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DIGITAL AND COMMUNICATION TECHNOLOGIES, AUTOMATION IN PERSONNEL MANAGEMENT

P. A. Alekseeva (a)*, V. M. Kraev (b), A. I. Tikhonov (c)

*Corresponding author

(a) Moscow Aviation Institute (National Research University), 125993, Volokolamsk Highway, 4, Moscow, Russia,
polina.alexeeva7@yandex.ru

(b) Moscow Aviation Institute (National Research University), 125993, Volokolamsk Highway, 4, Moscow, Russia,
kraevvm@mail.ru

(c) Moscow Aviation Institute (National Research University), 125993, Volokolamsk Highway, 4, Moscow, Russia,
mai512hr@mail.ru

Abstract

Improving the quality of personnel management at the present stage is one of the main components of an enterprises economic policy. One of the most important ways to solve this problem is correct IT-architecture and processes of communication services support. The real situation on the market requires an increase in the efficiency of an enterprise via a strict selection of new technologies. The task of information technology implementation in an enterprise is mostly to provide optimal information support IT-structure. One of the most valuable data sources is information from employee. In this way, it's necessary to develop the system of employee's surveys and obtain high quality information via strong rules inside the system. The main goal of creating and improving information and communication technologies system strategy is to provide information support between management and subordinate in order to achieve sustainable competitiveness and high efficiency. One of the most important areas is the labor efficiency of individual workers and the entire staff evaluation. The WebTutor business process automation system can be used for HR-processes organization. The personnel assessment module is a part of an integrated solution that allows to automate various forms of employee performance assessment, employee testing and employee's surveys.

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1. Introduction

1.1. Conditions for effective management decisions

In modern conjuncture, enterprises and corporations in Russia are faced with various problems. One of them is human resource management. The effective management decisions are necessary to ensure the competitiveness of enterprises in the labor market. The organizational essence of the management decision includes the personnel of an enterprise involvement.

1.2. The impact of employee labor on achieving an enterprise goals

Researches in Russia and abroad demonstrate that necessity to solve issues related to ensuring staff involvement. It is possible to assess the level of staff involvement through traditional surveys. The concept of staff performance is to regularly evaluate its performance. The employee's labor affects result the achievement of an enterprise's goal.

2. Problem Statement

2.1. Enterprise management requirements

Currently, business processes of creation and communication support in the enterprise play a major role in ensuring the company's competitiveness in the labor market. The real situation on the market requires certain demands for management. According them each enterprise has to follow a new technologies strict selection.

2.2. Statement of the problem of using information technology at the enterprise

In a market economy, the use of information technology in enterprises whose activities are directly related to the processing and analysis of "big data" is especially necessary. The fundamental task for information technology is to provide IT-architecture for information support system. The functional purpose of this system should correspond to the management and employees goals. Information support from HR point of view consists of system for employee's surveys development, improvement and support. In most research, assessment of psychological (in) flexibility has been done with the Acceptance and Action Questionnaire yet researchers have noted that items on the AAQ may not adequately discriminate between responses to experiences and the experiences themselves (Ong, Pierce, Woods, Twohig, & Levin, 2018).

3. Research Questions

Successful activity of any organization is impossible without a comprehensive analysis of labor indicators. In a market economy, one of the most important areas of this analysis is a set of measures to evaluate the labor efficiency of individual workers and the entire staff as a whole, the main purpose of which is to increase the company efficiency.

Discussing an effectiveness of the personnel measuring, an automated assessment system helps in achievement of the most important tasks - to determine: in which area the employee works best; as a leader

it is better to use it in order to avoid internal contention between employees in favor of the profitability and effectiveness of the enterprise. The system must help to link the strategic goals of an enterprise with the employee's daily activities and allow employees to focus on tasks that clearly contribute to the target result achievement, transferring secondary tasks to the background. The system will dynamically change depending on an enterprise needs.

4. Purpose of the Study

4.1. Strategy for improving the system of information and communication technologies

The main goal of the strategy for information and communication technologies system creating and improving is to provide information support between management and subordinate in order to achieve sustainable competitiveness and an enterprise high efficiency.

4.2. Key modules of the WebTutor system

Without doubt the HR sphere transition to the Digital format is an unconditional trend. That is confirmed by leading researchers and analysts. This trend tells that for working with people (selection, training, development) we need to analyze a lot of different information. This will require a single digital environment in which all HR processes will be organized. Such an environment is WebTutor, a business process automation system. The personnel assessment module is part of an integrated solution. This module can be used as an element of the personnel assessment procedure and as an accompaniment to the training process (Schönebeck & Schoenebeck, 2015). In Figure 01 shows the key modules of the WebTutor system.



Source: authors.

Figure 01. Key modules of the WebTutor system

4.3. Key functionalities for staff assessment

Personnel assessment is part of an integrated solution. The "Personnel Evaluation" module of the WebTutor system allows you to automate various forms of evaluating performance results, conduct testing

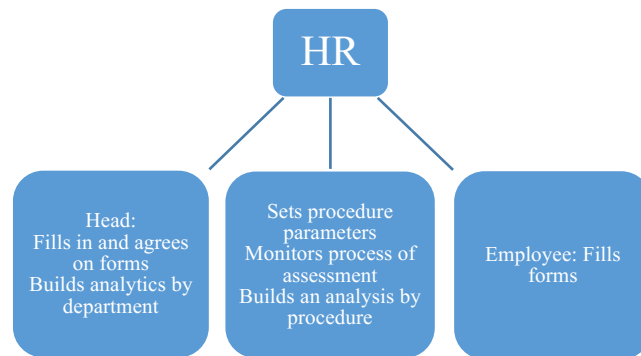
and surveys of enterprise employees (Table 01). The results conformed to widely reported trends of other matched guise studies showing clustering of responses along dimensions of status and solidarity (Tan, 2019).

Table 01. The Main functional capabilities of personnel assessment

Key functionalities of personnel assessment:	Automation of management personnel
	Employee testing
	Building a company knowledge base
	Feedback collection: polls and reviews

Source: authors.

An example of an automated personnel assessment procedure is presented in Figure 02 (Benoy et al., 2018). All document management and information support for an organization is based on automated systems. Technical aspects of the uses of Internet-based technologies in organizations throughout the survey process, focusing on several examples of the best practice are represented. This includes project management in online employee surveys, content and design, as well as electronic and automatized reporting of the results (Batinic & Kovacs, 2017).



Source: authors.

Figure 02. Automated personnel assessment procedure

4.4. Automation capabilities of the personnel assessment module

Various assessment procedures can be automated:

- Competency assessment procedure;
- Formation of individual development plans;
- Goal Management;
- KPI performance evaluation;
- Job evaluation;
- Assessment of the quality of interaction between units.

Automation of personnel assessment is necessary for:

- Reduced labor costs for entering and processing evaluation data;
- Analysis of assessment results using reports;
- Saving assessment data (Østergaard, Lundgren, Zettle, Landrø, & Haaland, 2020).

5. Research Methods

5.1. Form for employee’s survey

A survey based certain form of a table was conducted and it comes conclusion about the level of automation of an enterprise (Akhuly, Bhardwaj, & Shandilya, 2018) (Table 02).

Table 02. A form for conducting a survey of employees

No.	Question	Answer	
		Yes	No
1	Do you use automation tools?	+	
2	Do automation tools perform the necessary functions?	+	
3	Do you save working time at work with existing automation tools?	+	
4	Do you find it reliable to use an automation system?	+	

Source: authors.

5.2. Advantages of automated assessment of enterprise personnel

Recent research in Hangzhou show a participatory innovation can lead to increased accountability and responsiveness of the local government (Almén, 2017).

Considering the procedure for conducting an automated assessment of enterprise personnel, we came to the conclusion that this procedure has several advantages:

1. Automated processing and results can guarantee user privacy and data security;
2. The development of an automated assessment system is carried out in accordance with the goals and objectives of the enterprise, conducting an assessment using approved assessment methods;
3. An automated assessment system can significantly reduce the complexity of the process of assessing personnel.

Surveys are most effective when the aim is to reach a large proportion of a population. They tend to be used to extrapolate and generalize from a typically small sample of a population to the whole population (Pavličević, 2019).

6. Findings

As a result of information technology, high-speed computational processes services are becoming inherent in modern production. In terms of services, digital technologies can make solving typical problems with a large volume of operations much cheaper, faster, more convenient. This is due to the fact that information technologies are fundamentally changing business models, increasing their effectiveness. That is, to increase profitability, intermediaries can be replaced by automatic network services (corporate portal or mobile application). The digital economy is rapidly changing the usual forms and methods of economic. For an innovation in social accountability to emerge successfully, initiatives between the local state and citizens must be aligned. Three factors are found to be crucial: (1) social momentum for accountability; (2) the presence of backers at the elite level; and (3) an authentic opening for mobilization (Meixi, 2019).

7. Conclusion

The digital economy is the future stage of the world economy development due to the transformation of all spheres of human activity under the influence of information and communication technologies. The topic of the digital economy has become relevant due to the ongoing qualitative changes in the economy and society. Digital economy has a great impact on such diverse areas as enterprise management, personnel management, as well as employee surveys and staff evaluations.

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