USING OF COMPETENCES WALLETS CONSTRUCTED FOR WORK STANDS
IN HUMANS RESOURCE MANAGEMENT OF METALLURGICAL ENTERPRISE

In situation of increasing competition, frequently changing of market trends, growing shorter cycles of products and techniques of production - the ability of elastic responsiveness of enterprise is one of the priorities for metallurgical enterprises. The basis of efficient implementation of new solutions, and fast obtaining of full efficiency for the solutions being made in organization are workers with high competences, which are able to work in new situations. The kilter of suitable system of human resources management, which is able to connect competences of workers with new techniques becomes the strategic meaning function. In this paper a method of workers competences management by using the wallets of competences for work stands is presented.

**Key words:** management, humans resource, metallurgical enterprise

**Katalog kvalifikacija napravljen u menadžmentu za upravljanje ljudskim resursima za radna mjesta u metaluškom poduzeću.** U vremenima sve veće konkurencije, česte promjene tržišnih uvjeta, sve kraći ciklusa proizvodnje i primjene proizvodnih tehničkih, jedan od glavnih prioriteta metaluških poduzeća je vještina prilagodbe novim uvjetima. Osnova efikasne primjene novih rješenja i brzog postizanja punog efekta odabranog rješenja u konkretnoj organizaciji su radnici s visokim stupnjem kompetencija koji mogu raditi u novim situacijama. Razrada prikladnog sustava upravljanja ljudskim resursima koji može povezati kvalifikacije radnika s novim tehnikama postaje funkcija strateškog znanja. U ovom radu predstavljamo metodu upravljanja kvalifikacijama radnika uporabom mape s kvalifikacijama za određena radna mjesta.

**Ključne riječi:** menadžment, ljudski resursi, metaluška poduzeća

**INTRODUCTION**

The competences of a worker can be defined as his or her ability to carrying out specific tasks. This notion comprises a whole set of the worker’s personality features, qualifications, skills and abilities that are important from the point of view of the correct running of a production process. The effect of carried out activities may occur as a result of activation of only one type of competences; most often, however, it is the consequence of action of many of them.

The processes of managing worker competencies, as well as their development, are of crucial importance for the functioning of enterprises [1]. This problem can be considered in many planes. From an organization’s point of view, the proper identification of qualification needs allows that only type of training to be delivered, which will actually enhance the qualification of the workers. This will make it possible to reduce financial losses being a consequence of choosing incorrect directions of development. Competency portfolios - and more specifically, the differences between portfolios for different job posts - are also an important source of information, both for the workers and for the organization [2].

Owing to them, the workers are given an opportunity for individual planning of their development that will enable them to attain their intended positions in the organization’s hierarchy. For the organization, on the other hand, competency portfolios allow workers to be adequately fitted to respective job posts, where their skills and qualifications can be used to the best effect.

The conducted studies covered the rolling mill department of one of Poland’s largest metallurgical works. Sixty-one job posts, and the competencies and skills, as well as job history of 512 employed workers were subjected to analyses.
ANALYSIS OF JOBS POSTS AND CONSTRUCTING COMPETENCY PORTFOLIOS

The process of creation of competence portfolios depends, to a significant extent, on the specifics of an organization and its possessed documentation and the number of job posts covered by analysis. Within the framework of conducted studies, a scheme of procedure was adopted, which is presented, in a general form, in Figure 1.

A, B, C... - job posts

![Diagram of job post analysis](image)

STAGE I

Job post analysis

STAGE II

Specification of competences

STAGE III

Competence portfolio (CP)

STAGE IV

Valuating competencies

STAGE V

The first action was to determine the actual number of job posts that should have been subjected to examination. At this stage, a general analysis of job stands was performed, aimed at grouping them according to identical or very similar scopes of conducted work, or similar methods of carrying out work tasks. A subsequent action (Stage II) was performing a detailed analysis of job posts in order to be able to determine all competencies decisive to the correctness of carrying out manufacturing processes at respective posts. The main information sources used at this stage were:
- observation conducted at particular work posts (defining competences was done based on single activities or groups of activities performed by workers; it was also possible to determine personality features necessary for correct carrying out of activities on respective posts),
- analysis of documentation associated with particular posts or conducted processes (subjected to examination were, above all, work post, activity and process instructions), and
- individual interviews concerning the content of performed job, held with workers assigned to particular work posts, gangers and foremen.

The effect of the performed analyses was a summary of competences that should be possessed by a worker to enable him/her to correctly perform their respective work tasks, produced for particular work posts (Stage III). The whole set of competences was further divided into three categories in order to more completely represent their role in the organization’s production processes and the importance for the implementation of the organization’s strategy. First, strategic skills (SS) were distinguished, which are perceived as essential for the performance of an organization, assuring the continuity of its functioning. Secondly, technical skills (TS), understood as the capabilities of physical performing of specific activities, as well as the resources of knowledge required for those activities to be carried out correctly. The last group comprised personality features (PF) required from a worker on a specific post, which are necessary for assuring the production process to run correctly.

At the next stage of actions (Stage IV), the constructed competence portfolios were subjected to analysis based on a scoring criterion, aimed at the determination of the significance of identified competences for the process of working on particular posts. These analyses took account of the importance of particular features both for the correct running of production processes and for the fulfillment of the strategic goals of the organization.

Table 1. shows a fragment of a competence portfolio for an example of managerial-level post, along with the assessment of the importance of individual elements for the correctness of activities conducted at this post.

The competence portfolio presented in Table 1. includes features characteristic of this employee group. Managerial or foreman posts impose very concrete requirements relating the personality features of a worker. On the one hand, he or she must have the ability of working in a team in order to correctly function within existing formal or informal employee groups. On the other hand, however, he or she must have leadership abilities developed to
### Table 1. Competence Portfolio for the Post of the Shift Foreman of the Rolling Mill Division (fragment)

<table>
<thead>
<tr>
<th>Competence</th>
<th>Significance of a feature</th>
</tr>
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<tbody>
<tr>
<td>PF - Resistance to stress</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>PF - Power of persuasion</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>PF - Ability of making decisions in emergency situations</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>PF - Ability of working in a team</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>PF - Leadership abilities</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>SS - Diagnosing - reasoning, making assessments</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>SS - Specification of general goals (timely indication and actions aimed at their achievement)</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>SS - Ability of analysing</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>SS - Ability of synthesizing</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the correct sequence of loading material to the furnace</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of controlling the surface of material rolled</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the accuracy of rolling stand profile geometry</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the accuracy of product profile geometry</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the correctness of roll adjustments</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the accuracy of the cutting process in terms of quality and dimension</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the correctness of received blooms</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the correct storing products in the storage area</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of controlling overhead crane operation from below</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of setting and adjusting the rolling equipment</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Understanding products</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Management of human resources</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of determining the accuracy of rolled strip</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Ability of converting the rolling train for a predetermined profile</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Understanding the construction and principle of operation of the evaporator cooling system</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Understanding the construction of rolling stands</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Understanding the principles of the material cooling process</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Understanding the hot rolling technological process</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>TS - Knowledge of Health &amp; Safety, fire-fighting and Quality Assurance System regulations</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

be able to properly convey the organization’s strategic and operational goals to his/her subordinate workers and assure the fulfillment of these goals. The above-mentioned features are directly associated with such characteristics, as resistance to stress or the power of persuasion.

**CONSOLIDATED SUMMARY OF COMPETENCES**

A subsequent stage of the studies concerned the determination of the frequency of occurrence of particular competences in the organization under study. This goal was achieved by creating a consolidated list of all competencies, enabling all the organization’s needs within this sphere to be defined.

This summary provides a capability of defining the whole organization’s demands for human resources, while considering the quality criterion. It allows also the identification of unique competencies, characteristic solely of a specific post or a small number of posts.

Table 2. shows a fragment of the consolidated summary of competences for the analyzed organization, along with the frequency of their occurrence (the number of posts, to which particular competences are applicable). The total number of identified competences was 111.

Figure 2. shows the distribution of the frequency of occurrence of competences on the identified job posts.

The analysis of the data in Table 2. and Figure 2. yields several conclusions concerning the distribution of competences within the studied organization. First, only a small group of competences is characteristic of all or majority of the job posts in the organization (5 competences are shared by more than 50 posts). Four competences from this group
are associated with training requirements imposed on all workers undertaking job at the organization (the ability of controlling overhead crane operation from below - a training course for a crane hook operator, as well as Health & Safety, fire-fighting and Quality Assurance System training). The ability of diagnosing and resistance to stress form an absolutely necessary condition to be met by candidates for job. Both these elements result from the intensity of the conducted production process and the need for maintaining its continuity and smoothness. The ability of working in a team is important for most posts. This does not apply only to bridge operators, whose work is predefined as independent and - to some extent - isolated. The great importance this ability has for the organization means the need for performing appropriate personality tests of candidates for job before their engagement. For nearly two thirds of the posts, the ability of analysing is mentioned as an element important for carrying out activities. This means that the work in these cases cannot be performed by a mechanical, routine character. The weight of this element results partially from the complexity of the production process, and partially from a high hazard created for the worker performing the activities and for any people being in his vicinity - which requires high concentration and the ability of foreseeing the consequences of his/her own doings. A very large group of competences occurs in a small intensity, which suggests their close link with activities performed only on small sections of the technological sequences. This means also that, in the event of an illness or departure of a worker having particular competences, finding his/her substitution will be difficult. This points out to the need of taking a broader approach to the issue of employee training, which should extend beyond the range of a single post, thus creating a system of reserves and substitutions.

GROUPING POSTS INTO FAMILIES OF JOBS

The competence portfolios obtained from the studies became, at the subsequent stage of analyses, a basis for performing the process of grouping job posts and creating, so-called, families of jobs. This process is a basis for determining similarities between particular posts. These similarities may concern the work content, the conditions in which tasks are performed, or competition requirements.

Creating job families allows, among other things,
- more complete identification of jobs in the studied organization,
- more accurate planning of the transfers of workers between particular posts (determining the optimal paths of workers’ mobility within the organization).

A starting point in this process was the determination, based on information collected at the stage of constructing competency portfolios, of main distinguishable groups of jobs. Main criteria were also defined, based on which the classification of job posts into respective groups took place.

Table 3. presents part of the criteria used for performing classification. Their importance for the correctness of works undertaken on respective posts within particular job
families has also been defined. In the Table, the descriptions of job families have been substituted with letters from A through H: 
- strategic jobs (drivers and foremen),
- operators of equipments (saws, presses, straightening machines),
- jobs connected with the conversion of the rolling train,
- operators (rolling bridges),
- jobs associated with the dispatch of products,
- jobs associated with bookkeeping and documentation,
- overhead crane operators,
- jobs associated chiefly with fitter’s works.

SUMMARY

The analysis of competences for particular job posts and the process of identifying job families can become a basis for the implementation of new solutions within the methods of the organization’s functioning. First of all, the organization obtains a clear summary of requirements to be met by a worker to be able to perform the tasks assigned to a specific job post. This may also substantially facilitate the recruitment and selection processes by clearly defining the requirements for candidates for job. In addition, the organization obtains a list of all competencies necessary for it to perform properly. This allows, on the one hand, a departure from the standard perceiving of the organization as a collection of separate job posts toward a broader view based on the vision of the organization as an organism that needs in the first place those workers, who have very concrete qualifications and personality features. On the other hand, it becomes necessary to identify unique competences, characteristic of a small number of job posts. For these posts will require a greater focus on the assurance of staffing continuity.

The process of grouping jobs existing in the organization into so-called job families allows, in turn, a considerable simplification of activities associated with defining a contingency plan for each work post. This enables also the identification of individuals, who can substitute for a worker currently employed on a particular work post in the event or his/her departure from work or sickness leave.

REFERENCES