

# Recruiting IT-specialists: Modern Digital Resources for Selection and Mechanisms of Professional Competences Assessment

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## ABSTRACT

The digitalization of most areas of management has led to increased interest in digital tools in the field of personnel management. Thanks to them, employers have new opportunities of reducing time and financial costs to meet the needs of business in HR. The active use of social networks, the introduction of digital technologies in the selection, evaluation, adaptation, motivation, staff development and other seemingly "non-digital" areas of management, is now a necessary condition for the effective operation of HR-services and attractive image of the employer in the labor market. All digital tools are particularly important when working with the personnel who create these technologies - IT-specialists. The article describes the digital resources of selection and evaluation of IT-specialists.

## Keywords

IT-specialists, professional competences, selection, hiring, interviewing, recruiting, business evaluation of personnel, digital HR resources, digitalization.

## 1. PROBLEMS IN RECRUITING IT-SPECIALISTS

Due to the active automation of business processes in all sectors and the orientation of the national economy to the digital economy, the demand for information technology specialists is growing by an average of 25% annually [1]. According to the forecasts of the Agency for strategic initiatives, in 15-20 years the market demand for IT-specialists will grow several times. Moreover, every year the number of areas in which the services of IT-specialists are required increases, and already now there are areas of automation of business processes for which there are no ready personnel available. Surveys of IT managers and businessmen from different countries confirm the opinion that there is a lack of IT-employees with the necessary skills, as well as that there are very few specialists in new areas of automation. For example, cybersecurity, data protection and business development based on the introduction of advanced digital technologies are considered to be areas with a lack of personnel[2].

The acute shortage of personnel in the IT sector has led to the fact that the closure of one ordinary job takes months. Prospective applicants with specialized education and a decent experience are very scarce and very quickly find a job. The main ways of recruiting such specialists are

recommendations of friends, direct search, executive search, headhunting. Placement of vacancies on job resources does not work for them, nor do the classic selection technologies used for other categories of personnel – screening on resumes, interviewing and testing. Job resources are mostly browsed by graduates and professionals with little job experience. However, only 1/15 of university graduates have a level of training that meets the requirements of employers, and these students are offered jobs already at the stage of studies[2]. Others need to be retrained for the needs of a particular company - a process, which, according to various estimates, takes 5-6 years.

Thus, among the problems of recruiting IT-specialists are that there are few ready specialists in the market, that the demand for these specialists is higher and will continue for a long time to be higher than the supply on the labor market, that the areas of automation are developing at a much higher pace than the areas of professional training for these areas, the market is scarce, the struggle for qualified specialists in the field of IT is exacerbated every year, and the requirements for their competencies are growing at a pace higher than the possibilities of the educational system [3]. This leads to the fact that employers begin to compete for personnel, trying to attract more qualified specialists by unusual ways of acquaintance with candidates, non-standard approaches to the assessment and selection of candidates for recruitment, well-thought-of systems of motivation [4] and retention of specialists basing on their interests and needs, local digital intellectual resources of knowledge management, developing professional competence of IT-specialists. Let's look at some non-standard approaches to the selection and professional competencies evaluation of IT professionals in the recruitment process.

## 2. MODERN DIGITAL RESOURCES IN THE SELECTION OF IT-SPECIALISTS

Leading companies in the USA, Great Britain, Japan and the EU have long been systematically allocating budgets for the automation of their business processes, including recruitment [3].

35% of Russian companies have already automated recruitment processes. However, automation of personnel selection, calculation of compensations and benefits, HR-Analytics, staff adaptation and development and internal communications are not yet widespread enough [5].

In recruiting, if we consider it as a technology for establishing client relations, it is possible to use modern CRM-systems, in particular, one of the most popular – Bitrix24 [5]. The service is improving every year, configured with the 1C platform, and is becoming more effective for solving such issues in the field of personnel management as: live feed, General chat, General information storage (disk), a common database (e.g. candidates), organizational structure of the company, calendars and planners, reminders, contact center – all these features can be competently applied in the organization of recruitment. Also, Bitrix24 provides for analytics, automated setting of objectives and monitoring their implementation.

Among the solutions for the automation of separate stages of recruitment, the most popular one is keeping the database of applicants in Excel together with the use of resume processing services and automation of primary communication with candidates offered by job sites, the most popular and convenient of which are HH.ru and SuperJob.ru. Other similar resources have a smaller applicants database, lower attendance and/or inconvenient interfaces.

The most popular solution among specialized complex services for automation of recruiting is E-Staff Recruiter. Friendwork Recruiter, GoRecruit, JungleJobs, Stafory, as well as internal job portals are somewhat less popular, but also known in the Russian market [6]. It is on IT-specialists search and selection that the capabilities of the web application AmazingHiring are focused: it can find on the Internet even those professionals who are not in active job search at present (which is important in view of the above mentioned problems of recruiting IT professionals), because this service aggregates candidate data from more than 50 public sources (Facebook, Twitter, Google+, Vk.com, Instagram, etc.), and professional resources for IT professionals (GitHub, Stack Overflow, Kaggle, Dribbble, DOU, Google Play, Behance, Brainstorage Habrahabr, etc.). Using these data, the service forms a single profile of the candidate, ranks candidates according to different parameters set by the employer. AmazingHiring can find even those job applicants who don't have resumes on job sites and do not have profiles on LinkedIn [7].

Another interesting service that can help to solve the problem of improving the quality of recruiting, including in the IT field, is a video interview service VCV [8]. As all recruiters know, the most difficult and time-consuming stage of selection is the preparation and conduct of face-to-face interviews with candidates: it is necessary to pick out and get in touch with potential candidates, to schedule interviews, to invite relevant professionals to participate in the interview, to take into account the interests of all participants, to agree with all the time of the interview, to adjust the schedule of meetings due to delays, absences and transfers, then get in touch with all refusals, etc. It is also necessary to ask competent questions, analyze answers and behavior of applicants during and after the interview, to make notes, memorize and compare candidates, to use the knowledge, experience and intuition of the recruiter in due time. VCV service allows the employer to save up to 50% of the time spent on selection, 30% to reduce the financial costs of hiring, while increasing the efficiency of selection

by 75% and reducing the moral costs on organizing and conducting interviews.

VCV does not require coordination of contact time between the applicant and the employer, the interview is recorded when it is convenient for the candidate to answer the employer's questions. The great convenience of the service it enables to schedule personal meetings only with the candidates who caused the interest of relevant representatives of the employer: the candidate makes the recording which is watched by the employer at any time convenient to him.

VCV works as follows: the employer with the help of VCV in advance makes questions for remote interview, then they are put in the system, after which all potential candidates are sent invitations to participate in the video interview. They log in via a computer or mobile app and answer questions in video format during a limited time. Each answer is given a certain time limit for recording. The candidate cannot see nor know the questions in advance, so answers are authentic, not prepared in advance. It is impossible to re-record the answer, the response time is limited, the service controls the response time during the recording.

The service enables to standardize the selection process and reduce its subjectivity: it offers common questions to candidates for one vacancy and common standards of evaluation of candidates.

According to analysts [8, 9], 5 minutes of video interview save the recruiter up to 60 minutes of interview with a wrong candidate. Most users of the video interview service note its user-friendly and simple interface, significant time saving for recruiters and the particular relevance of the idea in the basis of this solution.

It is obvious that the main goal of professional recruiting is to timely find the right employees for the company, those who can and want to achieve high personal results, thereby ensuring stable growth of the employer company. These tasks are even more acute and relevant for recruiting IT professionals. When recruiting programmers, it makes sense to rank candidates not only (although it depends on the tasks to be solved) according to presence/absence of professional experience, but also, above all, according to the presence of special skills in programming languages, the presence of their Soft Skills (competencies, knowledge of technologies, including mobile and information systems), according to understanding the problems of DNS and domains, the ability to use flexible methods, as well as according to the applicant's motivation for professional development. Accordingly, the key task of recruiting software is to maximize the probability of selecting truly efficient staff that meets the needs of the company and its corporate culture.

### **3. INNOVATIVE APPROACHES TO THE ASSESSMENT OF PROFESSIONAL COMPETENCIES OF THE IT STAFF**

A special problem, as noted above, in the selection of candidates for positions in the IT-sphere, is the complexity of assessing their professional competencies. Let's take as an example the competence model of a cybersecurity specialist.

How can an HR or a recruiter assess the development and intensity of a professional competence of a specialist of this profile? Yes, you can use a pre-compiled test. Will such a

specialist give an answer to the question, how quickly will he cope with a non-standard problem? With a force majeure situation? How can we evaluate him in action, other than during the probation period? Does the candidate's good specialized education guarantee high efficiency of his work?

An experienced IT-specialist participating in the interview from the employer's side (if the company has such an employee, of course, and if he has time to participate in the interview), will ask the right questions and will even simulate a practical situation and assess the correctness of the answers of the candidate, but only if such a specialist has experience in interviews, knows how to ask the right questions and understands people. Which is rather unlikely. AmazingHiring Service allows you to evaluate professional competencies of candidates using machine learning algorithms, through the analysis of the candidate's program code and his rating on professional IT-sites.

VCV service allows only to record the opinion of all representatives of the employer, who have watched the video interview about this candidate, and to form a General analysis of the impression of the competence of this specialist.

A new, non-standard and effective technology for the assessment of professional competencies of IT-specialists are hackathons (from eng. "hack" and "marathon") - a full-time competition of IT-specialists (programmers, developers, web designers, etc.) [10], during which specialists in teams or individually work on solving a problem, most often – on creating a program, code, algorithm, application, design solution or other similar, most importantly practical, task. At such events, applicants have significantly more chances to show themselves and demonstrate their abilities, and recruiters and customers can get a better idea of the professionalism and competence of a specialist than during an interview

IT-specialists themselves find the format of the hackathon very attractive. They are interested in the experience of finding a non-standard solution [10]. The element of fair competition in the professional environment, the exchange of original ideas and effective practical skills, stimulating professionals to professional development through comparison of their capabilities and abilities with others, understanding their level against the background of other professionals, demonstration of practical professional skills, business and personal qualities in an environment close to the real working environment – these and other advantages of the hackathon make it an effective tool for assessing the professional competencies of IT-specialists.

#### 4. CONCLUSION

The classic recruitment process is multi-stage. Consideration, analysis, selection, sending responses to resumes, interviews and evaluation of candidates take a lot of time: in many companies resumes are processed manually, using standard Microsoft Office programs; transfer and storage of resumes (as a document containing personal data) is complicated due to the Federal Law on their protection; in many companies there is no systematic database of candidates' resumes already considered by the company and rejected for any reason; there is no formalized analytics on selection; the selection process is not

transparent to other than the recruiter participants in the selection; heads of departments – customers of the vacancy delay decision-making, and suitable candidates "slip off the hook", unable to withstand the waiting.

All these and other difficulties increase the time of filling the vacancy, reduce the quality of recruitment, increase the labor costs of recruiters due to a large number of routine operations and manual actions, have a negative impact on the company image as an employer, especially when the candidate is an IT-specialist who needs a special approach and non-standard solutions. The recruiter and HR should be very careful not to push him away at the stage of primary contact, not to lose him in the selection process, not to decrease his professional motivation during the assessment, while picking out among many the most suitable one, to correctly assess his competence, to consider the prospects and opportunities for his development in the future. It is the most difficult task, which requires the development and practical application of innovative and non-standard approaches and solutions.

The technologies of recruiting software and practical methods of assessment of professional competences of IT-specialists considered in the article solve many of the above problems, but each concrete situation will always require a special solution. It is because each company has its own tasks and problems, and because HR works with people and each of them has its own individuality.

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