MANAGEMENT OF REMOTE STAFF SELECTION PROCESSES BY USING SMART HR RECRUITING TECHNOLOGY DURING COVID-19 PANDEMIC

Vedernikov M., Bazaliyska N., Zelena M., Volianska-Savchuk L., Boiko J.*

Abstract: Theoretical generalization is carried out in this paper, and the digital transformation of remote staff selection processes is developed through Smart HR Recruiting technology. The work aims to develop modern methods of remote personnel selection in the context of COVID-19 pandemic. The research methodology is based on forming a program of measures to improve the HR recruitment model based on Smart recruiting, considering the trending areas of digital recruiting. As a result of the study, an assessment was made of the effectiveness of remote recruitment in the Smart HR Recruiting process. The economic effect of recruiting processes according to the Smart HR-Recruiting method has been confirmed.

Key words: Smart HR, recruiting, management, digitalization, COVID-19.

Introduction

The pandemic COVID-19 created the unprecedented challenges of dynamic development for enterprises, when the trend of increasing demand for skilled labor comes to the fore, because the best workers must work for maximum profit in the enterprise (Sun et al., 2022; Simionescu et al., 2021; Vasilyeva et al., 2021; Kravchenko et al., 2021; Srinok and Zandi, 2021; Halmai, 2022; Baryhnikova et al. 2021; Corejova et al. 2022; Kot, 2022).

Indeed, in recent years, employers have seen staff as the most valuable resource and preferred direction of investment. That is why the stage of remote selection of

---

* **Mykhailo Vedernikov**, Prof., PhD., Khmelnytskyi National University, Department of Personnel Management and Labor Economics; ✉ e-mail: vedernikovmd@khmnu.edu.ua
ORCID: 0000-0002-9850-3575

Natalia Bazaliyska, PhD., Khmelnytskyi National University, Department of Personnel Management and Labor Economics; ✉ e-mail: bazaliiskaNa@khmnu.edu.ua
ORCID: 0000-0001-5230-1727

Mariya Zelena, PhD., Khmelnytskyi National University, Department of Personnel Management and Labor Economics; ✉ corresponding author: zelenama@khmnu.edu.ua,
ORCID: 0000-0002-9969-2427

Lesia Volianska-Savchuk, Khmelnytskyi National University, Department of Personnel Management and Labor Economics; ✉ e-mail: volianskalv@khmnu.edu.ua
ORCID: 0000-0002-4043-9312

Juliy Boiko, Prof., Khmelnytskyi National University, Scientific and Research Department; ✉ e-mail: boykoym@khmnu.edu.ua
ORCID: 0000-0003-0603-7827

employees under the current challenges of the remote digital environment is extremely important and responsible (Becker et al., 2022; Carnevale et al., 2020; Wei et al., 2021).

At the same time, it is sometimes very difficult to find a qualified specialist with the appropriate competencies so quickly, so you need to be able to use modern tools creatively, techniques and procedures, including Smart HR-Recruiting (Boiko et al., 2021; Makieła et al., 2022).

Today, the topic of digital and smart opportunities in the field of staff recruitment is not sufficiently researched in the world. Therefore, in our opinion, the disclosure of this topic is the opening of a new stage of digital transformation of remote recruitment processes. Thanks to the digitalization of the processes of staff engagement, you can find the best teachers, who will build a progressive country.

Research of technologies of staff search and selection, improvement of recruiting services is devoted to a lot of scientific works both in the world (Zeuch, 2016; Lochner et al., 2021; Malik et al., 2018).

Despite the large number of works, that reveal various aspects of search and recruitment technologies and explore recruitment issues, the introduction of digital transformation of remote recruitment processes through Smart HR Recruiting technology remains unexplored, because usually the attention is focused on already standard methods of recruiting staff (Makushkin et al., 2021; Vardarlıer et al., 2016; Hewett et al., 2021). An improved technique of management of staff processes remote selection is presented on the basis of latent factors determination of staff professional competence, using the method of factor analysis and modern package of statistical information processing «STATISTICA».

Literature Review

By analyzing and comparing existing approaches to staff management and their effectiveness (Troger, 2021), we can conclude, that standard methods, of course, work, but take much longer and have lower effectiveness, than modern methods used in digital capabilities. The 21st century is an era of active development of digital technologies and communication technologies. The Internet, the field of IT is characterized mainly by digitalization and automation of all processes, that can be automated (Khalatur et al., 2022; Parkhomey et al., 2020; Erdei et al., 2022; Cioca et al., 2011). Many scientists and publicists characterize concept «digital economy» in different ways: some call it a new economy, others Internet economy (Viriyasitavat et al., 2019).

Digital HR is not only the automation and digitization of traditional HR functions, but also the modernization of these functions, based on new digital business, thinking with a focus on people and efficiency in Table 1.

2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

Table 1. Digital function transformation of HR using digital technologies

HR functions	Digital-technologies
Strategic and staff planning, HR branding	HR-brand platform; HR analytics, predictive HR analytics; HR BigData.
Recruitment and selection of staff, staff marketing, staff adaptation	Smart HR Recruiting; ATS; social recruitment; blockchain; chatbots; artificial intelligence; video interview (VCV).
Talent management, corporate culture	TMS, LMS; Machine Learning; gamify-cation; virtual classes; mobile training; drones.
Individual performance management, staff employment	DW; PM; platforms for working with remote employees, employees with part-time employment and freelancers.
Staff Management	HRM (human resources management); SAP ERP HCM; HR analytics, HR Big Data;

Source: Own compilation

And, if recruiters cannot adapt their methods of search and selection of candidates to the conditions of the modern world. It will be difficult for them to find really good employees (d'Armagnac et al., 2021; Stverkova et al. 2018). Moreover, it is also simply impossible to retain and attract the best employees without using digital innovations (Dan et al., 2021). Consider and describe the main factors influencing the efficiency of Smart HR Recruiting taking into account of digital innovations (Figure 1).
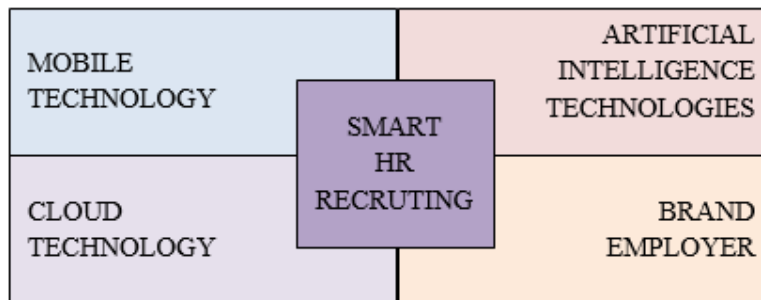

Figure 1: Digital technologies of digitalization of staff engagement processes
Source: Own compilation

Obviously, every year, humanity is increasingly using its smartphones, and with the help of a variety of applications, it easily solves everyday tasks. The simplest confirmation can be, in particular, the «Action» application, which allows you to easily and quickly receive mobile services. The same applies to hiring processes, because a modern candidate for a vacant workplace prefers to make the search process first of all quick and convenient for himself (Gonzalez et al., 2022; Vedernikov et al., 2020). For example, robots can conduct interviews using video or

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

2022
Vol.26 No.1

audio communication, they have a conversation with a well-built algorithm, ask questions, record answers and recognize emotions during the interview (Fettke et al., 2022). They can search for a resume, receive important information from the candidate (Smutny et al., 2020). For the last year, employees of recruiting agencies began to practice online interviews through Skype, Viber, Zoom much more often; evaluation of candidates in online mode Figure 2.
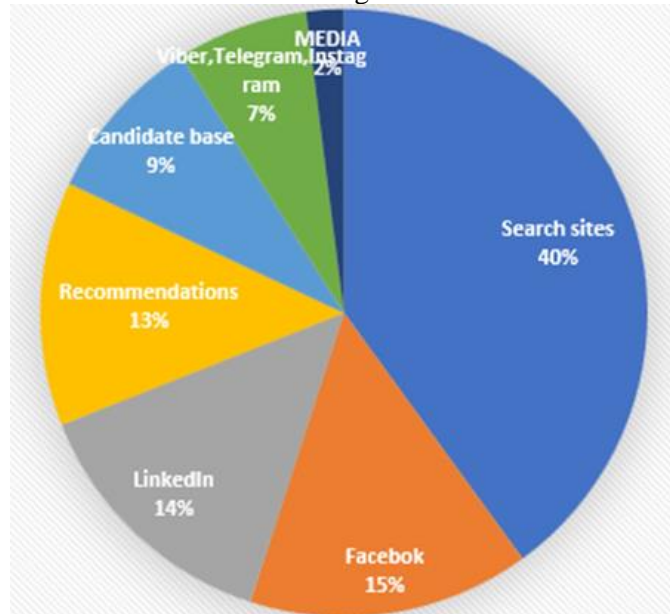
Figure 2: Digitalization of staff search in 2022 through COVID-19
Source: Own compilation

In order to introduce the process of Smart recruitment, staff is offered to optimize work in the field of recruitment through internal outsourcing. It is advisable to create a separate recruiting structure, which will deal with the process of staff recruiting at the enterprise and adapting staff at the enterprise (Pana and Yue, 2022). The functions of Smart Recruiting staff as a modern HR hiring tool are presented at Figure 3 (Boiko et al., 2021).
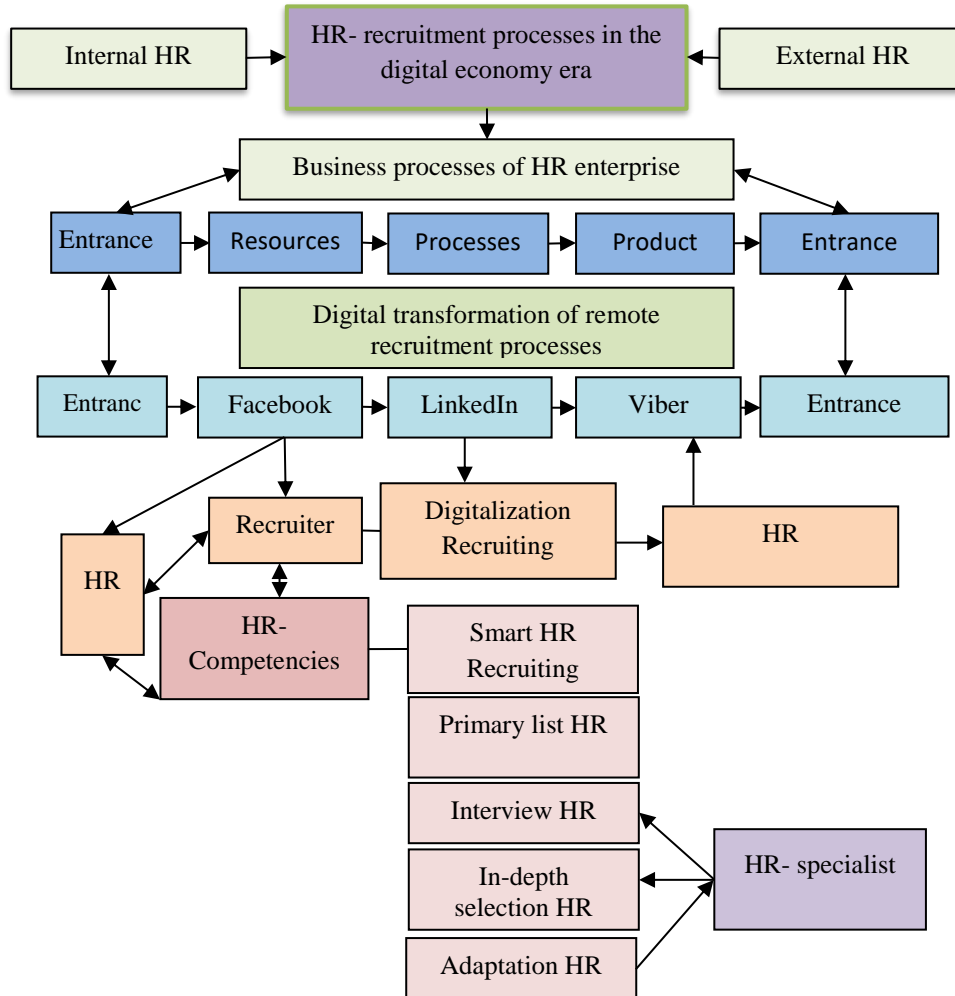

Figure 3: HR hiring model, based on Smart-recruiting in the system of business economy of industrial enterprise
Source: Own compilation

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

2022
Vol.26 No.1

Most large global companies use software for recruiting. For example, chatbots, as well as various applications for recording working time or analyzing staff performance. Smart HR Recruiting tools are listed in Table 2.

Table 2. Smart HR recruiting tools in the digital economy era

Tools	Characteristics
Flash Recruiting	In this technology, the vacancy is perceived as a product that needs to be sold. And, accordingly, the applicant and the recruiter pass the stages themselves, as well as the buyer with the seller.
Social Recruiting	Recruiting has moved to online. Applicants are through web communities, social networks and posts in them. Many work sites make it possible to link to your resume links to pages in social networks. And Skype interviews save time and HR, and candidate.
Chatbots	This tool allows you to automate a certain stage of recruiting. According to certain criteria, the candidates are eliminated at the first stage, offered to pass the test, answer questions about the vacancy.

Source: Own compilation

The recruitment now traces such main trends of HR-automation Head Hunter (Table 3). Social networks have ceased to be part of the candidate's leisure.

Table 3. Main trends of HR Head Hunter automation

Types of HR-Head Hunter	Characteristics
Social Recruiting	84% of recruiters use social networks, ATS systems have a function to find candidates through social networks
Recruitment Marketing	It is the driver of automation of recruitment, as in this area the most developed new solutions. Tools begin to be actively used in HR
Referral programs	Allow you to automate the process of providing recommendations by employees with the help of special systems where you can bonus those employees who have led to you candidates.
Mobile Device Orientation	45% of Head Hunter applicants use an app or mobile version of the site and have never opened a desktop version.
Artificial Intelligence	Allows you to get ahead of competitors in attracting and selecting candidates, and what previously took several weeks can be done in one day.
Uberization of recruitment	There are freelance recruiters who allow companies to contact specialists in one click, and the latter - just look for customers.

Source: Own compilation

This was due to the entry into the market of Generation Z, which actively uses for job search channels such as Twitter, Instagram, partly Facebook. For the generation of millennials are relevant Facebook and LinkedIn.

Research Methodology

Depending on the groups of users of the software to post job announcements during the global pandemic COVID-19 in our opinion, the following groups of JBS stakeholders can be allocated (Figure 4).
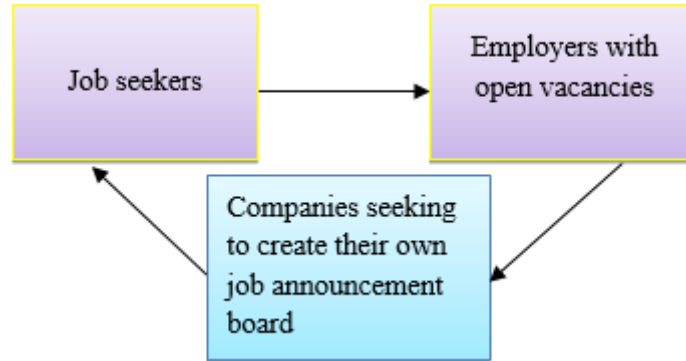

Figure 4: Digital Stakeholders Smart HR Recruiting Technology
Source: Own compilation

The rapid increase in the use of JBS has occurred in recent years due to strict restrictions, social distancing and increased involvement of staff working at home (Lal et al., 2021). The key role in the successful implementation of innovative technology of Smart HR Recruiting is played by determining key competencies of staff for further employment Table 4 (Voynarenko et al., 2020).

Table 4. Load characteristics of functional competence of staff in the process of remote selection through Smart HR Recruiting technology

Factors	DX, %	Code	Load	The content of the indicator
Factor 1	58.6	ZM4	-0.87	Knowledge on the peculiarities of motivation of different staff categories
		UP4	0.93	Some skills to bring plans to performers
		UM1	-0,93	Skills for effective using of motivation forms and methods
Factor 2	26.6	ZP3	0.81	Knowledge on the essence of the strategic planning process
		ZO3	0.92	Knowledge on informing
		UK3	0.86	Skills to identify problems and develop measures to solve them in the process of performing tasks
Factor 3	13.0	UP1	0.86	Skills and skills for delegating duties and powers
		UO3	0.82	Skills for debugging feedback

Source: Own compilation

Regarding the indicators of the functional component of competence, the company has identified 3 factors, that have the corresponding percentage of dispersion 58.6; 26.6; 13.0 (Table 5).

There is also the question of choosing the criteria by which the head should draw conclusions about the need for remote selection of staff according to certain competences Table 6 and Table 7 (d'Armagnac et al., 2021).

Table 5. Load characteristics of staff competence indicators in the process of remote selection through Smart HR Recruiting technology

Factors	DX, %,	Index code	Load	The content of the indicator
Factor 1	43.3	PT4	0.89	Willingness to help others, sensitivity, attentiveness
		V2	0.86	Perseverance in Demanding
		IV7	0.88	Emotional form of influence
		KKJ1	0.83	Knowledge that professional abilities and opportunities are at a high level
		EKJ2	0.87	Feeling of achieving your professional maturity
Factor 2	13.3	M10	0.86	Practically active form of influence
		IV6	-0.87	The desire to be creative, open to new ideas, to engage in creative activities

Source: Own compilation

The set of features for remote selection of staff by certain competencies should be somewhat different. Each feature of business qualities has four levels of manifestation and is rated in points: low - 1; average - 2; higher than average - 3; high - 4.

Table 6. Evaluation of features that characterize the business qualities of specialists' competence in the process of remote selection through Smart HR Recruiting technology

Tag	Share	Assessment of signs levels, points			
Competence	0.27	0.27	0.54	0.81	1.08
Ability to clearly plan work	0.14	0.14	0.28	0.42	0.56
Responsibility for the assigned case	0.15	0.15	0.30	0.45	0.60
Independence and initiative	0.13	0.13	0.26	0.39	0.52
Ability to master new directions	0.13	0.13	0.26	0.39	0.52
Performance	0.14	0.14	0.28	0.42	0.56
Communication skills	0.11	0.11	0.22	0.33	0.44

Source: Own compilation

The results of ranking the factors of development of managers' managerial competence by functional and personal components at the investigated enterprises are given in Table 8-9.

2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

Using the ranking method requires determining the concordance of experts' opinions on selected reserves, that is, the calculation of the concordance coefficient (W). It is calculated by the formula (Vedernikov et al., 2020):

$$W = \frac{12S}{m^2(n^3-n)} \qquad (1)$$

where S is the sum of squares of the sum deviations of ranks from the average sum of ranks; m is the number of experts; n is the number of assessed qualities.

Table 7. Evaluation of features that characterize the business qualities of managers' competence in the process of remote selection through Smart HR Recruiting

Tag	Share	Assessment of signs levels, points			
Competence	0.19	0.19	0.38	0.57	0.76
Ability to clearly plan work	0.13	0.13	0.26	0.39	0.52
Responsibility for the assigned case	0.14	0.14	0.28	0.42	0.56
Independence and initiative	0.13	0.13	0.26	0.39	0.52
Ability to master new directions	0.15	0.15	0.30	0.45	0.60
Performance	0.14	0.14	0.28	0.42	0.56
Communication skills	0.07	0.07	0.14	0.21	0.28

Source: Own compilation

Table 8. Matrix of functional staff competence in the process of remote selection through Smart HR Recruiting

Factors/Experts	1	2	3	4	5	6	7	8	9	10	Sum of ranks
$x1$	1	1	1	1	1	2	1	1	1	1	11
$x2$	2	2	2	3	2	1	2	2	2	2	20
$x3$	3	3	3	2	3	3	3	3	3	3	29
Σ	6	6	6	6	6	6	6	6	6	6	60

Source: Own compilation

Table 9. Matrix of staff competence in the process of remote selection through Smart HR Recruiting

Factors/Experts	1	2	3	4	5	6	7	8	9	10	Sum of ranks
$x1$	3	3	3	2	3	3	3	3	3	3	29
$x2$	2	1	1	1	1	2	1	1	1	1	12
$x3$	1	2	2	3	2	1	2	2	2	2	19
Σ	6	6	6	6	6	6	6	6	6	6	60

Source: Own compilation

In the absence of experts' opinions coherence, the concordance coefficient is close to 0, with complete coherence of experts "opinions - up to 1.
To estimate the significance of concordance coefficients, the Pearson consistency criterion was calculated as χ^2 (Mu et al., 2018):

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

2022
Vol.26 No.1

$$\chi2 = m(n-1)W = \frac{S}{\frac{1}{12}min(n+1)} \qquad (2)$$

where W is the concordance coefficient; S is the sum of deviations' squares of the sum ranks from the average sum of ranks; m is the number of experts; n is the number of assessed qualities. The results of calculation of concordance coefficient and Pearson criterion at the investigated enterprises are presented in Table 10.

Table 10. Results of calculation of concordance coefficient and Pearson criterion

Coefficient	Functional component	Personal component
Concordance coefficient	0.81	0.73
Criterion χ^2	16.2 ≥ tabular (5.99146)	14.6 ≥ tabular (5.99)

Source: Own compilation

Calculated value of χ2 exceeds the table for the corresponding number of degrees of freedom, that is the consistency of the conclusions of experts is not random.

Research Results

Evaluation of the effectiveness of digitalization of staff involvement in the enterprise

At the first stage, the cost of digitalization of staff engagement through Smart HR Recruiting technologies is determined, in particular, by their next components (Boiko et al., 2021). Thus, it is necessary to determine the costs of the enterprise for each of the methods (Vedernikov et al., 2020).

$$n_i = n\frac{N_i}{N} \qquad (3)$$

where n is the total sample volume; N_i is the size of a typical group; N is the volume of the entire (general) population. In general, the formula for calculating the cost of providing HR services by Smart HR Recruiting can be presented as follows:

$$WC = \frac{Re+Ca+Crb+Csp}{H} \cdot 1,1 \qquad (4)$$

where Re is the expenses for remote selection of staff general, UAH; WC is the software costs for working with job ads at Smart HR Recruiting, UAH; Ca is the costs for the activities of digital stakeholders Smart HR Recruiting technology, UAH; Crb is the referral bonus - the costs of encouraging employees, who attracted a new candidate, UAH; Cps is the expenses for payment of staff of Smart HR Recruiting service, UAH; H is the number of employees hired for the analysed

period, persons; 1.10 is the coefficient, taking into account other related costs for hiring labor.

The list of costs that must be taken into account, when determining the effectiveness of recruitment through Smart HR Recruiting technology is specified in accordance with the specific situation at the enterprise and is depending on the structure of the HR service and the organization of its work (Vedernikov et al., 2020). It is necessary to distinguish between the costs of Smart HR Recruiting according to the nature of the sources of hiring: external selection and hiring of personnel or internal selection (from the staff reserve) (Troger, 2021).

The cost of external recruitment and hiring of staff should be determined as follows:

$$CR = \frac{AC+SP+RB+TE+T+ER+VR}{H} \qquad (5)$$

where *CR* is the cost of recruitment and hiring of staff, UAH; *AC* is the advertising costs, UAH; *SP* is the payment for staff agency services, UAH; *RB* is the referral bonus, UAH; *TE* is the travel expenses, UAH; *T* is the cost of transition of the employee from another enterprise, UAH; *ER* is the expenses for recruiter services, UAH; *VR* is the cost of processing voluntarily provided resume, UAH; *H* is the number of hires.

You can also calculate the cost of using different sources of recruitment:

$$VDN = \frac{AC+AP+RB+VR+\Pi+(ST+MT)}{H} \qquad (6)$$

where *VDN* is the cost of sources of hiring, UAH; *AC* is the advertising costs, UAH; *AP* is the payment for staff agency services, UAH; *RB* is the referral bonus, UAH; *VR* is the cost of processing voluntarily provided resume, UAH; *H* is the number of hires; *MT* is the cost of time spent management, UAH; *ST* is the cost of time spent by other staff, UAH.

Calculation of the cost of individual Smart HR Recruiting methods, which can be applied directly by the efforts of the staff service of the enterprise, is a necessary stage in determining the amount of expenses for staff hiring (Farashah et al., 2019).

The cost of conducting an online interview to digitalize the processes of recruitment can be calculated by determining the cost of time, spent on it by the management of the organization and the staff of HR services, other departments, as indicated below:

$$IC = \frac{ST+IT}{I} \qquad (7)$$

where *IC* is the cost of one interview, UAH; *IT* is the cost of management time for interviews, UAH; *ST* is the cost of staff time for interviews, UAH; *I* is the number of interviews conducted for the period being analysed.

The next step in determining the effectiveness of remote selection of staff in the Smart HR Recruiting process is to determine the volume of the created economic effect. Such indicators are: the amount of profit, that the company can receive due to the use of the Smart HR Recruiting method; validity of the Smart HR Recruiting method (the likelihood that the employee selected using this method is better than other candidates); time, spent using the Smart HR Recruiting method; standardized score required to make a decision on hiring (assessments on separate scales of different selection methods, translated into a standardized form to ensure the possibility of their comparison with each other).

Determine the amount of potential profit

To determine the amount of potential profit, it is necessary to establish the utility of a separate position - the ratio between average pay and average labor productivity (*SDv*). For administrative and managerial staff, the level of utility of the work, performed is from 40% to 80% of the amount of average wages, depending on the nature of the work. For low-skilled and unskilled jobs - it will be about 19%, for qualified jobs - 32%, for managers and specialists - up to 48% of the average wage for this workplace.

Thus, the usefulness of the position is calculated through the product of the average annual wage for the position and the level of usefulness of this position:

$$SDy = W \cdot k \tag{8}$$

where *SDy* is the usefulness of the position, UAH; *W* is the average annual remuneration in this position, UAH; *k* is the level of employee usefulness in this position.

At the same time, the validity of the procedure (*r*) used to select a given workplace and directly evaluate its or the activities of this category of employees will affect the utility of an employee in a concrete workplace (Z_i).

Taking into account the proposed areas of remote selection of staff in the Smart HR Recruiting process, the cost of their implementation will be (Table 11).

2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

Table 11. Cost estimate for digital transformation of remote recruitment processes through Smart HR Recruiting technology

Directions of expenses	Required amount (thousand UAH)	% of the total required amount
Creating software for working with job ads at Smart HR Recruiting	125.00	41.67
Development of a single standard Smart HR Recruiting	50.00	16.67
Placement of advertising banners on Twitter, Instagram, Facebook, LinkedIn	25.00	8.34
Conducting internal competitions for digital stakeholders' Smart HR Recruiting	50.00	16.67
Organizing and conducting internships for young freelance recruiters	50.00	16.67
Together	300.00	100.00

Source: Own compilation

The effectiveness of remote selection of staff in the Smart HR Recruiting process can thus be established by comparing the amount of costs and usefulness of the position (Morton et al., 2018; Claus et al., 2019; Gaur and Riaz., 2019; Kolot et al., 2022).

As you can see from Table 11, 300 thousand UAH will be required for the implementation of all proposed events. At the same time, most of the costs will be spent on creating a program with Smart HR Recruiting - 41.67% of the required amount. For the placement of advertising banners is supposed to conclude a contract with one of the leading advertising agencies. The average search period for these specialists is 5, 40 and 30 days, respectively. The cost of their search also varies. Thus, taking into account these data, the company will save about 95 thousand UAH annual savings on reducing staff turnover. Saved money on reducing the level of turnover of staff, the need to find new specialists and from mistakes in the admission of low-skilled specialists.

The means will compare with the costs of applying the proposed measures in Table 12.

Table 12. Evaluation of the effectiveness of digitalization of staff engagement by Smart HR Recruiting method

Year	Annual expenses for the implementation of the proposed events, thousand UAH.	Annual savings from implementation of the proposed measures, thousand UAH.
2019	125.00	95 + 168 = 263.00
2020	31.25	263.00
2021	31.25	263.00
2022	31.25	263.00

Source: Own compilation

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

**2022
Vol.26 No.1**

As you can see from the forecast calculations, the annual cost amount in all years of the period in question will be below the annual amount of savings, which indicates the effectiveness of the measures proposed for implementation.

In addition, the calculation of the amount of savings on the reduction of the amount of losses from errors associated with the selection, selection and hiring of personnel, and the comparison of the amount received with the costs of carrying out the necessary activities, showed, that the estimated amount of savings will significantly exceed the estimated amount of expenses.

Discussion

The result of the analysis showed that the digitalization of personnel recruitment involves the improvement and automation the processes of search and selection personnel at enterprises, institutions and organizations. The main factor in the successful implementation of the innovative Smart HR Recruiting technology is played by the identification of key competencies of personnel for further employment. Existing research (Khalatur, et.al., 2022; Lochner, et.al., 2018) shows that most companies typically use already standardized elements of digitalization. Unfortunately, today the use of outdated hardware and software is a huge barrier to hiring the most talented and successful candidates, because they require a slightly different approach to hiring. We agree with scientists (Dan, et.al, 2021; Vasilyeva et.al, 2021; Viriyasitavat et.al, 2019) that thanks to the digitalization of recruitment processes, it is possible to find the best specialists who will build a progressive country. As competition in the labor market increases, and one of the challenges of remote staff selection in the era of the digital economy is to attract highly qualified personnel (Lal et.al, 2021). Therefore, in the study, using the Smart HR Recruiting toolkit, we offer a modernized approach to personnel based on Smart principles. This approach takes into account the time factor, the needs of the client enterprise and its requirements for the competencies of the candidate (employee) and the expected result (productivity). We have identified the key factors of remote personnel selection based on the signs of functional (knowledge of personnel motivation; skills to identify problems; development of measures to solve them; knowledge of the essence of the strategic planning process) and personal competence (practically active form of influence; persistence in exactingness; emotional form of influence) of personnel through Smart HR Recruiting technologies.

The economic effect of the efficiency of recruitment processes by the Smart HR Recruiting method was assessed. Thus, it is predicted that the company's losses from the activities of incompetent workers will decrease by 50%. At the same time, annual savings on staff turnover will save about UAH 95 thousand.

Conclusion

So, creating an effective HR hiring procedure is an essential task for any organization. The main task of HR specialists is to find the best solution, how to

2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

quickly and least cost-effective to attract the best staff for open vacancies. The role of informatization in the economic development of modern organizations is now becoming more important. And here Smart HR Recruiting comes to the rescue - automation of the processes of hiring and using technologies for the good, which will lead the company to a new level of efficiency.

The key trend directions of digital-recruiting are considered and characterized, in particular: the use of artificial intelligence and robots; automation of processes; use of aggregation and uberization; use of social networks; alternative ways to attract candidates; application of HR analytics. The efficiency of digitalization of staff engagement by Smart HR Recruiting method at the enterprise has been introduced. Approaches to determining the cost of hiring staff based on the use of the indicator of usefulness of the position are considered.

Thus, the proposed methods of utility analysis allow HR specialists not only to declare the need to allocate resources, but also to make decisions more reasonably.

Acknowledgements

References

Baryshnikova N., Kiriliuk O. and Klimecka-Tatar D. (2021). Enterprises' strategies transformation in the real sector of the economy in the context of the COVID-19 pandemic. *Production Engineering Archives*, *27*(1), 8-15.

Becker, W. J., Belkin, L. Y., Tuskey, S. E. and Conroy, S. A. (2022). Surviving remotely: How job control and loneliness during a forced shift to remote work impacted employee work behaviors and well-being. *Human Resource Management*, 1-16.

Boiko, J., Volianska-Savchuk, L., Bazaliyska, N. and Zelena, M. (2021). Smart Recruiting as a Modern Tool for HR Hiring in the Context of Business Informatization. In *2021 11th International Conference on Advanced Computer Information Technologies (ACIT)* (pp. 284-289), Germany, IEEE.

Claus, L. (2019). HR disruption—Time already to reinvent talent management. *BRQ Business Research Quarterly, 22*(3), 207-215.

Carnevale, J. B., Hatak, I. (2020). Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *Journal of Business Research, 116*, 183-187.

Cioca, M., Cioca, L.I., Duta, L. (2011) Web Technologies and Multi-criteria Analysis Used in Enterprise Integration, *Studies in Informatics and Control*, 20(2) , 129-134

Corejova T., Jucha P., Padourova A., Strenitzerova M., Stalmachova K. and Valicova A. (2022). E-commerce and last mile delivery technologies in the European countries. *Production Engineering Archives*, *28*(3), 217-224.

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

2022
Vol.26 No.1

d'Armagnac, S., Al Ariss, A. and N'Cho, J. (2021). Talent management in turbulent times: Selection, negotiation, and exploration strategies for talent management in the aeronautics and space industries. *The International Journal of Human Resource Management*, 1-29.

Dan, S., Ivana, D., Zaharie, M., Metz, D. and Drăgan, M. (2021). *Digital Talent Management Strategies and Practices. In Digital Talent Management* (pp. 29-45). Palgrave Macmillan, Cham.

Erdei, E., Kossa, G., Kovács, S., Popp, J. and Oláh, J. (2022). Examining the Correlations Between Industry 4.0 Assets, External and Internal Risk Factors and Business Performance Among Hungarian Food Companies. *Amfiteatru Economic, 24*(59), 143-158.

Farashah, A. D., Thomas, J. and Blomquist, T. (2019). Exploring the value of project management certification in selection and recruiting. *International Journal of Project Management, 37*(1), 14-26.

Fettke, P., Strohmeier, S. (2022). *HR robotic process automation. In Handbook of Research on Artificial Intelligence in Human Resource Management*. Edward Elgar Publishing.

Gonzalez, M. F., Liu, W., Shirase, L., Tomczak, D. L., Lobbe, C. E., Justenhoven, R. and Martin, N. R. (2022). Allying with AI? reactions toward human-based, AI/ML-based, and augmented hiring processes. *Computers in Human Behavior*, 107179.

Gaur, B., Riaz, S. (2019). A Two-Tier Solution to Converge People Analytics into HR Practices. In *2019 4th International Conference on Information Systems and Computer Networks (ISCON)* (pp. 167-173), India, IEEE.

Halmai, P. (2022). COVID-19 Crisis and Supply Side Bottlenecks in the EU. Shorter and Longer Term Prospects. *Montenegrin Journal of Economics*, *18*(4): 19-30.

Hewett, R., Shantz, A. (2021). A theory of HR co-creation. *Human Resource Management Review*, *31*(4), 100823.

Kolot, A., Lopushniak, H., Kravchuk, O., Varis, I. and Ryabokon I. (2022). Transferable competencies of HR manager under global socio-economic changes. *Problems and Perspectives in Management, 20*(1), 322-341.

Khalatur, S, Pavlova, H., Vasilieva, L., Karamushka, D. and Danileviča, A. (2022). Innovation management as basis of digitalization trends and security of financial sector. *Entrepreneurship and Sustainability*, *9*(4), 56-76.

Kot, M. (2022). The supply chains during pandemia - the perspective from Poland. *ACM International Conference Proceeding Series,* 127-133.

Kravchenko, S.A., Sidorov, N. and Draskovic, V. (2021). New Challenges to Economy Security: the Convergence of Energy and Covid-19 Risks – The Demand for Cosmopolitan Politics. *Montenegrin Journal of Economics*, *17*(2), 187-194.

Lal, B., Dwivedi, Y. K. and Haag, M. (2021). Working from home during COVID-19: doing and managing technology-enabled social interaction with colleagues at a distance. *Information Systems Frontiers*, 1-18.

Lochner, K., Preuß, A. (2018). Digitales recruiting. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO), 49*(3), 193-202.

Makieła, Z.J., Kinelski, G., Stęchły, J., Raczek, M., Wrana, K., Michałek, J. (2022) Tools for Network Smart City Management—The Case Study of Potential Possibility of Managing Energy and Associated Emissions in Metropolitan Areas, *Energies* 15 (7), 2316

Makushkin, S. A. (2021). Methods for recruiting and interviewing corporate staff. *Linguistics and Culture Review, 5*(S2), 805-816.

2022
Vol.26 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Vedernikov M., Bazaliyska N., Zelena M.,
Volianska-Savchuk L., Boiko J.

Malik, A. (2018). *Strategic human resource management and employment relations*. Springer Nature Singapore Pte Ltd.

Mu, Y., Liu, X. and Wang, L. (2018). A Pearson's correlation coefficient-based decision tree and its parallel implementation. *Information Sciences, 435*, 40-58.

Morton, S., Michaelides, R., Roca, T. and Wagner, H. (2018). Increasing employee engagement in organizational citizenship behaviors within continuous improvement programs in manufacturing: The HR link. *IEEE Transactions on Engineering Management, 66*(4), 650-662.

Pana, K., Yue, X-G. (2022). Multidimensional effect of covid-19 on the economy: evidence from survey data. *Economic Research-Ekonomska Istraživanja*, *35*(1), 1658-1685.

Parkhomey, I., Boiko, J., Tsopa, N., Zeniv, I. and Eromenko, O. (2020). Assessment of quality indicators of the automatic control system influence of accident interference. *Telkomnika, 18*(4), 2070-2079.

Srinok, R., Zandi, G. (2021). Covid-19 Recession and Firm Performance – What Are the Determining Factors. *Global Journal of Entrepreneurship and Management*, *2*(2), 1-16.

Sun, Y. Y., Li, M., Lenzen, M., Malik, A. and Pomponi, F. (2022). Tourism, job vulnerability and income inequality during the COVID-19 pandemic. *Annals of Tourism Research Empirical Insights*, 100046.

Simionescu, M., Raišienė, A. G. (2021). A bridge between sentiment indicators: What does Google Trends tell us about COVID-19 pandemic and employment expectations in the EU new member states? *Technological Forecasting and Social Change*, *173*, 121170.

Smutny, P., Schreiberova, P. (2020). Chatbots for learning: A review of educational chatbots for the Facebook Messenger. *Computers and Education*, *151*, 103862.

Stverkova, H., Pohludka, M., Kurowska-Pysz, J., & Szczepańska-Woszczyna, K. (2018). Cross-border enterpreneurship in euroregion Beskydy. *Polish Journal of Management Studies*, 18(2), 324-337.

Troger, H. (2021). *The Staff Management Process*. *In Human Resource Management in a Post COVID-19 World* (pp. 145-174). Springer, Cham.

Wei, S., He, Y., Zhou, W., Popp, J. and Oláh, J. (2021). Death Reflection and Employee Work Behavior in the COVID-19 New Normal Time: The Role of Duty Orientation and Work Orientation. *Sustainability, 13*(20), 11174, 1-16.

Vardarlıer, P. (2016). Strategic approach to human resources management during crisis. *Procedia-Social and Behavioral Sciences, 235*, 463-472.

Vasilyeva, T., Ziółko, A., Kuzmenko, O., Kapinos, A. and Humenna, Y. (2021). Impact of digitalization and the COVID-19 pandemic on the AML scenario: Data mining analysis for good governance. *Economics and Sociology*, *14*(4), 326-354.

Viriyasitavat, W., Xu, L. D., Bi, Z. and Pungpapong, V. (2019). Blockchain and Internet of Things for Modern Business Process in Digital Economy—the State of the Art. *IEEE Transactions on Computational Social Systems*, *6*(6), 1420-1432.

Vedernikov, M., Volianska-Savchuk, L., Zelena, M., Bazaliyska, N., Litinska, V. and Baksalova, O. (2020). Infocommunication Paradigm of Corporate Culture Development in HR Management System. In *2020 IEEE International Conference on Problems of Infocommunications. Science and Technology (PIC SandT)* (pp. 197-201), Ukraine, IEEE.

Voynarenko, M., Vedernikov, M., Volianska-Savchuk, L., Zelena, M., Bazaliyska, N. and Baksalova, O. (2020). Modeling of Controlling Activity as an Instrument of Influence on Motivation in the Personnel Management System of Industrial Enterprises. In *2020 10th*

International Conference on Advanced Computer Information Technologies (ACIT) (pp. 601-606), Germany, IEEE.

Vedernikov, M., Zelena, M., Volianska-Savchuk, L., Litinska, V. and Boiko, J. (2020). Management of the social package structure at industrial enterprises on the basis of cluster analysis. *TEM Journal, 9*(1), 249-260.

Zeuch, M. (2016). *Handbook of human resources management*. Berlin: Springer.

ZARZĄDZANIE ZDALNYMI PROCESAMI DOBORU PRACOWNIKÓW Z WYKORZYSTANIEM TECHNOLOGII SMART HR RECRUITING W ŚWIATOWEJ PANDEMII COVID-19

Streszczenie: W artykule przedstawiono uogólnienie teoretyczne oraz opracowano nowatorską technikę cyfrowej transformacji procesów zdalnej selekcji pracowników za pomocą technologii Smart HR Recruiting. Celem pracy było opracowanie nowoczesnych metod zdalnej selekcji personelu w kontekście ogólnoświatowej pandemii COVID-19. Metodologia badania opierała się na stworzeniu programu działań mających na celu doskonalenie modelu rekrutacji HR opartego na Smart Rekrutacjach z uwzględnieniem trendów w rekrutacji cyfrowej. W wyniku badania dokonano oceny skuteczności rekrutacji zdalnej w procesie Smart HR Recruiting. Potwierdzono efekt ekonomiczny procesów rekrutacyjnych metodą Smart HR-Recruiting.

Słowa kluczowe: Smart HR, rekrutacja, zarządzanie, digitalizacja, COVID-19.

利用智能人力资源招聘技术在世界大流行的情况下管理远程工作人员的选择过程

摘要：本文给出了理论上的概括，并通过智能人力资源招聘技术开发了远程人员选择过程的数字化转型的新技术。这项工作的目的是在全球COVID-19大流行的背景下，开发现代的远程人员选择方法。研究方法的基础是形成一个措施方案，以改善基于智能招聘的人力资源招聘模式，同时考虑到数字招聘的趋势性领域。作为研究的结果，对智能人力资源招聘过程中远程招聘的有效性进行了评估。根据智能人力资源招聘方法的招聘过程的经济效果已被证实

关键字。智能人力资源，招聘，管理，数字化，COVID-19