

# Transformations in the Recruiting Services and Digitalization

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**Abstract.** The article discusses a scope of relevant issues concerning recruitment market; in particular, its analysis in the conditions of digitalization. It assesses the companies' strategies of the economic behavior and defines their priority development strategies while focusing on the outcome of each applied strategy. The study determines the role of the employee in the digital economy and the role of the recruiting services in the service industry. Its main objective is to review and study the digital processes inherent to the recruitment industry as well as the tendencies in the recruitment market and to outline the principles of work and organization of recruitment agencies. The theoretical background of the study is based on the related publications by Russian and foreign researchers dedicated to a wide range of issues; the ones subject to analysis include development of Russia's recruitment market in retrospect, current condition of the recruitment market, pros and cons of artificial intelligence technologies used in the field and prospects of gaining profit from using both artificial intelligence technologies and regular employees in the key areas of HR agencies' work (staffing, training, job simulation). Much attention is paid to the distance work performed by HR agencies, specifically, to b-2-b and b-2-c concepts as well as to the digital platforms providing for the performance of such activities. Additionally, the research deals with the complexities and bottlenecks that recruitment agencies face with when working with the digital environment; it provides examples of the transformation processes that have been observed in the principles of the HR technologies application due to the digitalization effects and elicits the omnipresence of the digital environment in all the branches of the recruiting services while suggesting efficient tools, platforms and patterns that can be workable in the industry.

## 1 Introduction

The last decades have been marked by global transformations in all the major aspects of human life reaching far beyond the boundaries of economic activity and affecting social, cultural and political processes. Modern tendencies indicate permeation and merging of the western and eastern socio-cultural values and their transformation into an integrated socio-cultural system constituted by the western, eastern, northern and southern elements and functioning as one of the formal drivers of the socio-cultural transformation.

Informatization of the world appears to be one of the powerful factors of socio-cultural globalization and is directly connected with integration of the Internet into production

processes and private life, automation development and robotization of the industries, which, therefore, leads to changes in the responsibilities of the employees, managers of different levels and in human resource management, in particular. Due to the fact that such environment shapes new requirements to the employees and their functions, it is important to elaborate an adequate system of human resource management capable of meeting the present-day challenges.

The rationalization of the role that the employees played in the production process evolved alongside with the transformation of the industrial paradigm and global development processes in the 20th century. Today, socio-cultural globalization makes international companies focus not only on the professional skills of their employees, but on their soft skills – credentials, health, cultural background, mindset, creativity and cross-cultural management skills. The transformation of the conceptual framework of the human resource management continues and is defined by the past experience, R&D and technological progress and global challenges [1; 2].

Adoption of the digital economy is bound to affect to a great extent all the traditional functions of business management and, first of all, this concerns human resource management. However, this industry faces a number of challenges that have to be overcome while implementing innovations and changing the strategies and modes of activities. Modern studies suggest that there is a considerable gap between the companies actively engaged in the implementation of the technologies and resources targeting development of the HR processes and the companies with the wait-and-see attitude [3].

Such passive observation results in lower competitive ability as the companies miss on the opportunity to invest into their own human capital and thus, in the short term, risk to lose access to the workforce with unique qualities and characteristics which, in fact, remains one of the key survival and success factors on the market.

Due to robotization and automation, the labor market acquires certain volatility, which, on the one hand, is a threat in terms of difficulties with human capital accumulation and, on the other hand, is an opportunity for unlocking the full potential of the human resources which experiences slowdown and goes out of date without advanced HR technologies [4; 5].

Strategic management of the company requires setting and solving the relevant goals and tasks, starting and managing new business processes, accumulating human resources that meet the new economic challenges and, thus, calls for the use of updated HR technologies. Nonetheless, the employees are viewed as a key strategic organizational resource [6].

Defining the transformation trajectories in the HR management system is decisive for the efficient performance of a company and its adaptation to the external environment.

Improvements in the area of business services is one of the key tasks of the modern economy as the growth in the number of businesses and professionals involved in the service segment facilitates development of all sectors of national economy as well as development of small businesses [7].

Recruiting services are one of the key dynamically developing subindustries of the service segment since literally each active company has employees and, basically, recruiting services are the services of searching and screening the employees provided by employment agencies.

The recruitment market is a comparatively new and young service segment in the Russian market; nevertheless, it shows active development and good prospects for the future.

Services for business have acquired special importance, which is confirmed by the high demand for the service of employment companies; however, the customers of such companies often complain of the poor quality of the provided service. The latter is

explained by the nonavailability of the occupational standards that would regulate recruiting services and proper licensing of such activities as well as by the employee turnover in the employment agencies and recruitment consultants lacking expertise. To a certain extent, solving a number of these problems may have a positive effect not only for the service market, but for the national economy in general.

The relevance of the topic is explained by the urgent need to elaborate the workable operating process for rendering recruiting services which by itself makes a separate field of scientific research solicited by many professional recruitment companies.

The analysis of the methods applied in the recruitment and their efficiency showed that the traditional methods are workable but much more time consuming and have smaller output in comparison with the up-to-date methods geared by digital opportunities. Unfortunately, many companies and recruitment agencies remain unaware of the modern developments and technologies that could be widely used for staffing and, hence, lose time and, possibly, the best workers.

As of today, the topic of digital opportunities in the field of HR management has not been explored thoroughly whereas we maintain the idea that it might open up a new stage in the study of the recruitment market. Digital opportunities allow sourcing the best professionals capable of bringing their companies to a new level of development, which is another reason for carrying out a detailed study.

## **2 Materials and Methods**

Many researchers as well as practitioners have been analyzing the recruitment market, studying the variability of the recruiting services and describing the methods of research and analysis applied in the area. For instance, S. Ivanova [8] clarifies that the labor market is, first of all, a market and, thus, is regulated by the laws of the market; the researcher also outlines the key criteria for the market evaluation and approaches to the efficient staffing procedure. In his study, S.A. Kartashov [9] gives account of the recruitment processes carried out by the recruitment agencies and the ways of building adequate relationships between professionals. His analysis of the recruitment agencies' work includes definitions, classification and purport of their activity as well as research of the modern conditions and possible developments in the recruitment business. M.I. Magura [10] dedicated his study to the problem of employee sourcing and selection. The author reviews the principles, conditions and methods used in recruitment. He provides a number of standard documents, forms, questions and other materials that greatly simplify the work of the recruitment agencies. In her article on the types of recruitment, M.A. Orlova [11] enlarges on the connection the recruitment agencies establish with all the segments of business in the country and on the tools that help strengthen a company's position. D. Volodin [12] argues that the traditional recruitment methods are obsolete and should not be applied any longer whereas efficient and prompt search for the candidates requires a joint effort from a whole team of professionals. However, the deficit of human resources getting worse, both theoretical economics and real life economy are in need of complex research dedicated to various aspects of recruiting service development. The foreign authors whose research in the area is of particular interest are N. Nawaz and A. M. Gomes [13], B. Raghavendra [14] and J. Sullivan [15].

Thus, the purpose of the article is to study the developments happening in the recruitment market taking into account the present-day economic conditions and to define the operational and organization processes providing for the efficient performance of the recruitment companies.

### 3 Results and Discussion

The current statistics collected by different job searching resources shows that employers have been offering by 30-50% more job opportunities compared to the previous periods. The demand is expected to grow; in the meantime, the migration of the workforce abroad does not stop. As a result, the recruitment market has been operating in the conditions of the shortage of skilled professionals, which greatly influences its development patterns [16].

The shortage of the skilled professionals is not the only challenge as in the mid-1950s all the industrial countries entered the ongoing phase of business sophistication, globalization, informatization and introduction of high technologies. The increasing role of the human factor for all the market actors appeared to be one of the outcomes of these complex processes.

In Russia, the first recruitment agencies emerged at the beginning of the 1990s as the market relations started to establish. Due to the accelerated development and adoption of various kinds of business forms defined by the historical and socio-economic background, the recruitment market in the Russian Federation acquired a set of specific features.

Table 1 reflects the development of the external recruitment in the Russian market over the period of 20 years. Though professional recruitment agencies in Russia started to appear in the early 1990s, after 25 years the service they have been providing is still not good enough, which negatively affects efficiency and competitive ability of the domestic companies.

In order to find due and efficient solutions to the HR management problems, companies hire professionals who offer expert, process, training and integrated consulting services which include sourcing, screening and selection of the candidates, assessment and certification of the staff, outstaffing, outsourcing, staff leasing, outplacement, HR record management, executive and team coaching, labor market analytics, reports on wages distribution per kinds of economic activity, etc. [17].

**Table 1.** Stages of recruitment market development in Russia.

Stage	Period	Features
Initiation	1991-1997	Underdeveloped infrastructure of the recruitment market; absence of any technological base providing for the work of the recruitment companies.
Formation	1997-1999	Increase in the number of the recruitment companies; change in the attitude and principles of staffing adopted by the domestic companies buying recruitment services.
Crisis	2000-2008	Introduction of the modern technologies; new approaches and methods of recruitment; growing number of recruitment agencies in the service market.
Stabilization	2009-2013	Domination of the agencies that survived the crisis of 2008; increasing competition for the top positions in the market; redistribution in the market, service diversification (outstaffing, outsourcing, leasing, outplacement).
Recession	2014-2016	Decline in the number of recruitment companies and agencies; difficulties in retaining the position in the market, active marketing within professional associations as well as in the social and cultural spheres; development of volunteer movements assisting migrants in finding jobs.
Development	2017-present	Increase in the number of recruitment companies; service diversification and their better quality; growing demand rising prices for recruiting services.

The services mentioned above were soon diversified as the range was added with staff leasing (temporary outsourcing of another company’s staff), outplacement (assistance to laid-off employees in finding new employment), consulting, assessment, certification and training of the employees, HR audit, selection and adaptation of the employees, etc. For instance, staff leasing and temporary employment are the services sought after by advertising and project-oriented companies [18].

Although many studies are dedicated to the mechanism of sourcing and selection in recruitment, its digitalization still leaves enough room for research as mostly the focus remains on the traditional approaches to recruitment only with elements of digitalization.

The progress being a dynamic process, the technological revolution is accelerating while bringing about more developments such as biometrics, nanotechnologies and artificial intelligence whose implementation becomes groundbreaking for many industries. Due to these transformations, the traditional sourcing methods currently available in the recruitment market appear to be inefficient. The digital era calls for new ideas that would shape a new world where everyone makes one whole with their electronic devices.

Thus, the study carried out by Deloitte Professional Services Network focuses on the key trajectories of digital recruitment [19] which are presented in Figure 1.



**Fig. 1.** Key trajectories of digital recruitment.

We might as well have a closer look at these trajectories.

### 3.1 Artificial intelligence and robots

Artificial intelligence is a technology used for completing tasks that require a certain level of intelligence; in other words, this is a tool that has been ‘taught’ to perform ‘intellectual’ processes that earlier only people were capable of doing. The major difference from a software lies in the speed of the calculations of the great bulk of new data due to the advanced performance algorithms.

Integrated software and thought-through responses to the actions and words of the users allow creating a human-like image capable of efficient cooperation with job applicants, new employees on probation or going through the adaptation period, professionals specializing in incentives and compensations in payroll accounting, HR managers and operations managers working on standard reports [18, 19].

This technology provides for greater potential, extra time, reduced expenses and access to more precise data for HR management. Artificial intelligence helps to efficiently automate many services offered by recruitment companies.

Obviously, for the time being this trajectory is considered to be the one with the greatest potential for the recruiting service development. Moreover, robot recruiters have been launched on the global markets and they currently operate in the testing mode. The received data allows us to conclude that this tendency will get further development and in the nearest future recruiter robots will be likely to substitute human recruiters when performing a number of tasks. For instance, robots are capable of interviewing via video or audio communications as they follow concise algorithms, make questions, record the answers and recognize emotions, send messages, e-mails and even invitations [20]. The experts of Deloitte Company estimate that using a robot recruiter may help reduce time and labor input into staffing at least by 10 times [19]. However, we believe that the process has certain downsides as the tendency may result into job loss for many professional recruiters and interviewing done by robot recruiters does not exclude the risk of sourcing employees with a wrong personality type.

The robot that has already been launched on the Russian market is called Vera, it is a product of the Russian startup called Stafory. It should be mentioned that currently the robot has only been entrusted with preliminary interviews and then the candidate is passed over to a professional recruiter in charge of the final decision.

A separate category of robots are chatbots whose purpose is to search for resumes, receive the key information from the candidates (availability of the offers, permits to work, documents, etc.). Such bots can take up administrative work, for example, make appointments. Chatbots are used in almost all the global messengers including Viber, Telegram, WhatsApp, Facebook Messenger and others. Among the well-known robot developers that sell their products on the global market of technologies are Mya, XOR, Wade & Wendy and TalkPush [19; 21].

The use of artificial intelligence in HR management opens up new opportunities and advantages for recruitment companies:

- Reduced expenditures on staffing and prevention of intellectual capital loss should the company fail to select skilled professionals; For instance, automation of the training processes allows to preserve the knowledge and technologies that have been accumulated by the company and prevent any losses caused by staff turnover.
- Greater privacy which is a requirement all HR professional have to meet as they have access to personal data;
- Reduced time input when performing administrative tasks (training arrangement and control, payroll accounting, screening of candidates, competence testing, etc.) which results in lower labor input;
- Greater accuracy in performing HR functions due to the minimization of human errors in managing the processes of screening, selection, training, payroll accounting, etc.
- Tendency to bias neutralization when taking decisions related to employee selection [22].

On the other hand, using artificial intelligence adds to the responsibility a company should undertake and leads to the operational transformation of certain aspects of HR management. To gain the maximum advantage from the high technologies it is necessary to define clear-cut competencies of the recruitment agents and make sure they meet the demand in the market, are differentiated based on the functions, roles and levels, are duly updated and apply to any services offered by the company.

Today there are three major functional areas in human resource management that require a separate set of competencies and responsibilities to complete the tasks which accordingly

can be automated by applying the technology of artificial intelligence or may require the service of professional recruiters, such tasks being recruitment, career development, training and professional development (Table 2) [23].

**Table 2.** Transformation of the recruiting services in the digital era.

Service	Competencies and responsibilities	
	Artificial intelligence	Recruiter
Recruitment	Processing large volumes of data on the candidates' knowledge, skills, competencies and personal characteristics; collection and analysis of the data from different digital sources; preliminary screening of the candidates, resume analysis.	Making a job offer, defining professional and personal requirements for the candidates; outlining the core values the candidates have to meet; taking the final decision about employment.
Career development	Following the history of career development, analysis of career progression opportunities, evaluation of the employees' productivity and professional behavior, making a program for competency gap reduction.	Professional coaching, defining the best career trajectories, implementation of the mentoring system in the organizations, building career plans and career requirements lists.
Training and professional development	Achieving efficiency in transmitting, tracking and evaluation of the corporate training results; individual approach to training with focus on individual characteristics of the employees.	Development and implementation of corporate training, development of instructional design and training program budgeting, taking decisions about the most appropriate approach/system to be applied.

### 3.2 Automation of processes

The digital era offers much opportunity for recruitment. In particular, this concerns opportunity for interviews via audio and video conferences and distance testing. This is advantageous for the recruiters and the candidates, first of all, in terms of time input. Moreover, automation allows sourcing and screening the candidates all around the world and gains more popularity as distance employment is getting more widespread due to COVID-19 pandemic. Thus, interviews are often held online in Telegram, Viber, WhatsApp, Skype, Zoom and other platforms.

ATS- and ERP-systems make a separate category of automation tools. They can work either as an integrated system or independently. ERP-system is used to for resource planning. In HR management this system can facilitate efficient screening and record of the candidates evading possible obstacles (e.g. in financing) due to planning. Often ATS makes a part of ERP. ATS (an applicant tracking system) is a software which allows solving the major recruitment tasks in the electronic mode. ATS is similar to CRM (candidate management relationship system), but its main purpose is recruitment [24]. As a rule, such system carries out the screening procedure on its own based on the set-up parameters, i.e. keywords, skills, former employers, training, residence, etc.

### 3.3 Aggregation and uberization

Resume aggregators put into a database all the candidates who post their resumes on job search engines and those who have profiles in social networks [25]. A good example of such an aggregator is Indeed.com. Other popular services are Go Recruit and Amazing Hiring. Uberization is an Uber-like model of collaborative engagement between the recruitment agencies and the employers when employers post job offers and recruiters send in offers of their service. Among such services are HRspace (HeadHunter Service) and Jungle Jobs.

### 3.4 Social networking

Social networking helps recruiters find young, creative and skilled professionals (even if they are not looking for job opportunities). Statistics shows that 59% of youth look for jobs in Telegram and other social networks [26;27]. Looking through accounts on social networks gives more information on the candidates' lifestyle, hobbies, preferences, etc. Moreover, social recruiting allows finding the right candidates at a lower cost as creating an account on social networks is free of charge. The most searched social networks are Facebook, Instagram, Twitter and LinkedIn; the others which are less popular in Russia are Tinder and Snapchat (e.g., Amazon posts job offers on Tinder and McDonald's uses Snapchat).

It is relevant to outline a number of effective social recruiting tools that contribute to the growth of human capacity:

- posting job offers on behalf of an active recruiter on linkedin.com will generate references and feedback from the target candidates (the number of the applicants may be small, but sourcing even one worthy candidate can be enough to fill the job position);
- sending short, easy-going, but concise texts to the candidates, which will allow to get feedbacks by a ratio of 1 to 50 and will be much more time saving in comparison with written processing of each application;
- using targeted advertising on Facebook (it is recommended to outline the target audience and create job offer infographics which Facebook will automatically display for people who meet the set parameters – age, sex, job, city, etc.). This can help receive feedback from the target candidates.
- organizing contests and promotional events on Facebook in order to stimulate active participation of the potential candidates and extend contact database of the target audience;
- starting a Telegram channel dedicated to job offers. This tool would require extra funding for its advertising campaign in social networks and mail advertising. The important aspect would be careful planning of job information channeling to avoid information overload and unsubscribing.

Using the above recruiting tools, it is recommendable to follow certain rules, which will ensure success in the area: the profile in social networks must be concise, clear and informative; recruiting strategy has to be planned in advance and regular analysis should be executed; the contact bases shall be extended and communication with the target audience shall be uninterrupted; the content has to vary and a whole range of social network features and functions shall be used whereas content variety has to be kept within certain established boundaries.

Social recruiting has great potential; nevertheless, many recruitment companies use it sporadically instead of working out an effective strategy and organizing competencies training for their staff.



These days, companies do their best to attract young professionals and coordinate their competencies with the companies' needs. Undoubtedly, skills and experience play a decisive role in the employment. However, cultural compliance is as important for the majority of employers. And this is where recruiting in social media makes a difference as it allows to identify cultural and social background and preferences of the candidates [28].

### 3.5. Alternative approaches to recruitment

Alternative approaches to recruitment have been gaining attention recently, among them are free seminars, charity events, trainings and games (either offline or online), thematic meetings, virtual labor and professional unions, forums and conferences [29; 30]. Such approaches make the communication process with the candidates more customized and enjoyable for the candidates

### 3.6 HR analytics

Integrated and cognitive analytics reduces time and labor input of the recruiter as it is convenient to upload reports in real time, and developing an analytic application allows applying HR analytics with account for a certain region whereas analytical models are developed for the purpose of forecasting (Oracle, ADP, Workday, Vltimate, Saba, Skillsoft, Success factors) [19; 22].

In order to successfully implement new HR technologies in the modern conditions, the first thing to be done is to evaluate the level of the company's technological development, relevance of their implementation, their cost in the production and managerial processes, level of digitalization and digital skills of the employees. Over time, HR management indicators start to change and the employees become consciously involved into the target activities and managerial processes [28].

Table 3 presents traditional patterns in HR technologies and the same patterns subject to transformation due to the digitalization processes in the economy developed by the authors.

**Table 3.** Transformations in the patterns of HR technologies in the conditions of digitalization.

<b>Traditional patterns</b>	<b>Patterns in the conditions of digitalization</b>
Focus on the process	Focus on the employees, their involvement and productivity
Temporary cloud solutions	Complex information framework
HR-programs are elaborated based on the linear structure of the company	HR-programs are elaborated separately per each category of employees
HR managers are involved into all HR processes	Some processes are automated due to high-tech solutions and can be used singlehandedly
Formation and use of databases	Formation and use of dynamic databases

## 4 Conclusions

Today, HR management is facing a few great challenges mostly related to technological developments and digitalization of the economy and global community. Advanced technologies do not only embrace the organizational and business processes, but all the entrepreneurial activities. Despite this fact, innovative strategies of business development shall take into consideration the new realities of digital recruitment which involve use of

integrated mobile applications, social networks, analytics and cloud technologies and technologies of augmented reality.

Thus, there emerge methods of online recruitment, HR service automation, quality tracking and estimation, online training, development and career progression, productivity management with elements of gamification, automated measurement of involvement and its regulation, effective feedback organization, etc. The above methods allow effective use and distribution of resources and taking more well-balanced decisions and, thus, further reduction of costs. Overlooking this opportunity for transformation will result in lower competitive ability and loss of access to the human resources with unique personal and professional characteristics as well as slowdown in the process of human resource management and lead to a negative impact on staff involvement and motivation. On the other hand, the transformation of the HR technologies will ensure upgrade and extension of HR specialists' competencies and facilitate cross-functionality as the users will have to be in the know of a wide range of technical specifications whereas a certain part of the functions will gradually become automated.

Consequently, despite the economic crisis, recruiting services are in great demand. Efficient sourcing of professionals will largely define the work of a company or organization; this concerns highly skilled professionals and experienced managers in particular. The best solution would be efficiently organized recruiting services and skilled recruiters aware of the modern environment and tendencies in business.

Scientific novelty of the research is that the proposed periodization of the stages of development of the recruitment market in Russia makes it possible to trace the patterns of its formation and further directions of development. In addition, we can conclude that currently the recruitment market is approaching a qualitatively new stage in its development. At the same time, many market participants may not be ready to work in the new conditions, which will provide an even greater advantage to players who are already actively using the latest technologies.

In this case, it is reasonable to make use of the highly effective technologies in recruitment which include technologies of screening the candidates, the latest advancement in the approaches to interviewing and studying the bulk data on the candidates. These tools will definitely contribute to greater quality of the service, better expertise of the HR managers, diversification of the services and, hence, to the efficient performance and development of the segment.

Further research in the field may cover the issues of coordination mechanisms regulating the information traffic between the participants of the recruiting process and the mechanism of recruitment regulation. Besides, elaborating the instruments of complex research of the recruitment market is another area of scientific interest.

Digitalization is bringing us closer to a new format of doing business in the recruitment market. Evidently, the transition will happen at a much slower pace than in Western Europe or the USA as innovations require investments which are hardly affordable for many domestic businesses. This is also one of the reasons why the most commonly applied tools in the domestic recruitment market are social networking, job search engines and, to a certain extent, HR analytics.

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