

DIGITAL ENVIRONMENT - ALTERNATIVE SOLUTION FOR ROMANIAN SMES IN PANDEMIC

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Abstract:

The period imposed by this pandemic, which we are going through, has visibly led to a kind of reconfiguration of our lives; we were forced to quickly fold all our daily activities and habits on a new pattern of life, so that we could go through this challenging period; we have all experienced a deviation of our life, carried out so far in the traditional, real environment, towards a quasi-known and insufficiently exploited environment, namely the digital one; such a forced and rapid transition has brought with it multiple difficulties, starting from a precarious ITC infrastructure, insufficient skills to use the tools of the digital environment and to software solutions and platforms insufficiently adapted for the online environment; starting from these lived realities, in the present study, the aim was to draw an image with a double perspective, pre and during-pandemic on the Romanian SMEs, in their confrontation with the problems brought by this crisis; specific problems were identified, solutions adopted, as well as behavioral changes of the studied companies, in crossing the pandemic period and in their effort to extend the activities to the digital environment, as an alternative to the real pre-pandemic world; the results obtained, we consider that they can be very useful for various categories of users, starting with researchers who can substantiate their extensive studies starting from the set of information delivered through the present study; then, we consider that the results can be used by local and central authorities, but also by companies in various fields of activity in general and those of IT and software development, in particular.

Key words: digitalization, digital environment, online software solutions, ITC, pandemic

JEL classification: L86, M15

INTRODUCTION

For any company, the pandemic has generated a real challenge, both from the perspective of rapid changes in activities and the need for rapid adoption of strategic changes, which primarily focused on IT infrastructure; thus, the evolution of any company could be visualized as a triple segmented image, namely: pre-pandemic, during and after it; in this sense, in the pre-pandemic period, at the level of companies, three important aspects could be identified, namely: "ICT risk management and business continuity, the effectiveness of IT strategies and digital infrastructure readiness"; during the lockdown, the focus shifted to "digital infrastructure resilience, IT support, privacy, security and monitoring, continuing working on site, working from home"; for the period following the lockdown, the general aspects focused on: "employee well-being, building resilience to ensure continuity, digital infrastructure and supporting users, space and users, productivity and IT" (Papagiannidis et al., 2020, pp:1-5).

We have all noticed that the pandemic was the one that imposed important transformations both in individual and collective human activity and in that of companies; the impact of these transformations and the transition to the digital environment were mixed in various scenarios during the pandemic crisis; such a scenario combines important elements such as: "increasing digitalization, work-from-home and gig workers, workplace monitoring and technostress, online fraud, Internet access and digital divide, Internet governance: net neutrality and zero-rating, Internet governance: shutdowns, digital money, surveillance and privacy" (Rahul De et al., 2020, pp: 2-4).

The pandemic also brought with it new terms, new concepts, assimilated in everyday life, such as: lockdown, restrictions, etc. or digitalization; from the perspective of a reputable global provider of IT business solutions, Deac, the concept of digitalization „is not limited to renewing

equipment and introducing new technologies, but more important is the modernization of the development strategy; digitalization, opens opportunities for collecting and processing large amounts of data, helps to track important changes in the behavior of consumers and business partners, thus becoming a functional development tool”; according to the same source, „remote work has transformed businesses and introduced new IT solutions; then, companies had to develop their own strategy to protect employees who work directly with the customer from the risk of infection, ensure remote access to documents and data and digitize internal processes to reduce staff and increase the speed of troubleshooting from internal activity ” (DEAC, 2021).

The impact of implementing digital transformation, „has made firms more agile, which has resulted in more flexible resource allocation” (Pryyono et al., 2020, pp: 16); in this sense, three important solutions for the digital transformation of companies have been identified, namely: accelerating transition towards a more digitalized firm, digitalizing sales to ensure the firms’ survival and finding digital partners to reach the market” (Pryyono et al., 2020, pp: 17).

Another perspective shows that COVID-19 „has become the catalyst to speed up the use of digital and internet technologies”, and „many businesses have been forced to change their models in order to survive and stay competitive”, thus proving that “technology is needed to enable business operations and ensure social connectivity remains in place” (Tan, 2021, pp:137).

Among the consequences of the pandemic on the digitalization of the business environment, were formulated “priority strategies such as: the rapid transition to digitalization and digital business models, the use of flexibility and agility as the basis of competitiveness and the resilience of value networks as a new business case ” (Piller, 2020, pp:1-3).

The pandemic, for SMEs viewed from another perspective, “offers an opportunity for a resurgence of a new generation of entrepreneurs to lead the next industrial revolution and invent new ways of doing business by utilizing cutting-edge technology” (Akpan, et al., 2020, pp:13) .

The adoption of digitalization by SMEs offers important competitive advantages such as: „acilities in adopting innovation strategies, in trading business processes, in following market trends, in acquiring new consumers and in creating new business opportunities” (Kala’lembang, 2021, pp:107).

It is also important to identify solutions to the problems imposed by the crisis; for this, “there are three emerging dimensions of dynamic capacities in response to the crisis: the capacity to feel the crisis, to take advantage of new opportunities arising from the crisis and to reconfigure resources, to cope with the crisis” (Aziz and Mukhtar, 2021, pp: 215).

A very important role in response to the Covid-19 crisis, in the fight for the survival of SMEs, was played by “digital technologies; and SMEs’ digitalization efforts have been manifested in their level of digitalization, the adoption of digital technologies and digital business models, which have helped them to overcome periods of crisis; moreover, digitalization contributes to improving the performance of SMEs by implementing public crisis response strategies” (Guo et al., 2020, pp:19).

The Covid-19 pandemic crisis also tested “the digital maturity of SMEs, which consists of both technological aspects and managerial agility, the ability to transform the business model, the application of multilateral platforms and the creation of business ecosystems, ensuring thus competitiveness in the digital economy” (Synyuk et al., 2021, pp: 8).

Digitalization is “the marvel of changing simple information into computerized language which, thusly, can improve business connections among client and organizations, bringing added value to the entire economy and society”; according to the same source, Romania appears on the position “27th among EU nations when referring to business integration of digital technology, beneath the EU normal”; The “Digital Economy and Society Index” (DESI) study highlighted that “Romania does not have a national strategy for digital transformation for enterprises and that specific measures are needed to support the digitalization of SMEs and increase awareness of the importance and benefits of adopting digital technologies. The assessment was based on data from 2019, before the outbreak of the COVID-19 pandemic, which once again highlighted the crucial

importance of citizens' digital skills and the digitalisation of the economy” (Ciurea et al., 2021, pp: 491).

According to the data of the National Office of the Trade Register (ONRC), in 2020 a total of 109,939 companies were set up, compared to 134,220 a year ago, representing a decrease of 18.09% compared to 2019; at the end of 2020, almost 61% of small and medium private companies in Romania reduced their activity during the past year, according to the „White Paper on SMEs in Romania 2020”; the European Commission, showing that Romania, „has around 500,000 SMEs, meaning approximately 99% of all companies in the economy” (Zf, 2021).

In 2020, the added value of SMEs has decreased, while the employment of SMEs has increased. By 2021, the value added of SMEs is expected to increase by 6.3% and employment for SMEs is expected to increase by 1.1%; More than 100,000 SMEs needed support in 2020, as reported by the National Press Agency; for the reactivation of the economy, the Romanian Government published the National Plan for investments and economic recovery; in 2020, the government established the “Authority for the Digitalization of Romania”, responsible for the development of electronic public services in Romania and for the implementation of the National Strategy on the Digital Agenda 2020; these actions may reflect the government's commitment to intensify action in this area (EC, 2021).

According to Yahoo, during the pandemic, the number of entrepreneurs opening their own businesses doubled, compared to the pre-pandemic period, thanks to government support programs and advanced remote work technology, which were not available during other economic recessions (Yahoo, 2021).

Starting from these evidences, in the carried out study, the aim was to identify a comparative image on the Romanian SMEs in the confrontation of the current crisis situation traversed by humanity; the obtained results reflected important aspects related to the major problems faced by the studied companies, the adopted solutions, the behavioral changes regarding their digital transformation and the future action strategies; we consider that these results can very well serve as an informational basis for other studies on the same topic, more extensive and even comparative.

6. MATERIALS AND METHODS

The pandemic, in addition to multiple prohibitions and limitations, has generated an interesting paradigm related to online communication; although reality has shown an intense migration of individuals to the digital environment, in all their daily activities, however at the level of interpersonal communication, there has been a diverse behavioral change; it has already been experienced that during the pandemic, the rejection rate of invitations issued for participation in various study and research activities has declined significantly; thus it has become quite difficult to go through the stages of collecting real data using the tools of the digital environment; this phenomenon has intensified since the end of 2019, since it has been possible to identify a significant decreasing trend of the response rate to surveys and other participatory forms of study in real populations.

Starting from these records, the present study aimed to include the two important periods, namely: the period of pandemic restrictions and that of relaxation; thus, the study was conducted between February 10 - March 15, 2021 and June 10 - July 15, 2021; the mobile survey was used, based on the administration of a questionnaire; social networks, Facebook, Tweeter were used as a working environment and were also considered the main web directories, identified by dirpedia.ro, promodesk.ro, topdirector.ro; the final sample consisted of 478 subjects who provided valid questionnaires; only micro and small and medium-sized enterprises were considered, starting from issues related to their importance, namely that “micro and small and medium-sized enterprises (SMEs) represent 99% of EU enterprises and provide two thirds of the jobs in the private sector, contributing more than half of the total added value created by EU businesses” (Europarl, 2021).

The questionnaire was designed modularly; the first module aimed at the general identification of companies (type of activity, number of employees, maturity on the profile market),

the second module aimed at identifying aspects related to a pre-pandemic digital profile of companies (online activities, online maturity, type of online solutions used), and the third module, followed aspects related to the pandemic evolution of companies' activities (their perception on pandemic effects, categories of problems encountered, migration to the digital environment/intensification of online activities, adopted solutions, perception on digitalization in pandemic).

7. RESULTS AND DISCUSSIONS

The analysis of the collected data, led to the identification of some important aspects in the evolution of the companies studied for the pre-pandemic period as well as during the pandemic, as well as their comparative visualization.

For the classification of companies, the definitions provided by the “Guide of the European Commission on the definition of SMEs” and by the “User's Manual for the definition of SMEs” were considered; according to these sources, micro-enterprises are defined as enterprises with less than 10 employees and an annual turnover or total annual balance sheet not exceeding EUR 2 million; small enterprises are defined as enterprises with less than 50 employees and whose annual turnover or annual balance sheet total does not exceed EUR 10 million; medium-sized enterprises are defined as enterprises with less than 250 employees and whose annual turnover does not exceed EUR 50 million or whose total annual balance sheet does not exceed EUR 43 million (Adr, 2021); it should be specified that in the study, only the number of employees and the object of activity declared by the subjects were considered, according to the CANE fields of activity in our country and specific to the private business environment.

For the period **before the pandemic**, the structure of the sample used (table no. 1), brings on the first places, depending on the field of activity, companies in the field of Retail and wholesale (14.75%), followed by Cultural and recreational activities (10.07%); it may be interesting to note that in percentages over 9%, there are other fields of activity such as: Administrative and support services, Professional scientific and technical activities and Financial and insurance intermediaries; and the least represented (less than 3%) appear the companies from Real estate, Education and Transport; the number of employees brought small enterprises in the first place (49.44%), while micro-enterprises were the least represented (12.42%); companies with more than 10 years of experience on the market are the best represented, while the most recently entered the market are the least present (19.11%); this structuring can be supported by the evidence of the lived reality, since the specific activities of the companies with representation over 9%, were also those that remained active during this period, as a result their response rate is logical to be more important; for the same reasons, the fields of activity represented in percentages below 5%, during the pandemic, went through very difficult periods, which imposed reconfigurations of activities and even suspension or blocking of activities (case Hospitality/hosting services, Manufacturing industry, Health and social assistance, Real estate, Education and Transport).

Table no. 1. Sample structure

Sector of activity	
Retail and wholesale	14.75%
Cultural and recreational activities	10.07%
Administrative and support services	9.71%
Professional scientific and technical activities	9.71%
Financial and insurance intermediaries	9.35%
IT	8.63%
Restaurants and other food services	7.19%
Agri-food production	6.83%
Hospitality/ hosting services	4.68%
Other service activities	4.32%

Manufacturing industry	3.96%
Health and social assistance	3.60%
Real estate	2.88%
Education	2.16%
Transport	2.16%
Number of Employees	
< 50	49.44%
< 250	38.14%
< 10	12.42%
The age of the company on the market	
10 years later	45.32%
5-10 years	35.57%
Under 5 years	19.11%

For the same period, *the state of digitalization* or development of specific online activities was also identified (table no. 2); from the considered sample, an important segment (61.13%) of companies that were already present in the online business environment was identified; 51.12% of them declared an average online maturity, between 5-10 years, while the companies with an online activity of over 10 years, are the least represented; the main online solutions already used by the respondents, clearly detach the E-commerce/online sales activities from the rest of the indicated solutions; It should also be noted that 9.35% of companies have indicated the use of simple web presences, without commercial purpose, which may suggest a maladaptation or insufficient knowledge of the possibilities offered by the online business environment; it is also highlighted that the use of social networks as the main solution for carrying out online activities, was no longer a sufficient solution for companies.

Table no. 2. Online activity before the pandemic

Online business activity	
Yes	61.13%
No	38.87%
Maturity in online activity	
between 5-10 years	51.12%
< 5 years	29.02%
over 10 years	19.86%
The main online business solutions used	
E-Commerce / online sale	35.44%
Partnership in E-Commerce aggregators platforms/marketplace	19.88%
Online delivery systems	18.11%
Social networks	17.22%
Non-commercial web presences	9.35%

For the **pandemic period**, the data also allow the identification of other aspects to consider; starting from the age on the market and the size of the companies, according to their number of employees, two categories can be identified, namely: most of them were newly entered on the market and came from the field of Professional scientific and technical activities, IT, Restaurants and other food services and Transport and all this falling, according to the number of employees, in the category of micro-enterprises; on the other hand, the oldest on the market were those in the fields of Retail and wholesale, Hospitality / hosting services, Manufacturing industry, Health and social assistance, falling into the category of small enterprises.

Regarding the *development of online activities*, in the category of non-users of the digital environment, there are, regardless of their age on the market, micro-enterprises in the field of Other service activities and small enterprises in the fields of Agri-food production, Health and social assistance.

Online maturity obviously follows the maturity on the offline market, but also the field of activity of the companies; thus, the more mature companies in carrying out online activities are small and medium enterprises, which cover areas of Retail and wholesale, Real estate, IT, Financial and insurance intermediaries, Transport.

From the perspective of *online solutions*, a mix of E-Commerce/online solutions, partnership in E-Commerce aggregators platforms / marketplace, online delivery systems, social networks has been adopted by companies in most fields except those in Agri-food production, Other service activities, Manufacturing industry, Health and social assistance, which had a different orientation; thus, the companies from the Manufacturing industry mainly chose solutions from the categories of partnership in E-commerce aggregators platforms marketplace, online delivery systems, social networks, while those from Agri-food production and Other service activities were oriented towards online delivery systems, social networks, but also only to non-commercial websites.

The perception of the effects of the crisis (table no. 3) felt by companies showed that 87.36% of them felt the effects at a moderate level, while only 2.68% said they were not affected at all; in the category of the minority segment, of those not affected at all, there were companies from IT and Other service activities; the most affected areas were Administrative and support services, Cultural and recreational activities, Restaurants and other food services, Hospitality/hosting services.

Table no. 3. Perception of the effects of the pandemic

Perception	
Strong	38.12%
Moderate	28.16%
Very strong	21.08%
Minor	9.96%
Not at all	2.68%

From the set of problems faced by the pandemic respondents (table no. 4), four of them stood out as major and were designated by almost all areas of activity studied; thus in this category were found: internal/external supply, lack of qualified/professional staff, increasing debts and increasing purchase prices; the exception to this set of problems was made by companies in the fields of Other service activities and Agri-food production; The Manufacturing industry should also be noted, which has selected another set of problems namely: decrease in the number of B2C, B2B clients, distribution, postponements/delays in the payment of invoice and decreased export demand.

Table no. 4. Encountered problems in pandemic

Problems	
Internal / external supply	30.32%
Lack of professional workforce	29.87%
Debt increase	29.17%
Increasing purchase prices	27.13%
Closing work spaces / activity locations	22.31%
Offline infrastructure (blocking traffic /transport)	21.17%
Employee / staff issues (illness / absence)	20.47%
Online infrastructure (Internet connection, online communication, etc	20.42%
Decrease in the number of B2C, B2B clients	20.23%

Distribution	18.11%
Postponements / delays in the payment of invoices	17.13%

As a result of the identified problems, the reaction of the companies in combating their effects was also followed; were analyzed both the behavioral change in the crisis compared to the use of the online environment and the solutions offered by it, as well as the type of solutions adopted to overcome the problems generated by the crisis; the analysis of the obtained data revealed a significant increase of the segment of companies that migrated or intensified their use of the online business environment; it was noted that another 19.11% of respondents who did not carry out online activities before the pandemic migrated to this environment, the segment of non-users of the digital environment thus decreasing to 11.76% (table no. 5).

Regarding the *solutions adopted to overcome the crisis problems* (table no. 5), they subscribe to the general managerial decisions (debt rescheduling, reconfiguring the product/services portfolio, identify alternative supply solutions, temporary suspension of activity, changing the object of activity/domain, renting/selling workspaces, professional HR loans), as well as those regarding the extension of activities to the digital environment (work from home, migration to online activity/online sales, partnerships with online home distribution platforms, intensifying online promotion, DTC (Direct-to-Consumer) solutions, home delivery systems); the data reveals the rescheduling of debts (38.22%), as the first solution identified by all subjects, which allows the correlation with large financial problems encountered by companies during the crisis and which even generated the premises for the other solutions that were found and adopted by them; the next set of solutions, indicated by over 30% of companies, clearly aims at expanding activities to the digital environment (work from home, migration to online activity/online sales, partnerships with online home distribution platforms, intensifying online promotion, reconfiguring activity/the products/ services portfolio); the aspect related to the adoption of drastic managerial decision-making solutions (changing the object of activity/domain and renting / selling workspaces) must be emphasized, but which are signaled only in the case of less than 20% of companies; the Professional HR loans solution, which is in fact very common for companies for certain periods or for supporting projects, proved that in the case of the studied companies was adopted by less than 10% of them and coming from the fields: Manufacturing industry, Restaurants and other food services, Hospitality/hosting services, Transportation and IT.

Table no. 5. Online activity during pandemic

Intensifying online activity	
Yes	88.24%
No	11.76%
Solutions adopted	
Debt rescheduling	38.22%
Work from home	36.11%
Migration to online activity / online sales	35.17%
Partnerships with online distribution platforms/systems	31.56%
Intensifying online promotion	30.46%
Reconfiguring activity/the product / service portfolio	30.12%
Partnerships with online sales platforms	29.87%
Identify alternative supply solutions	29.33%
Temporary suspension of activity	29.11%
DTC (Direct-to-Consumer) solutions, home delivery systems	27.67%
Changing the object of activity/domain	19.43%
Renting / selling workspaces	19.09%
Professional HR loans	9.17%

Following the activity carried out during the period of pandemic crisis, the companies evaluated their perception regarding the experience they had and thus also identified the set of major problems they faced (table no. 6); the efficiency of the solutions adopted for overcoming the crisis in general and the transition of activities to the digital environment, revealed an important segmentation; thus, 70.72% of companies perceived a very important efficiency of the solutions adopted in the digital environment, while an incomparably lower segment (10.05%), did not have a positive perception on the results obtained from the use of solutions and tools offered by the digital environment; in order to better understand the perception of companies, their problems in the transition to digitalization were also analyzed; it is surprising the recognition by the respondents that the most important problem for them being the lack of a database of consumers / customers (32.87%); this problem was perceived detached by micro-enterprises and small enterprises (97.13%), the rest being medium-sized companies, in the fields of Administrative and support services, Professional scientific and technical activities, Agri-food production and Other service activities; this problem can be correlated with a managerial decision-making error, still quite common in Romanian companies, regardless of their size or field of activity; it is about the insufficient approach of the Data-driven decision management (DDDM) solutions, which proves at the same time an insufficient knowledge of the software solutions that offer a very important decision support; also, it should be noted the problems often reported and which outline a general set of problems related to the resources of each company, namely: financial, online infrastructure, lack of qualified/professional staff, lack of information in choosing the most appropriate solutions in migrating to the digital environment, etc.; all these problems were indicated by over 30% of respondents; the field of activity of the companies determined specific problems for an important segment of companies; in this situation the profile of consumers (27.86%) and the particularities/specificities of the activity carried out (20.23%), were specific problems indicated by companies in the fields of Health and social assistance, Hospitality/hosting services, Cultural and recreational activities, Other service activities; in addition, companies from the Manufacturing industry, Education, Transport, also indicated problems related to the profile of their consumers.

Table no. 6. Perception and problems in extending to the digital environment

The perception regarding the effectiveness	
Extremely useful	38.87%
Somewhat useful	31.85%
Slightly useful	19.23%
Neither useful/ useless	10.05%
Problems in extending to the digital environment	
Lack of a customer database	32.87%
Insufficient financial resources	32.24%
Lack of adequate online infrastructure	32.11%
Lack of qualified staff	30.33%
Lack of suitable delivery solutions	30.12%
Customer profile	27.86%
Particularities of the activity	20.23%

CONCLUSIONS

It is recognized that the pandemic has had an impact on all the world's economies, but the most affected have been SMEs; according to PayPal, the report "The digital opportunity: COVID-19 pandemic impact on European SMEs" shows that in 2020, 90% of SMEs in Europe experienced

losses during turnover during lockdowns and about 20% of SMEs have faced a 100% drop in revenue over a long period of time (Paypal, 2021).

On a smaller scale, the results of the 2020 “ASME-Microsoft SME digital transformation study” on SMEs in Singapore showed that for 54% of them the pandemic crisis had a very big impact on their digital transformation, and the most important issues faced in this transformation were: high costs, inadequate digital skills of employees, and low support from the government; at the same time, among the key advantages of adopting digital transformation, were identified: optimize operations, empower employees, engage customers, transform products (Microsoft, 2021).

In this context, for the companies subject to the present study, aspects from and before the pandemic could be highlighted comparatively; the pre-pandemic profile of the studied companies, regarding their online activity, shows companies with an online maturity between 5-10 years (51.12%) and which mainly used E-commerce/online sales solutions; the pandemic had an important impact on their activity and evolution (38.12%), and the most important problems they faced were related to the internal external supply (30.32%), the lack of qualified personnel and the increase of debts.

Compared to the pre-pandemic period, the online profile of the respondents during the crisis is completely different, being very obvious a tendency to migrate to the digital environment, perceived as an alternative solution in supporting pandemic activities; thus, it was possible to draw an important segment of companies adopting digitalization solutions, as support in the continuation of activities (89.24%); the main common problem reported by companies was the one related to financial resources, debts and the need to reschedule them (38.22%); almost to the same extent, solutions directly connected with their digital transformation were adopted: Migration to online activity/online sales (35.17%), Partnerships with online distribution platforms/systems (31.56%) and intensifying online promotion (30.46%); As a result of the solutions adopted for the transformation and reconfiguration of the activities imposed by the pandemic, as well as the efforts to adapt to the digital business environment in crisis conditions, most companies perceived the efficiency of digitization as high (over 70%).

Regarding the barriers and problems encountered in the digital transformation effort, there was a well-known and common problem of Romanian companies, namely insufficient knowledge, adoption and implementation of data-based management, along with solutions/decision support systems and businesses intelligence, which are extremely useful and can generate obvious differentiation and competitive advantages.

The results obtained, however, must be considered starting from aspects related to the correct and complete understanding of the digital transformation, which does not only imply the existence of a support, of a technological infrastructure, but is a whole set of specific elements; from this perspective, for a digitalized SME model a set of such elements was identified, including: “a new business model, organizational culture based on data-driven, personalization of products and services according to consumer experiences, job creation flexible and creative, B2C and C2B interactions” (Klein and Todesco, 2021, pp:127).

In the effort to exploit the digital environment efficiently, companies must also provide qualified personnel with adequate technological / digital skills; it is also necessary to know and consider the online software solutions / platforms dedicated to supporting the online activities of companies; virtualization and cloud computing services and solutions, in their multiple open-source or free subscription versions, can also be considered as a step towards the digital transformation of companies.

Considering the realities of the period we are going through, it is not at all difficult to perceive the need for digital transformation and not only as an alternative in case of a global crisis, but as a new model of human activities in all its perspectives.

The results of the study may also lead to the identification of an improper preparation and insufficiently adequate to move from the pre-pandemic model to a global post-pandemic model, increasingly extended to the digital environment and integrated into it; in this sense, several partners can be identified who can contribute and support a more intense development of companies'

competencies in their digital transformation; we can thus refer to companies in the IT industry and the development of software solutions for business, which can increase their visibility and become more open in promoting solutions dedicated to SMEs, then, human resource development companies, which can provide training services for digital qualification / requalification of staff for companies and last but not least for adequate and sustained government programs.

LIMITATIONS

The study may present some limitations related primarily to the insufficient representativeness of the studied population; we consider, however, that the results can be a basis for supporting other studies in the same field, with more complex and multivariable approaches, but also for conducting comparative studies for other countries or areas of the world.

BIBLIOGRAPHY

1. Adr, (2021), http://www.adrcentru.ro/wp-content/uploads/2020/11/sme_definition_user_guide_ro.pdf, accessed in June 2021
2. Akpan, et al., (2020), Akpan Ikpe Justice, Elijah Abasifreke Paul Udoh & Bamidele Adebisi, *Small business awareness and adoption of state-of-the-art technologies in emerging and developing markets, and lessons from the COVID-19 pandemic*, Journal of Small Business & Entrepreneurship, 2020, pp:13, <https://www.tandfonline.com/doi/full/10.1080/08276331.2020.1820185>, <https://doi.org/10.1080/08276331.2020.1820185>
3. Aziz and Mukhtar, (2021), Aziz Nik Nur Aishah Nik Abdul and Dzulkifli Mukhtar, *Entrepreneurial survivability during pandemic among micro-entrepreneurs*, Society 5.0 Volume II, Proceedings of the First International Conference on Society 5.0, 2021, p:215, https://www.researchgate.net/profile/Nusrat-Hafiz/publication/352981912_Prospective_Synergy_Between_Bangladeshi_SMEs_and_Smart_City_Through_the_Lens_of_Society_50_Proceedings_of_the_First_International_Conference_on_Society_50_Virtual_Forum_22nd_to_24th_June_2021/links/60e1e86b92851ca944a79cb5/Prospective-Synergy-Between-Bangladeshi-SMEs-and-Smart-City-Through-the-Lens-of-Society-50-Proceedings-of-the-First-International-Conference-on-Society-50-Virtual-Forum-22nd-to-24th-June-2021.pdf#page=223
4. Ciurea et al., (2021), Jeanina Ciurea, Loredana Dinu, Gabriel Dinu, *The Influence of Digitalisation on SMEs*, "Ovidius" University Annals, Economic Sciences Series, Volume XXI, Issue 1 /2021, pp:491, <https://stec.univ-ovidius.ro/html/anale/RO/2021/Section%204/7.pdf>
5. DEAC, (2021), <https://www.deac.eu/news/blog/digital-business-transformation-during-and-after-the-pandemic/en/> accessed in September 2021
6. EC, (2021), <https://ec.europa.eu/docsroom/documents/46088>, accessed in July 2021
7. Europarl, (2021), <https://www.europarl.europa.eu/factsheets/ro/sheet/63/intreprinderile-mici-si-mijlocii>, accessed in June 2021
8. Guo et al., (2020), Guo Hai, Zhuen Yang, Ran Huang and Anqi Guo, *The digitalization and public crisis responses of small and medium enterprises: Implications from a COVID-19 survey*, Frontiers of Business Research in China (2020) 14:19, <https://doi.org/10.1186/s11782-020-00087-1>, pp:19, <https://fbr.springeropen.com/track/pdf/10.1186/s11782-020-00087-1.pdf>, <https://fbr.springeropen.com/articles/10.1186/s11782-020-00087-1>
9. Kala'lembang, (2021), Kala'lembang Adriani, *Digitalization In Increasing Smes Productivityin The Post Covid-19 Pandemic Period* , Management and

- entrepreneurship: trends of development, 2(16), 2021 ,pp:107, <https://management-journal.org.ua/index.php/journal/article/view/295/167>
10. Klein and Todesco, (2021), Klein VB, Todesco JL. *COVID-19 crisis and SMEs responses: The role of digital transformation*. Knowl Process Manag. 2021;28:117–133. <https://doi.org/10.1002/kpm.1660>, pp:127, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8206955/pdf/KPM-28-117.pdf>
 11. Microsoft, (2021), <https://news.microsoft.com/en-sg/2020/10/22/over-80-of-singapore-smes-embrace-digital-transformation-more-than-half-report-slowdowns-due-to-covid-19-asme-microsoft-study-2020/>, accessed in March 2021
 12. Papagiannidis et al., (2020), Papagiannidis Savvas, Harris Jonathan, Morton David, *WHO led the digital transformation of your company? A reflection of IT related challenges during the pandemic*, International Journal of Information Management Volume, 55, December 2020, 102166, pp: 1-5; <https://doi.org/10.1016/j.ijinfomgt.2020.102166>, <https://www.sciencedirect.com/science/article/abs/pii/S0268401220309129?via%3Dihub>
 13. Paypal, (2021), https://publicpolicy.paypal-corp.com/sites/default/files/2021-09/EU_C19_SME_Research_Paper.pdf, accessed in June 2021
 14. Piller, (2020), Piller, Frank T., *Ten Propositions on the Future of Digital Business Models for Industry 4.0 in the Post-Corona Economy* (May 29, 2020), pp:1-3, Available at SSRN: <https://ssrn.com/abstract=3617816>, <http://dx.doi.org/10.2139/ssrn.3617816>, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3617816
 15. Pryyono et al., (2020), Priyono Anjar, Abdul Moin and Vera Nur Aini Oktaviani Putri, *Identifying Digital Transformation Paths in the Business Model of SMEs during the COVID-19 Pandemic*, J. Open Innov. Technol. Mark. Complex. 2020, 6(4), 104; pp:16-17; <https://doi.org/10.3390/joitmc6040104>, <https://www.mdpi.com/2199-8531/6/4/104>
 16. Rahul De et al., (2020), Rahul De, , Neena Pandey , Abhipsa Pal, *Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice*, International Journal of Information Management Volume 55, December 2020, 102171, pp: 2-4, <https://www.sciencedirect.com/science/article/abs/pii/S0268401220309622?via%3Dihub> , <https://doi.org/10.1016/j.ijinfomgt.2020.102171>
 17. Sinyuk et al., (2021), Sinyuk Tatiana, Elena Panfilova and Ruzanna Pogosyan, *Digital transformation of SME business models as a factor of sustainable socio-economic development*, E3S Web of Conferences 295, 01028 (2021) WFSDI 2021, pp:8, <https://doi.org/10.1051/e3sconf/202129501028>, https://www.e3s-conferences.org/articles/e3sconf/pdf/2021/71/e3sconf_wfsdi2021_01028.pdf
 18. Tan, (2021), Tan Soo Kee, *Global Pandemic, Technology Booms And New Business Trends: The case Of Japan*, International Journal of East Asian Studies, Vol. 10, No. 1, 2021, pp. 120-140. doi.org/10.22452/IJEAS, vol 10, no 1.7, pp:137, <https://ejournal.um.edu.my/index.php/IJEAS/article/view/29442/12969>
 19. Yahoo, (2021), <https://news.yahoo.com/why-millions-people-started-business-171615974.html>, accessed in September 2021
 20. ZF, (2021), <https://www.zf.ro/supliment-zf-imm-2021/radiografia-imm-urilor-din-romania-cate-au-aparut-si-cate-au-20106569>, accessed in June 2021