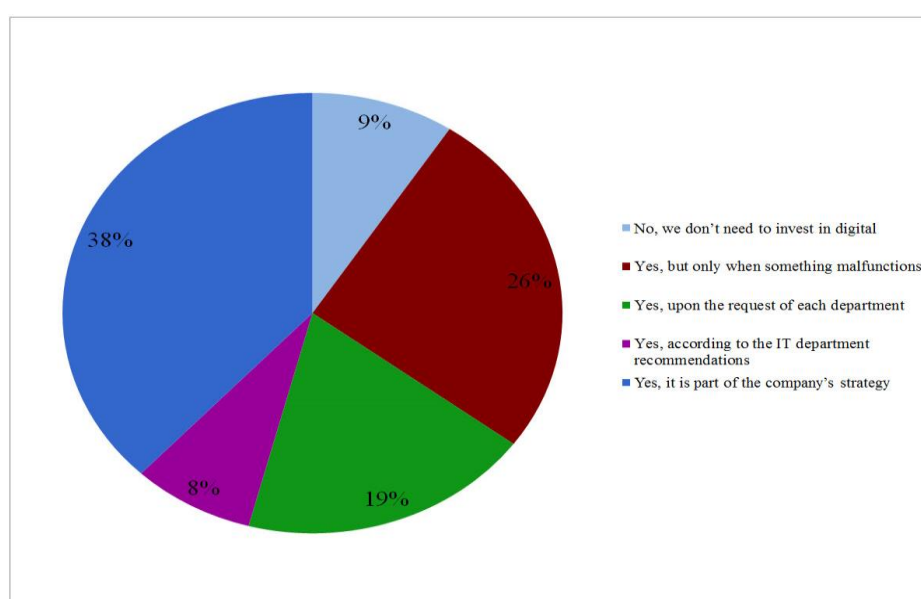


Figure 1. Reasons to invest digital technologies, percentage of Romanian SMEs

Source: research conducted by the author

The results show high interest in investing in digital, 38% of the respondents indicating that investing in digital technologies is part of the company's strategy and only 9% considering that there's no need to invest in digital. 26% only invest in technology when something malfunctions and 19% at the request of each department.

In an attempt to pinpoint which industries show higher interest for investing in digital, we broke down the analysis by industry.

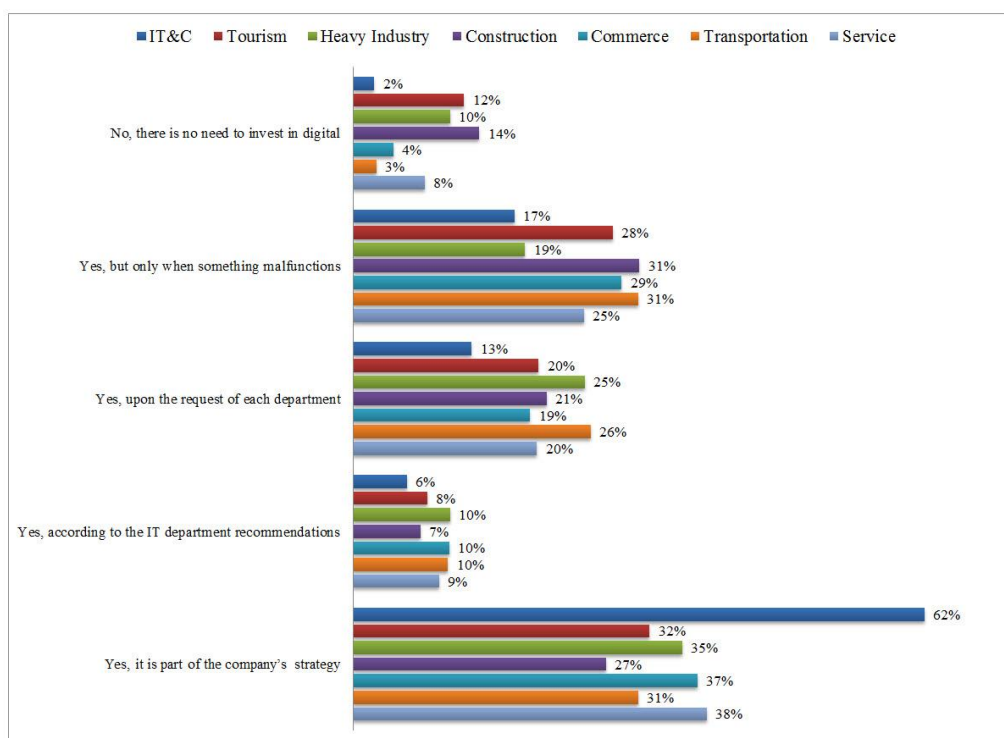


Figure 2. Reasons to invest digital technologies, percentage of Romanian SMEs by industry

Source: research conducted by the author

As expected, the Information and Communication Technology sector holds the highest percentage of incorporation digital investments into the company's strategy (62%). The service, commerce and heavy industry sectors show percentages of over 35% in terms of the incorporation of digital in their company strategy. The construction industry tends not to consider digital very strategic, 31% of the Romanian SMEs from the construction industry indicating that they only invest in digital technologies when something malfunctions and 14% stating that there is no need to invest in digital. In our opinion, the highest opportunity is held by Romanian SMEs that operate in tourism, only 32% indicating that they incorporate digital in their strategy in the context of an industry where the ROBO (Research Online By Offline) effect is very high and we believe that Romanian tourism SMEs that seize the opportunity to engage with prospective clients online can achieve greater results.

Websites highly impact the first impression that an organization makes on its prospective and current stakeholders. Our second question aims to identify the types of websites used by Romanian SMEs.

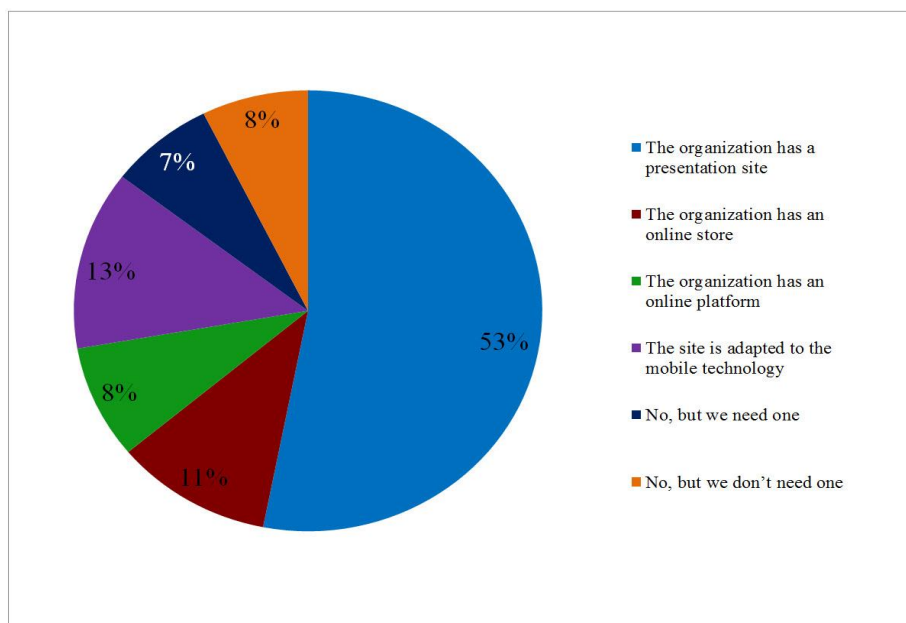


Figure 3. Types of websites, percentage of Romanian SMEs

Source: research conducted by the author

15% of respondents don't have a website, with 7% realizing the need for creating one. 53% of Romanian SMEs have a presentation site, but only 13% indicate that the website is mobile-enabled. In the context of the rapid growth of internet usage on mobile devices, having a site that is optimized for viewing on a mobile device is crucial to the image of the company.

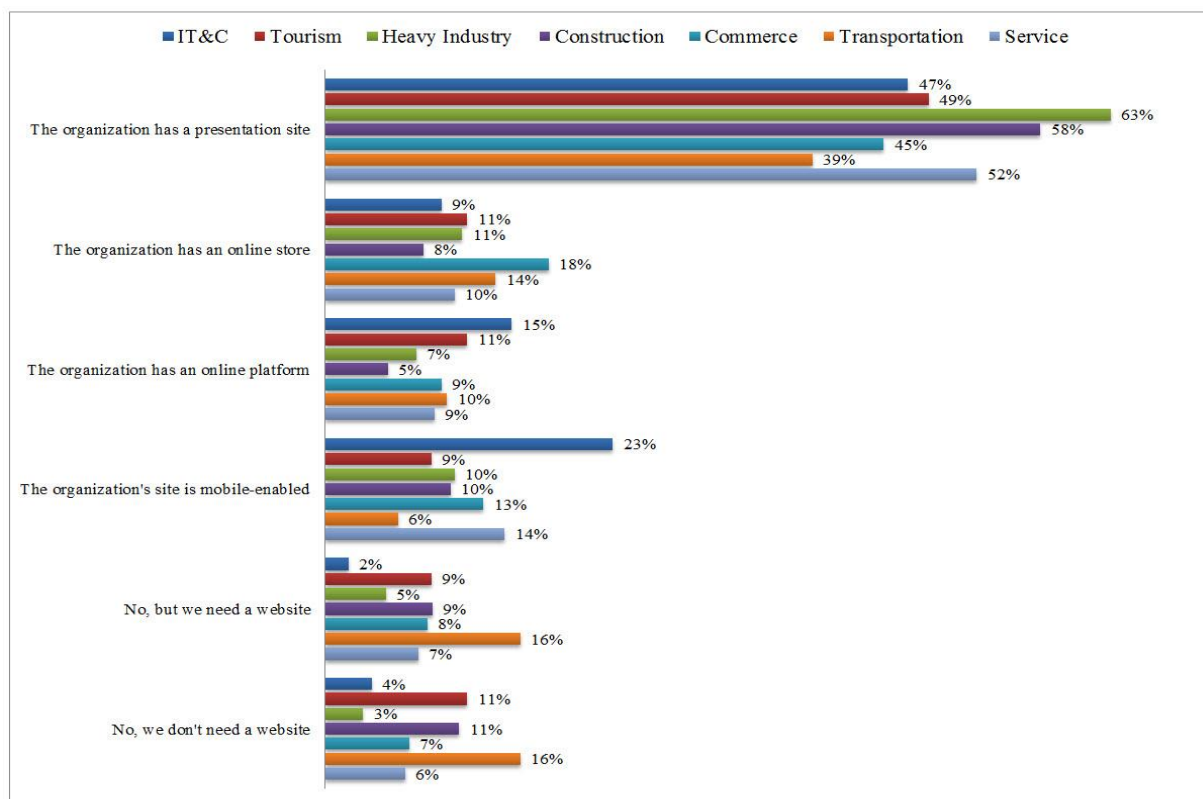


Figure 4. Types of websites, percentage of Romanian SMEs by industry

Source: research conducted by the author

We proceeded to identify differences by industry, mostly to dive into highest and lowest adoption industries as it relates to websites. The highest percentage, 32%, of Romanian SMEs that don't have a website are from the transportation field, 16% indicating that they don't need a website. 63% of Romanian SMEs from the heavy industry field have a presentation site, the highest percentage of companies that have a mobile-enabled site operate in the IT&C field.

Cloud technology is rapidly developing and is projected to grow even faster in the next decade. We were interested in understanding the degree of adoption of the cloud as storage or hosting as well as a basis for software, IT infrastructure and IT platforms by Romanian SMEs.

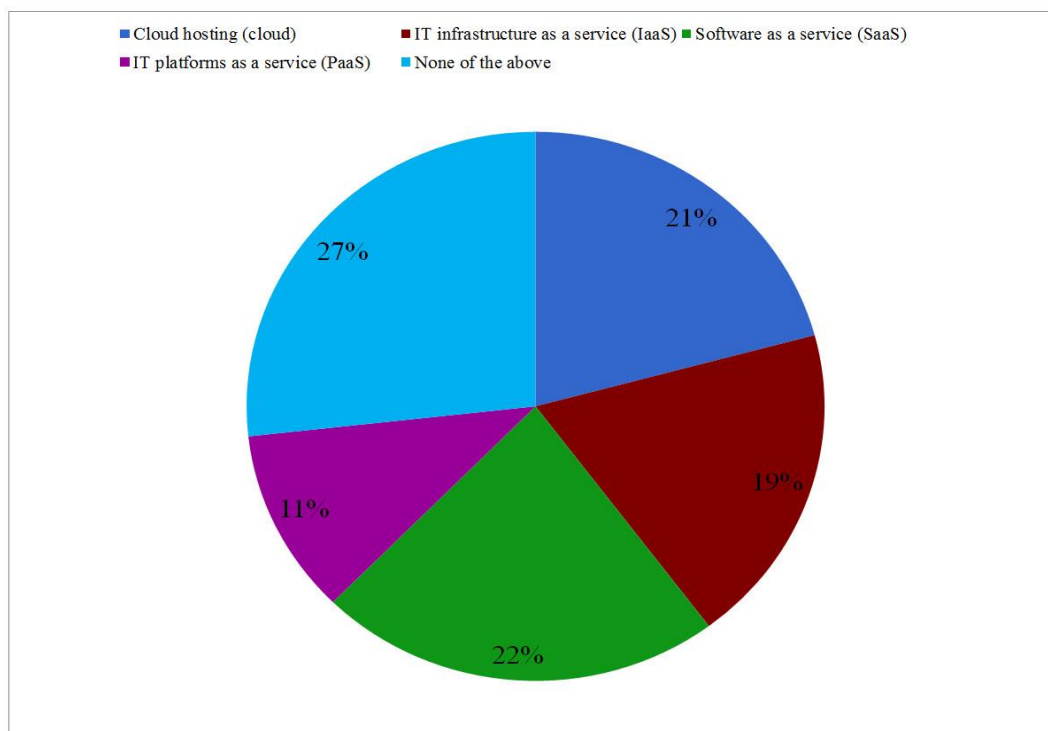


Figure 5. Usage of cloud technology, percentage of Romanian SMEs

Source: research conducted by the author

Cloud technology ensures affordability and scalability of IT resources and this technology has proven to be greatly advantageous to SMEs that are looking to grow without investing heavily in infrastructure before realizing revenues that can sustain the investment. Our results indicate that 21% of the respondents stated that their companies use cloud hosting, 22% use software as service, 19% use IT infrastructure as service and 11% use IT platforms as service. 27% don't use the cloud or any variation of the cloud technology.

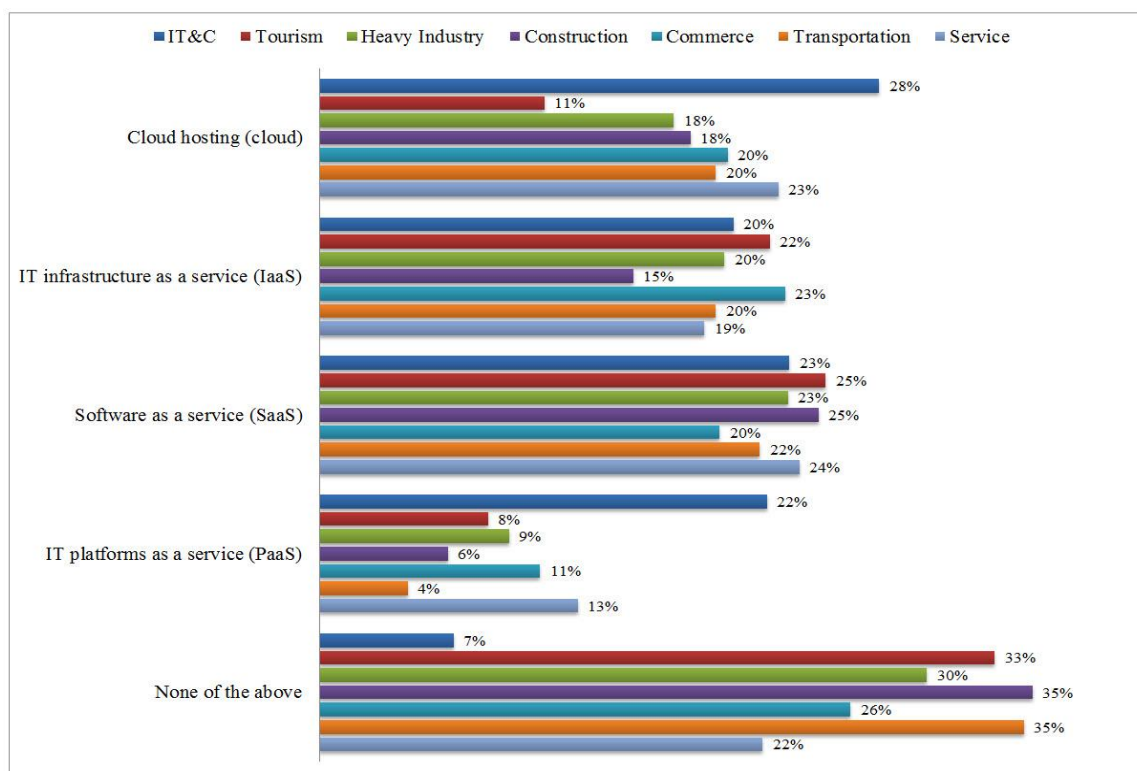


Figure 6. Usage of cloud technology, percentage of Romanian SMEs by industry

Source: research conducted by the author

The respondents that show the lowest degree of adoption of cloud technology are from Romanian SMEs that operate in the construction, transportation and tourism fields.

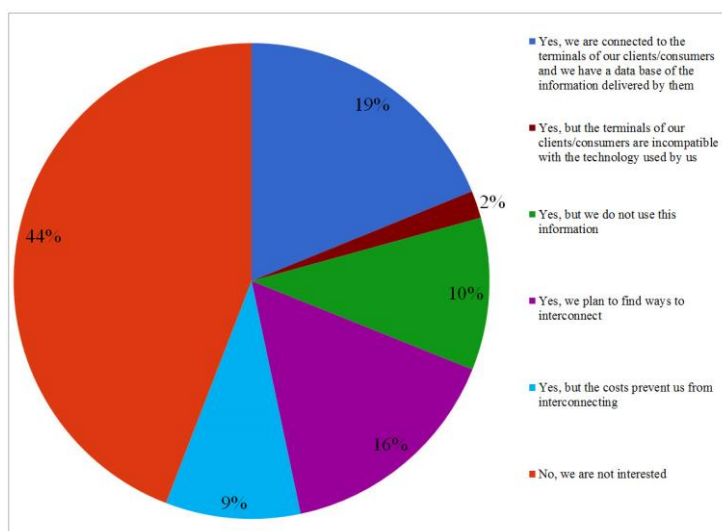


Figure 7. Interconnection through terminals, percentage of Romanian SMEs

Source: research conducted by the author

Another development in the digital era is the raise of hyper connectivity and the benefits that arise from creating digital eco-systems comprised of business partners where each add and exchange value to the benefit of all the participants. We were surprised to find out that 44% of the respondents in our study are not interested in connecting with their business partners and we find this a great area of opportunity for Romanian SMEs.

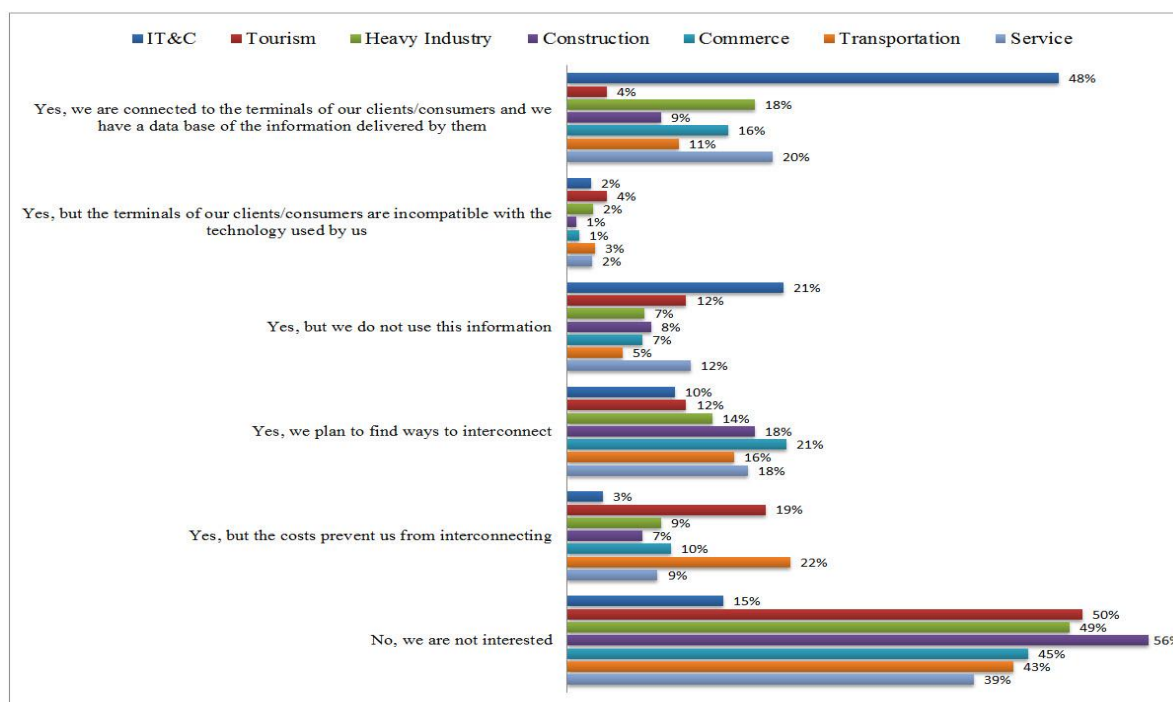


Figure 7. Interconnection through terminals, percentage of Romanian SMEs by industry

Source: research conducted by the author

As a result of our analysis of interconnection of Romanian SMEs through terminals, we found that the only field that is embracing this type of interaction is the IT&C industry.

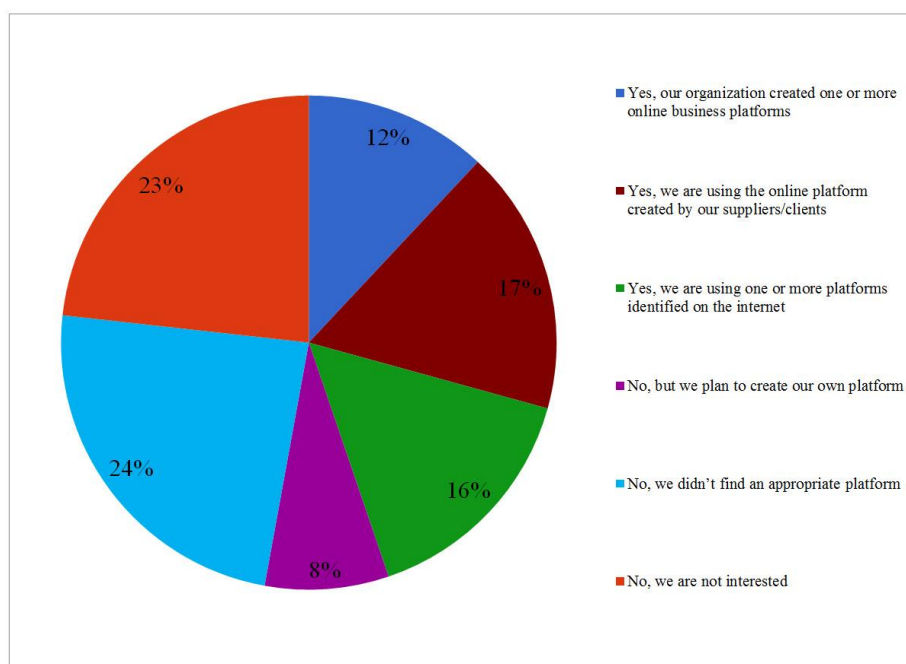


Figure 8. Usage of online business platforms, percentage of Romanian SMEs

Source: research conducted by the author

Another way for companies to connect to business partners is through online platforms. The degree of interest for this type of interaction is higher among Romanian SMEs, with 23% not being interested in business platforms as opposed to 44% not being interested in terminals.

However, 24% of the respondents state that they were unable to find the right business platform and the overall percentage of SMEs not using online business platforms adding up to 55%.

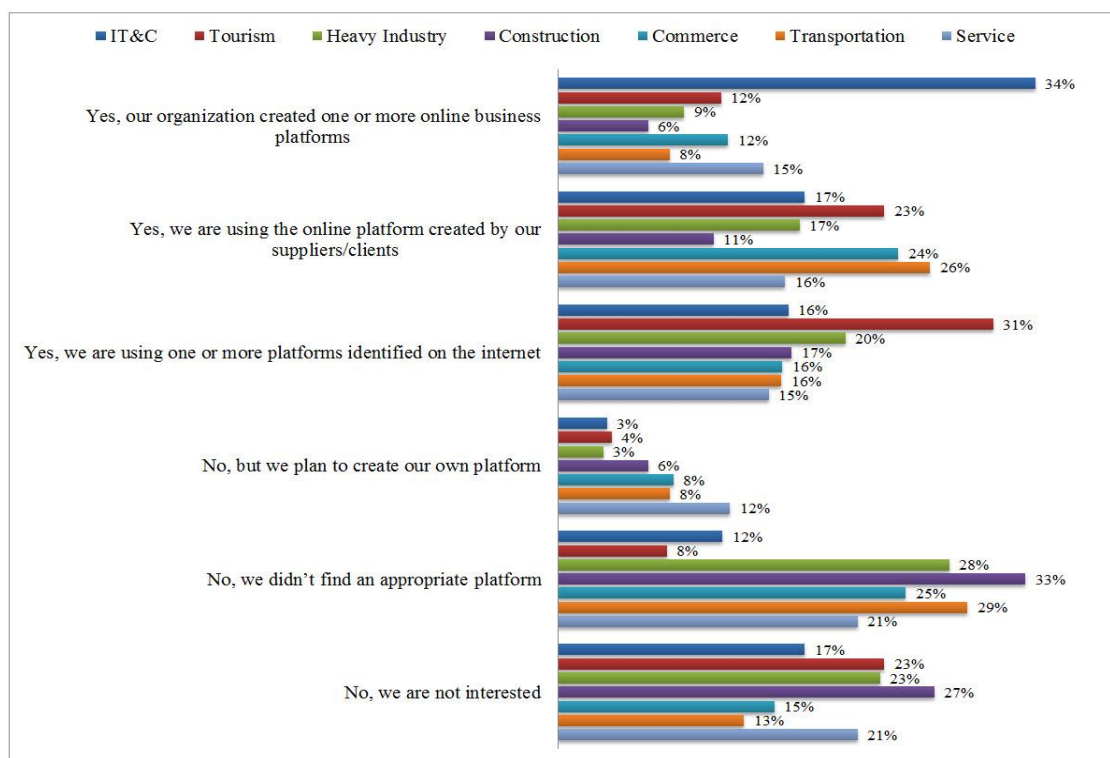


Figure 9. Usage of online business platforms, percentage of Romanian SMEs by industry
Source: research conducted by the author

The Romanian SMEs with the highest percentage of use online business platforms operate in the IT&C industry (67%) and tourism (66%). The lowest degree of adoption comes from the construction and heavy industry fields.

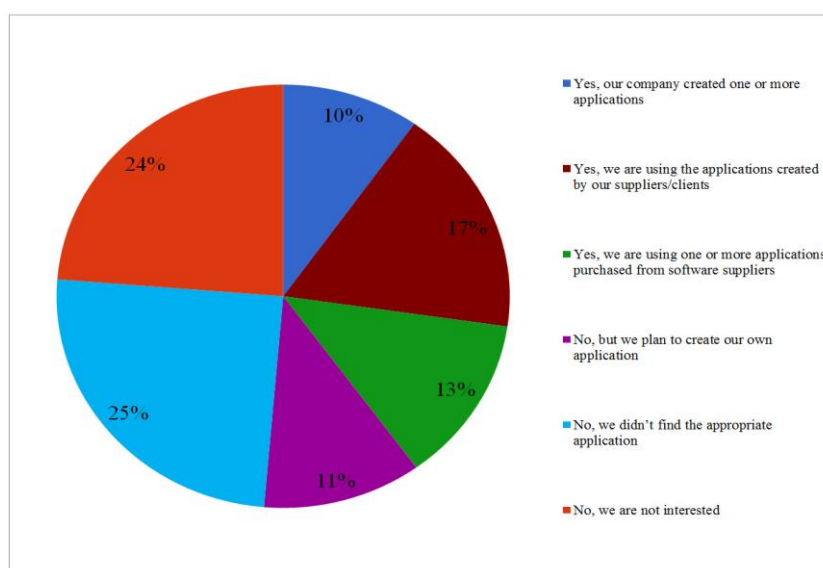


Figure 10. Usage of online applications, percentage of Romanian SMEs
Source: research conducted by the author

The use of online applications is also low, with only 40% of respondents stating that their organization uses this type of technology. 24% of respondents also consider that their company doesn't need to use online applications.

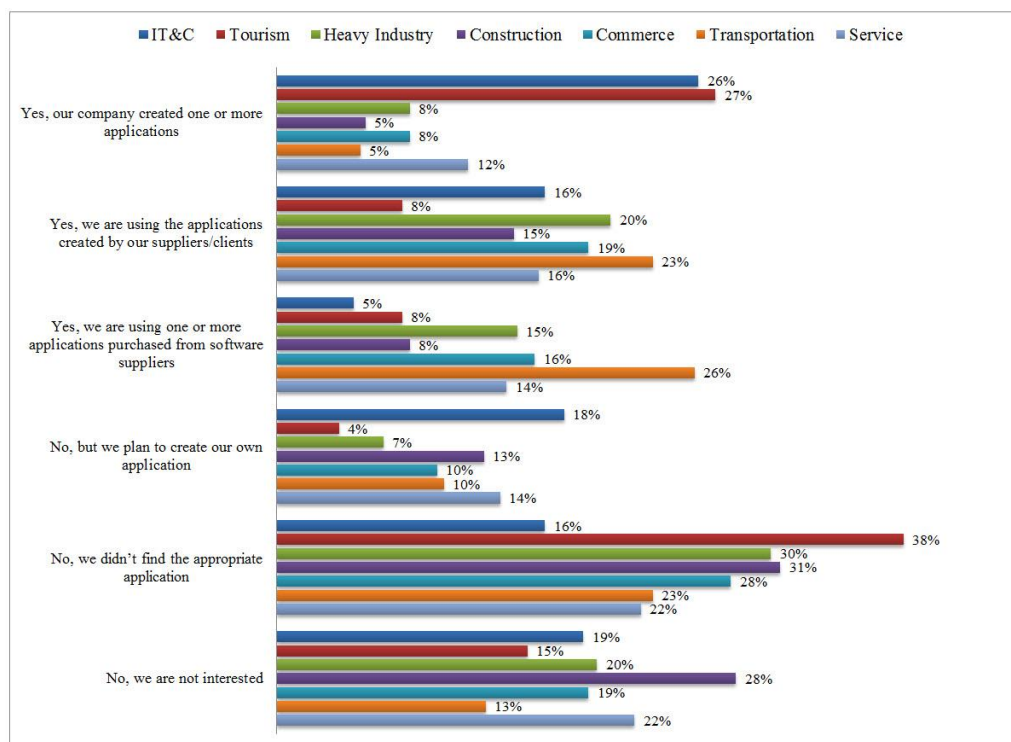


Figure 11. Usage of online applications, percentage of Romanian SMEs by industry
Source: research conducted by the author

Romanian tourism and IT&C SMEs from Romania created online applications as a percentage of 27 and 26 percent, respectively. 23% of Romanian transportation SMEs use online application that were created by their suppliers or clients and 26% purchased these applications from either suppliers or clients.

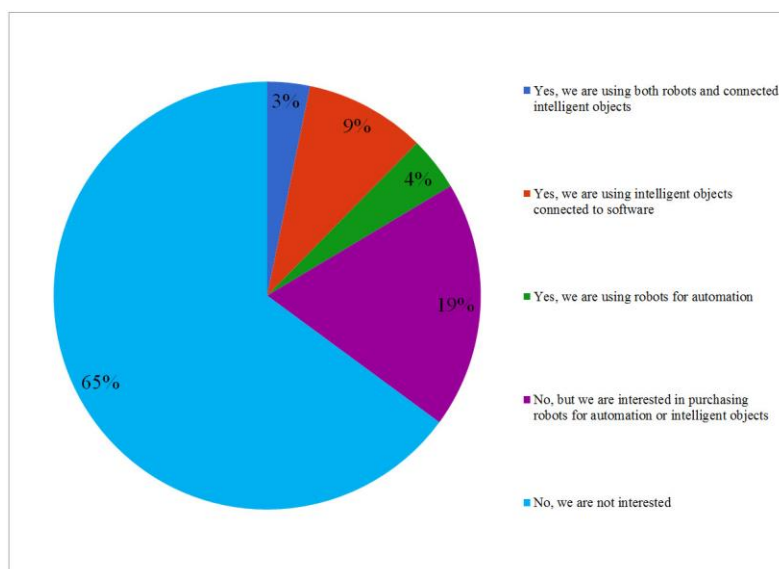


Figure 12. Usage of robots and intelligent "things", percentage of Romanian SMEs
Source: research conducted by the author

Internet of things and robots for automation are a tremendous area of opportunity in the digital economy and we were surprised to find out that 65% of Romanian SMEs are simply not interested in utilizing these types of technology.

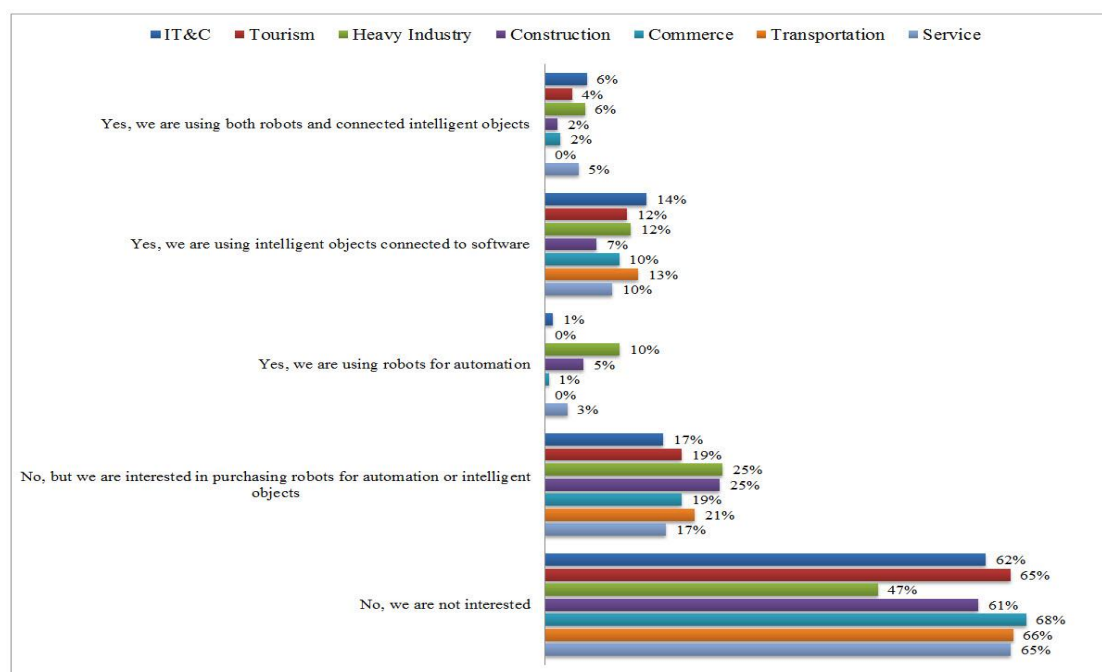


Figure 13. Usage of robots and intelligent “things”, percentage of Romanian SMEs by industry

Source: research conducted by the author

With the cost of labor increasing and the cost of technology decreasing, companies all over the world turn to robots and intelligent “things” to increase their viability and profitability. We were surprised to find that only 10% of the Romanian SMEs use robots for automation, with 47% simply not being interested in investing in this type of automation. Internet of Things has applications beyond the heavy industry field and it is projected to grow and be part of all industries. The degree of interest in this type of technology would potentially most likely increase when their application in day-to-day business activities becomes more well known.

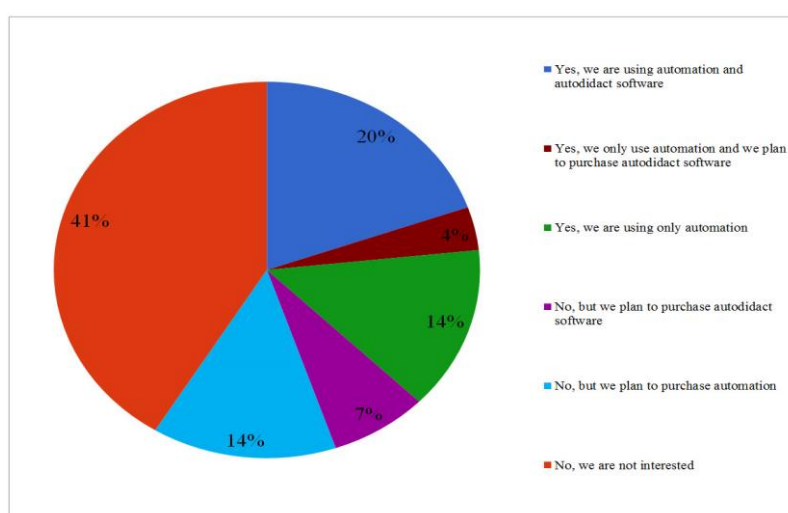


Figure 14. Usage of automation and intelligent software, percentage of Romanian SMEs

Source: research conducted by the author

Similar to robots and intelligent “things”, we believe that the awareness of the benefits of adopting automation and intelligent software has yet to make its way into what the management of SMEs considers tangible benefits. 41% of Romanian SMEs express their lack

of interest in using automation and intelligent software but we believe that this is the cause of a very low understanding of what constitutes these technologies.

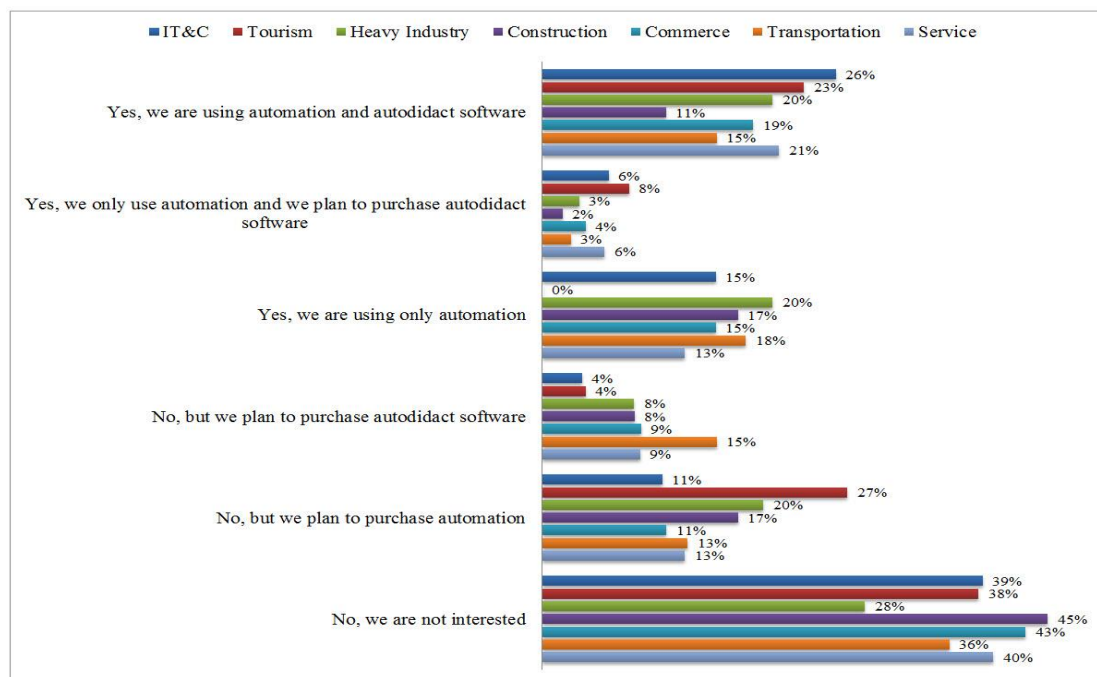


Figure 15. Usage of automation and intelligent software, percentage of Romanian SMEs by industry

Source: research conducted by the author

The use of automation and the intent to purchase automation is shown, in a percentage of 40%, by Romanian SMEs operating in the heavy industry field. The highest percentage of SMEs that are simply not interested in automation comes from, surprisingly, the construction industry, 45% expressing their lack of interest in automation and intelligent software.

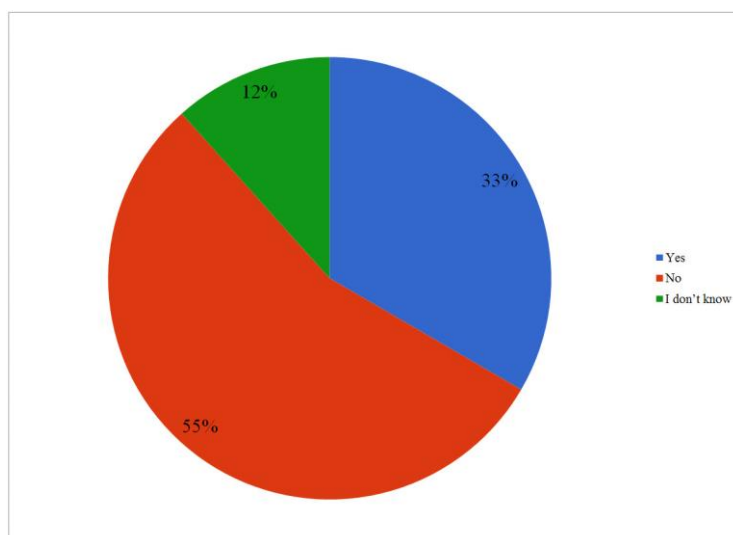


Figure 16. Usage of rapid testing, experimentation and analysis, percentage of Romanian SMEs

Source: research conducted by the author

Rapid testing, experimentation and analysis are very important techniques that companies around the world use to keep up with the rapid change in the business environment triggered

by the development of the digital era. Only 33% of the respondents representing Romanian SMEs state that they use these techniques.

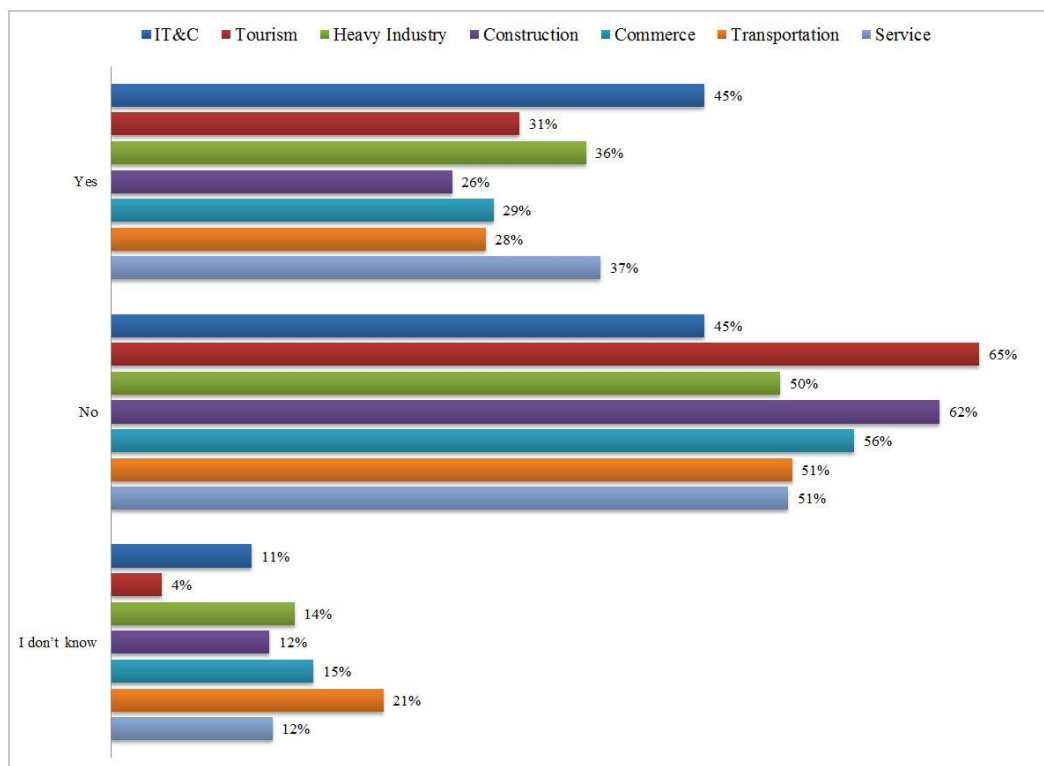


Figure 17. Usage of rapid testing, experimentation and analysis, percentage of Romanian SMEs

Source: research conducted by the author

The highest percentage of use of testing, experimentation and analysis techniques is held by Romanian SMEs in the IT&C sector (45%), followed by SMEs in heavy industry (36%) and tourism (31%).

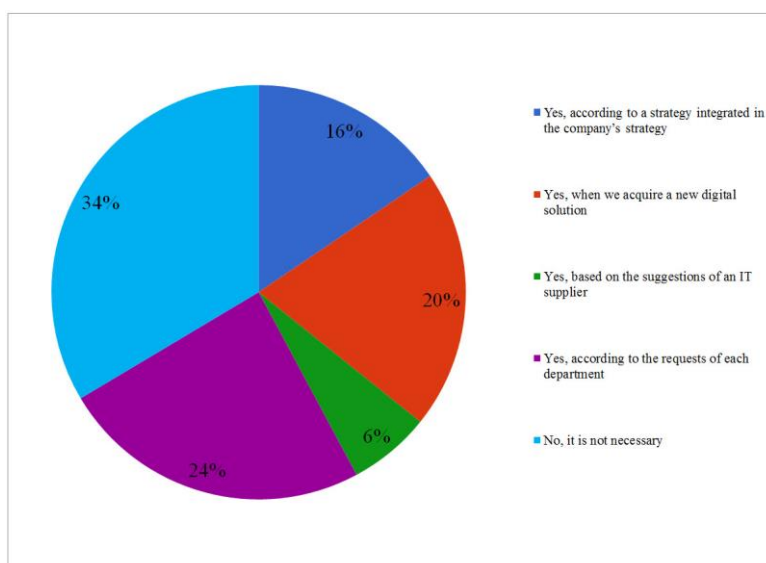


Figure 18. Training of employees in the IT field, percentage of Romanian SMEs

Source: research conducted by the author

Adoption of technology is very closely linked to the knowledge that the employees have in the IT field and companies undergoing digital transformation usually encounter difficulties in

developing talent that will help them bring the business to the next level. From the low percentage, only 16%, of Romanian SMEs that consider training their employees in the IT field as strategic, we can infer that they are not ready to undergo digital transformation in a meaningful way.

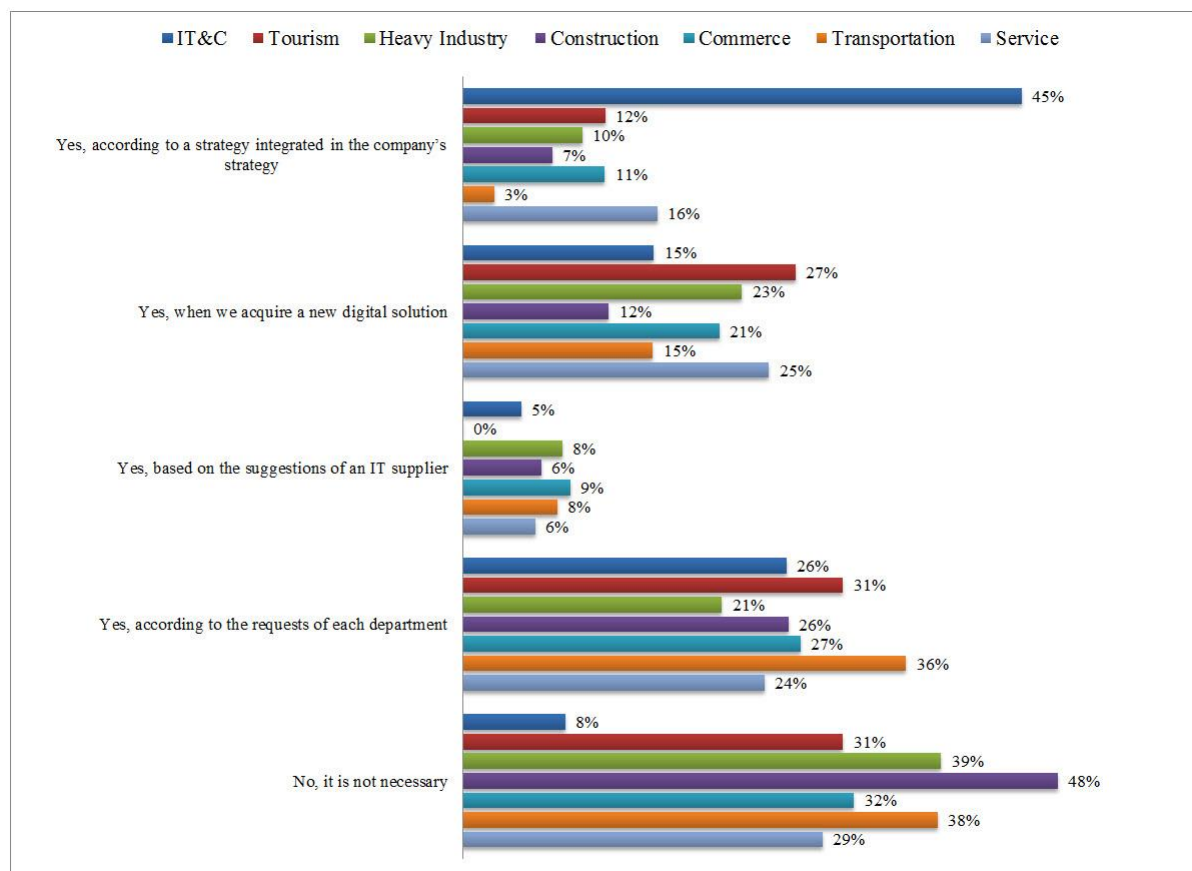


Figure 19. Training of employees in the IT field, percentage of Romanian SMEs by industry

Source: research conducted by the author

Our previous statement, where we conclude that Romanian SMEs are not considering digital transformation as part of a strategy of remaining relevant on the marketplace, is reinforced by the high percentages by industry of SMEs that don't believe that it's necessary to train their employees in the IT field. 48% of Romanian SMEs in the construction industry, 39% of SMEs in the heavy industry field, 38% of SMEs in the transportation industry, 32% of SMEs in commerce and 31% of SMEs in the tourism field don't consider training employees in the IT field necessary. This indicates strongly their lack of interest in digital transformation.

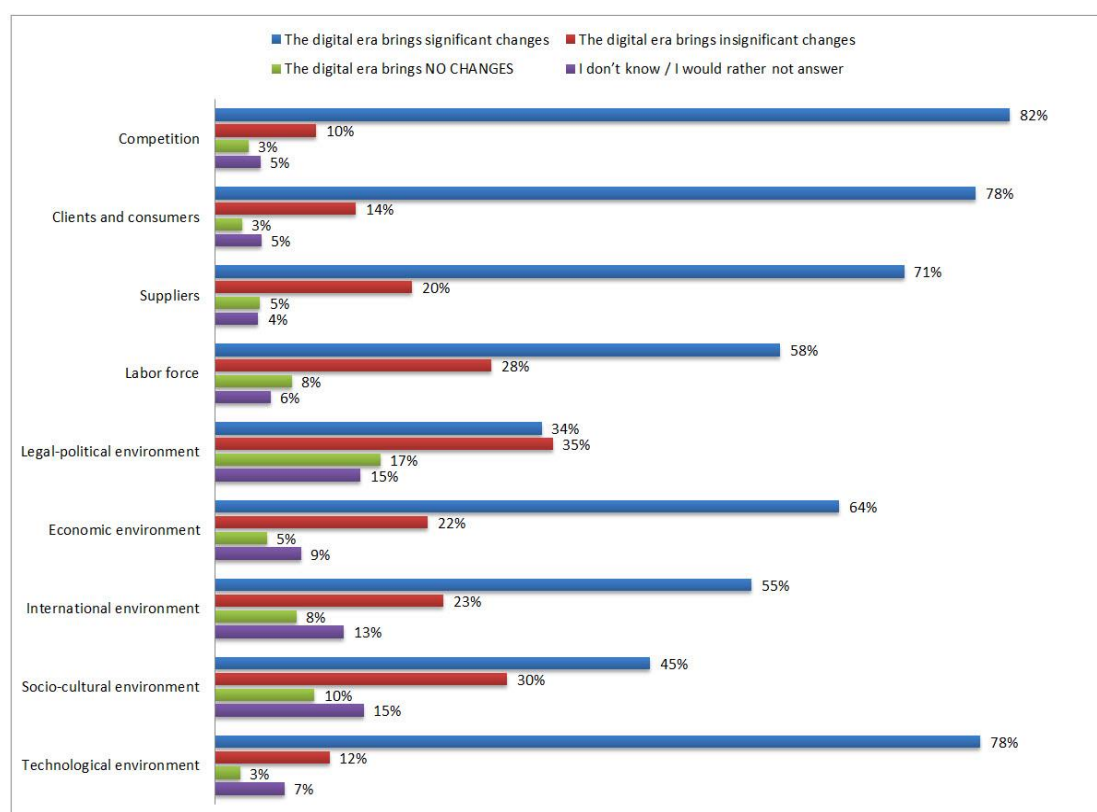


Figure 20. Perceived impact of the digital era on elements of the business environment, according to Romanian SMEs

Source: research conducted by the author

In order to determine their perception of the digital era's impact on the business environment, we asked the survey participants to express their opinion about the impact of the digital era on the elements of the business environment. We were pleasantly surprised by the results, most respondents indicating that the digital era brings about significant changes to competition (82%), clients and consumers (78%), suppliers (71%), human resources (58%) as well as to macro environment elements like the economic environment (64%), international environment (55%), social and cultural environment (45%) and technological environment (78%).

The results related to the perception of the impact of the digital era on the business environment is in dissonance with the relatively low employment of digital transformation by the Romanian SMEs, revealing opportunities in terms of encouraging these enterprises to act upon the realization that the environment is changing and employing strategies to transform their business models and operations in order to remain competitive on the domestic and global markets.

4. CONCLUSIONS

The research results show encouraging trends in terms of the perception of the digital advancements as great disruptors of the business environment by the surveyed Romanian SMEs. While still not employing strategies of digital transformation, Romanian SMEs are aware of the significant changes to the external environment of their organizations and seem to be mostly familiar with the technology terms associated with developments of the digital era.

Investment in digital technologies is considered strategic by 38% of Romanian SMEs with only 9% considering that there is no need to invest in digital. The SMEs operating in the Romanian IT&C industries have the highest percentage, 62%, of considering the investment in digital technologies as part of the company's strategy while the Romanian SMEs operating in the construction industry don't consider the investment in digital very strategic.

Mobile internet is projected to grow rapidly over the next decade but our research shows that only 13% of Romanian SMEs have mobile-enabled websites. Also, Romanian SMEs from the construction, transportation and tourism fields have very low adoption of cloud technologies, indicating that 35% of construction, 35% of transportation and 33% of tourism SMEs don't use cloud hosting, IT infrastructure as service, software as service or IT platforms as service.

44% of the respondents indicate that Romanian SMEs are not interested in interconnecting with their business partners through terminals and 23% are not interested in using online business platforms. However, 67% of Romanian SMEs from the IT&C industry and 66% from the tourism field use online business platforms. 24% of respondents also indicated that their organizations don't need to use online applications with only 40% of SMEs from Romania utilizing this type of technology.

When asked about the usage of even more recently developed technologies like robots and the Internet of Things and we found that 65% of Romanian SMEs are simply not interested in utilizing this technology. The same is true for usage of automation and intelligent software, with 41% of Romanian SMEs expressing their lack of interest in this type of technology. Also, only 33% of respondents indicated the fact that they use rapid testing, experimentation and analysis.

A very strong indicator of the fact that Romanian SMEs are not ready for digital transformation is the fact that only 16% consider training their employees in the IT field as part of the strategy of the organization.

In conclusion, there are still opportunities for Romanian SMEs to engage in digital transformation as part of their strategy and we believe that, once these enterprises gain a thorough understanding of how embarking in these strategies can help them improve their performance, they can implement changes that will make them compete better in the marketplace. Research and business leaders can, through meaningful and actionable content, create a framework of strategies and roadmaps that can help SMEs elaborate and implement digital transformation.

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