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TERENTIEVA Nataliia

Zaporizhia National University

<https://orcid.org/0000-0001-6930-879X>

PAVLOV Denys

Zaporizhia National University

<https://orcid.org/0000-0002-5555-1403>

TVERDOKHLIB Maksym

Zaporizhia National University

<https://orcid.org/0009-0006-3071-8365>

INTEGRATION OF DIGITAL TOOLS AND ARTIFICIAL INTELLIGENCE INTO HR MANAGEMENT PROCESSES

Nowadays, companies are forced to quickly adapt to market changes and effectively use digital innovations to optimize operations and rationally use human resources. Given that human capital is the main asset of modern companies, they must apply the latest methods of personnel management to increase efficiency and adaptability in a changing business environment. DMS (document management system) acts as a single platform for storing, accessing and managing all company documents. DMS is easily integrated with HR systems, which simplifies the management of personnel processes and document flow in the company. Automation of onboarding (one of the key processes) allows you to minimize time spent on administrative tasks, providing a structured and standardized approach. In addition to onboarding, it is especially important to optimize the process of adaptation and training of personnel. Automated training systems allow corporate networks to quickly update employees' skills, providing them with access to up-to-date training materials, courses and certifications. Automation of work processes helps save time and reduce human errors. ATS (Applicant Tracking System) is a software for automating and optimizing the recruitment process. HRMS (Human Resource Management System) is a comprehensive centralized system for managing all aspects of HR. LMS (Learning Management System) is a software or web platform that allows organizations to create, manage, deliver and track training materials and programs. Therefore, AI-powered software solutions can significantly facilitate and accelerate the candidate selection process. However, it is worth remembering that the human factor is key. People can detect subtle details that AI can miss.

Keywords: human resources, workflow automation, personnel management, DMS (document management systems), HR systems, onboarding, ATS (Applicant Tracking System), HRMS (Human Resource Management System), LMS (Learning Management System), artificial intelligence.

ТЕРЕНТ'ЄВА Наталя, ПАВЛОВ Денис, ТВЕРДОХЛІБ Максим

Запорізький національний університет

ІНТЕГРАЦІЯ ЦИФРОВИХ ІНСТРУМЕНТІВ І ШТУЧНОГО ІНТЕЛЕКТУ В ПРОЦЕСИ HR-МЕНЕДЖМЕНТУ

В сучасних умовах підприємства змушені швидко адаптуватися до ринкових змін і ефективно використовувати цифрові інновації для оптимізації операцій та раціонального використання людських ресурсів. Враховуючи, що людський капітал є головним активом сучасних компаній, вони повинні застосовувати новітні методи управління персоналом для підвищення ефективності та адаптивності в умовах змінюваного бізнес-середовища. DMS (document management systems) виступає єдиною платформою для зберігання, доступу та керування всіма документами компанії. DMS легко поєднується з HR-системами, що спрощує управління кадровими процесами та документообігом у компанії. Автоматизація онбордингу (одного з ключових процесів) дозволяє мінімізувати витрати часу на адміністративні завдання, забезпечуючи структурований і стандартизований підхід. Окрім онбордингу, особливо важливо оптимізувати процес адаптації та навчання персоналу. Автоматизовані системи навчання дозволяють корпоративним мережам оперативно оновлювати навички працівників, забезпечуючи їм доступ до актуальних навчальних матеріалів, курсів та сертифікацій. Автоматизація робочих процесів допомагає заощадити час і зменшити людські помилки. ATS (Applicant Tracking System) – це програмне забезпечення для автоматизації та оптимізації процесу рекрутингу. HRMS (Human Resource Management System) – це комплексна централізована система для управління всіма аспектами HR. LMS (Learning Management System) – це програмне забезпечення або веб-платформа, що дозволяє організаціям створювати, управляти, доставляти та відстежувати навчальні матеріали й програми. Отже програмні рішення за підтримки ШІ можуть значно полегшити та прискорити процес відбору кандидатів. Однак, варто пам'ятати, що людський фактор є ключовим. Люди можуть виявити тонкі деталі, які ШІ може пропустити.

Ключові слова: людські ресурси, автоматизація робочих процесів, управління персоналом, DMS (document management systems) – системи управління документами, HR-системи, онбординг, ATS (Applicant Tracking System) – система відстеження кандидатів, HRMS (Human Resource Management System) – система управління людськими ресурсами, LMS (Learning Management System) – система управління навчанням, штучний інтелект.

In the era of rapid digitalization, when the latest tools and technologies become an integral part of business, enterprises are forced to adapt quickly to market changes and effectively use digital innovations to optimize operations and rationally use human resources. This issue is especially acute in conditions of global crises and political conflicts. The COVID-19 pandemic and the war of russian federation against Ukraine have fundamentally changed approaches to personnel management and interaction with employees. Transformations in the labour

market, in particular the transition to remote and hybrid forms of employment, mass migration and employee safety, have become important factors contributing to changes in HR management. Taking into account that human capital is the main asset of modern companies, they must apply the latest methods of personnel management to increase efficiency and adaptability in a changing business environment.

Modern document management systems allow us to securely organize, store, track, edit, and distribute electronic documents. DMS is a single platform for storing, accessing, and managing all company documents. Tracking changes in documents ensures the preservation of the history of edits and eliminates confusion with different versions of files [1]. Advanced information protection features reduce the risks of unauthorized access or data loss. DMS is easily integrated with HR systems, which simplifies the management of personnel processes and document flow in the company.

A comparative characteristic of several modern document management systems (DMS) is presented in Table 1.

Table 1

Comparative characteristic of modern document management systems (DMS)

Characteristic	DocuWare	M-Files	SharePoint	ONLYOFFICE Docs	Bitrix24
Main functions	Storage, search, version control, integration with ERP and CRM	Metadata management, versioning, process automation	Centralized storage, integration with Microsoft 365	Collaborative document editing, access control	CRM, tasks, file management, collaboration
Integration	Microsoft, SAP, Salesforce	Microsoft 365, Google Workspace	Microsoft 365, Power Automate	Microsoft 365, Nextcloud	Microsoft 365, Google Workspace
Security	Encryption, multi-level access	Encryption access control	Access control, audit logs	SSL, two-factor authentication	two-factor authentication
Mobile support	iOS, Android	iOS, Android	iOS, Android	iOS, Android	iOS, Android
Process automation	Powerful mechanism Workflows	Workflows based on metadata	Automation via Power Automate	Limited	Business process automation
Cost	From \$300 per month	From \$29/ user/ month	Individual depending on the license	Free version, paid version from \$5	Free version, paid version from \$49
Flexibility of settings	High	Very high	High	Medium	High
Features	Integration with a wide range of systems	A unique approach to metadata	Deep integration into the Microsoft ecosystem	Teamwork oriented	Integration with DMS, CRM and ERP
Recommended for	Medium and large businesses	Medium businesses	Medium and large businesses	Small and medium businesses	Small and medium businesses

DocuWare is suitable for large companies that already use ERP or CRM and need integration.

M-Files are suitable for companies that need an individual approach to document classification through metadata.

SharePoint is optimal for those who already work in the Microsoft ecosystem.

ONLYOFFICE Docs is focused on small companies with a need for online collaboration.

Bitrix24 is a universal platform for small businesses that combines CRM, DMS and other tools.

According to SHRM, 16 of the 21 most common HR processes can be almost completely automated. Onboarding of new employees is one of the key processes, which is crucial for any company where the quality of customer service depends on the coordinated work of the staff [2].

Onboarding sets the tone for the employee's future relationship with the company, influencing their loyalty, productivity, and overall perception of the corporate culture. This process includes providing the newcomer with the necessary information and documents, familiarizing them with the company's mission and values, and integrating them into the workforce. It is also important to pay attention to training in specific areas, such as products and service standards.

Onboarding automation allows us to minimize time spent on administrative tasks, providing a structured and standardized approach. This fact reduces the risk of errors and ensures a positive experience for new employees. Using specialized onboarding systems allows you to automate all stages - from signing the necessary documents to organizing training modules and including them in the workflow.

In addition to onboarding, it is especially important to optimize the process of adaptation and training of personnel. A new employee who quickly mastered the necessary knowledge and skills will be able to better understand the company's culture, work in accordance with its standards and provide a high level of customer service. This is critical in any business because HR managers represent the company for customers.

Automated training systems allow company to update quickly their employees' skills by providing them with access to up-to-date training materials, courses, and certifications. Such platforms help maintain the company's

competitive advantage, improve customer service quality, and increase staff efficiency. This reduces staff turnover and increases the overall productivity of the chain.

LMS (Learning Management System) is a software or web platform that allows organizations to create, manage, deliver, and track learning materials and programs. LMS is widely used in various industries, including the corporate sector, education for employee development, training, and certification [3].

The main functions of a Learning Management System are presented in Table 2.

Table 2

Main functions of LMS

Функція	Опис
Creation of educational content	The platform allows you to upload and organize learning materials (videos, documents, tests) or create them from scratch.
Management of courses	LMS helps you structure training programs, group courses into categories, and customize them to meet the needs of specific employee groups.
Control of progress	The system allows HR specialists and managers to see which employees have completed training, which have passed the tests, and what results they received.
Certification	An LMS can automatically issue certificates upon completion of courses, which is important for industries with regulatory requirements.
Automation of studying	The LMS allows you to automatically assign courses based on an employee's role, update programs, and send reminders about the need to complete training.
Mobility	Most modern LMS support access from mobile devices, allowing employees to learn at their convenience.

Table 3

Comparative characteristics of popular LMS

Characteristic	Moodle	Talent LMS	SAP Litmos	iSpring Learn	Docebo
Platform type	Open, customizable	Cloud	Cloud	Cloud	Cloud
Main functions	Courses, modules, forums, assessments	Tests, certification, mobile version	integration with SAP, certification	Easy content creation, progress tracking	Microlearning, AI analytics
Possibility of customization	Very high	Medium	Low	Medium	High
Integration with other systems	Microsoft 365, Google Workspace	Microsoft 365, Slack	SAP ERP, Microsoft 365	Microsoft 365, Salesforce	CRM, HRMS, Microsoft 365
Progress control	Yes	Yes	Yes	Yes	Yes
Process automation	Moderate	High	Very high	Medium	Very high
Certification	Yes	Yes	Yes	Yes	Yes
Support of mobile device	Yes	Yes	Yes	Yes	Yes
Data security	SSL, access control	SSL, two-factor authentication	Encryption, GDPR compliance	SSL, access control	GDPR compliance, SOC 2
Simplicity of use	Moderate	High	High	Very high	Medium
Advantages	Flexible settings, free	Simple interface, quick start	Powerful integration with ERP	Easy creation of content	Powerful analytics, AI tools
Price	Free or from \$80 per month for hosting	From \$69 per month	From \$6 for user per month	From \$2.99 for user per month	From \$160 per month
Recommended for	Education, corporate training	Small and medium-sized businesses	Large and medium-sized businesses	Small and medium-sized businesses	Large and medium-sized businesses

Personnel evaluation is an important tool for achieving various goals in a company [4]. It helps to make administrative decisions, such as promotions, salary increases, bonuses, training, or decisions about dismissing employees. The evaluation allows you to identify the strengths and weaknesses of an employee, assess his potential and readiness for professional or career development. In addition, it provides feedback, contributes to the development of corporate culture, helps prevent conflicts, and strengthens relationships between managers and subordinates.

According to a Harvard Business Review study, companies that actively use survey data are 30% faster at adapting to market changes and 45% more effective at retaining customers. This confirms the strategic importance of choosing an effective survey creation and analysis tool. The demand for such tools is growing every year, as the right survey builder can provide deep insights into the market, customers, and team.

Modern survey automation tools, such as specialized designers, have significant advantages over Google Forms. They provide flexible customization, allowing you to adjust the design and functionality of surveys to match your corporate style.

Advanced analytical tools provide detailed analysis of results with reports and graphs that allow for deeper understanding of data. Integration with other systems, such as CRM, HRMS, ERP, significantly simplifies business processes and provides convenience in work [5]. A high level of data security is guaranteed thanks to encryption and access control in accordance with established security standards. Specialized designers also support multi-user mode, which allows several users to work on surveys simultaneously.

In addition, improved user support provides the availability of advanced technical support for uninterrupted work. Automation of processes such as automatic reminders and results processing helps save time and reduce human errors.

SurveyMonkey offers a large selection of templates and analytical capabilities; Typeform has an intuitive interface and interactive surveys; Qualtrics is a comprehensive solution for research with powerful analysis and integration capabilities. Therefore, specialized survey builders provide more customization, security, and analysis capabilities, making them ideal for corporate needs.

Digital HR technologies that integrate all the main functions of digital tools also include ATS (Applicant Tracking System) and HRMS (Human Resources Management System) [6].

ATS (Applicant Tracking System) is a software for automating and optimizing the recruitment process. It helps to manage candidates, analyze their profiles, track progress at each stage of selection and integrate this data with other HR systems. ATS allows you to automate the recruitment process, starting from posting vacancies and ending with the selection of candidates, ensuring effective management of candidate data and analytics of recruitment processes.

HRMS (Human Resource Management System) is a comprehensive centralized system for managing all aspects of HR: from hiring and personnel management to payroll, training and analysis of employee performance. It provides centralized management of employee data and automation of HR processes.

Modern HR management systems, such as ATS and HRMS, significantly simplify HR processes and facilitate strategic decision-making. However, their effectiveness depends on competent configuration, integration and team training for use.

The combination of these technologies creates a single ecosystem for human capital management, which allows businesses not only to optimize HR processes, but also to increase overall work efficiency [7].

Table 4

Comparative characteristics of modern HR management systems (ATS and HRMS)

Digital HR technologies	Features of use	Advantages	Disadvantages
ATS	Automatization of the process of sorting resumes according to specified criteria/ Integration with with job posting platforms and social networks/ Tracking the status of each candidate in real time/ Possibility to create reports on the effectiveness of the recruitment process.	Save time on manual resume processing. Reduce the risk of missing a qualified candidate. Transparency of the recruiting process. Analytics for improvement of your hiring strategy.	Difficulty integrating with non-standard platforms. Risk of over-selection of candidates through automation, which can exclude good specialists. Dependence on correct settings.
HRMS	Storage of all employee data in a single database. Providing of accounting of working hours, vacations, sick leave and salaries. Providing of tools for planning employee development and assessing their performance. Integration with other systems, such as ERP, to synchronize business processes.	Automation of routine HR procedures. Increasing the accuracy of data recording. Ability to analyze data for strategic decision-making. Convenience in planning training and career development of employees.	High cost of implementation and support. Need for staff training to use the system effectively. Possible data protection issues if security is inadequate.

Thanks to such systems, companies are able to adapt quickly to market changes, better understand the needs of their employees and implement strategies focused on talent development and retention. Thus, the integration of ATS and HRMS is the basis for the digitalization of HR processes, which allows companies to be competitive in the modern labor market.

The most common HRMS and their description are presented in Table 5.

As you can see, these systems cover different business needs depending on the scale, specifics and budget, ensuring effective human capital management [8].

Therefore, AI-powered software solutions can significantly facilitate and speed up the candidate selection process. Resume analysis algorithms can quickly screen candidates based on certain criteria, relieving HR specialists of the routine work. Chatbots can automatically conduct preliminary interviews, which also saves time.

However, it is worth remembering that the human factor is key. People can detect subtle details that AI can miss. Intuition, empathy and the ability to adapt to specific situations are precisely the traits that make people indispensable in the personnel selection process and other practical tasks. Another key aspect is interaction with candidates. Although chatbots can conduct preliminary interviews, the main thing is to be able to talk to a real person at the later stages of the selection. The feeling of interest and attention from the recruiter can influence the candidate's decision to accept the job offer. The psychological aspect should also be taken into account. People can pick up on important nuances in a candidate's behavior during an interview, which can provide important information about his/her character and compatibility with the team [9].

Table 5

The most common HRMS

	Description	Features	Recommendation
Workday	Workday is one of the leading HR solutions. The program offers a full set of HR functions: personnel accounting, leave management, payroll accounting, career planning and performance analysis.	Integration with financial systems. Powerful analytical tools for strategic decision-making. Cloud data storage, accessible from any device.	Large and medium-sized companies.
SAP SuccessFactors	The SAP solution provides a comprehensive approach to human capital management. It includes modules for recruiting, talent development, workforce planning, and performance management.	Integration with other SAP products. Flexible customization to meet the needs of different industries. Ability to customize processes according to local legislation.	Large companies and international corporations.
Oracle HCM Cloud	A cloud-based HR platform that includes talent management, recruiting, time tracking, payroll management, and analytics.	Integration with other Oracle products. Using artificial intelligence to predict staffing needs. Supporting multi-channel interaction through mobile applications.	Enterprises of all sizes, especially those using the Oracle ecosystem.
PeopleForce	Modern HRMS that combines tools for managing recruitment, HR processes, and team interaction. It is focused on simplifying the work of HR departments and optimizing business processes.	Includes ATS to automate the hiring process, manage vacancies and the candidate base. Tools for managing vacations, sick leave, working hours and employee adaptation. Dashboards with HR metrics that allow you to track employee productivity and engagement. Modules for regular surveys, feedback and staff development planning. Ability to integrate with other business applications such as Google Workspace or Slack.	Small and medium-sized companies looking for an affordable solution to automate HR processes with a focus on recruiting and analytics.
BambooHR	An intuitive solution for small and medium-sized businesses, BambooHR focuses on managing basic HR tasks such as personnel accounting, leave management, and employee onboarding.	Simple interface that does not require long training. Integration with other popular business applications. Built-in analytics for evaluating HR processes.	Small and medium-sized companies.
Zoho People	A flexible HR system that offers solutions for personnel management, working time monitoring, vacation tracking, and performance evaluation.	Affordable pricing for small businesses. Integration with other Zoho products such as CRM and Finance. Cloud access and mobile apps.	Small and medium-sized companies, startups
ADP Workforce Now	Comprehensive HR platform for managing HR processes, payroll, tax reporting, and performance tracking.	Support for compliance with legal regulations in different countries. Flexible reporting and analytics system. Integration with other financial and business systems.	Large companies and international corporations.
Keka	Innovative HRMS for medium and small businesses with a focus on HR process automation and a convenient user experience.	Time, payroll and recruiting management in one tool. Modern, user-friendly interface. Affordable pricing for small businesses.	Small and medium-sized companies.
Hurma	A comprehensive HR platform that integrates ATS, HRMS, and OKR (Objectives and Key Results) systems. The program is aimed at simplifying personnel management and employee development planning.	Tools for managing vacancies, automating recruitment and creating a candidate database. Automation of HR processes, such as accounting for working hours, vacations, sick leave and personal files. Planning goals for the company, teams and individual employees with tracking their achievement. Tools for creating surveys, collecting feedback and monitoring team mood. Integration with calendars, corporate messengers and other HR tools.	Medium and large companies seeking comprehensive HR management with the ability to set and monitor goals.

It should be noted that digital solutions, artificial intelligence in HR management still help to collect and analyze huge amounts of data, simplifying the tasks of recruiters and managers. AI-based analytics allows you to identify key trends in hiring, team effectiveness, and other factors, helping the company make informed decisions. Artificial Intelligence tools can predict the risks and success of candidates depending on their history and characteristics. This facilitates selection and helps improve the quality of hiring, reducing the chances of an unsuccessful candidate taking a position. The use of AI in HR management allows you to automate the processes of processing and archiving documentation, including resumes, offer letters, and contracts. This reduces the time spent on administrative tasks and ensures greater accuracy in document management.

Thus, AI has already changed the realities of modern HR, becoming a real assistant in solving routine tasks. However, what is really important is the harmony between technology and the human factor, where HR professionals can use AI to improve processes and focus on the more strategic and human aspects of their work. The future of the labor market requires constant development and adaptation, but also opens up new opportunities for creativity and innovation.

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