

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

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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 metallurgic 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 metalurškom poduzeću. U vremenima sve veće konkurencije, česte promjene tržišnih uvjeta, sve kraćih ciklusa proizvodnje i primjene proizvodnih tehnika, jedan od glavnih prioriteta metalurških 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, metalurška 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.

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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.

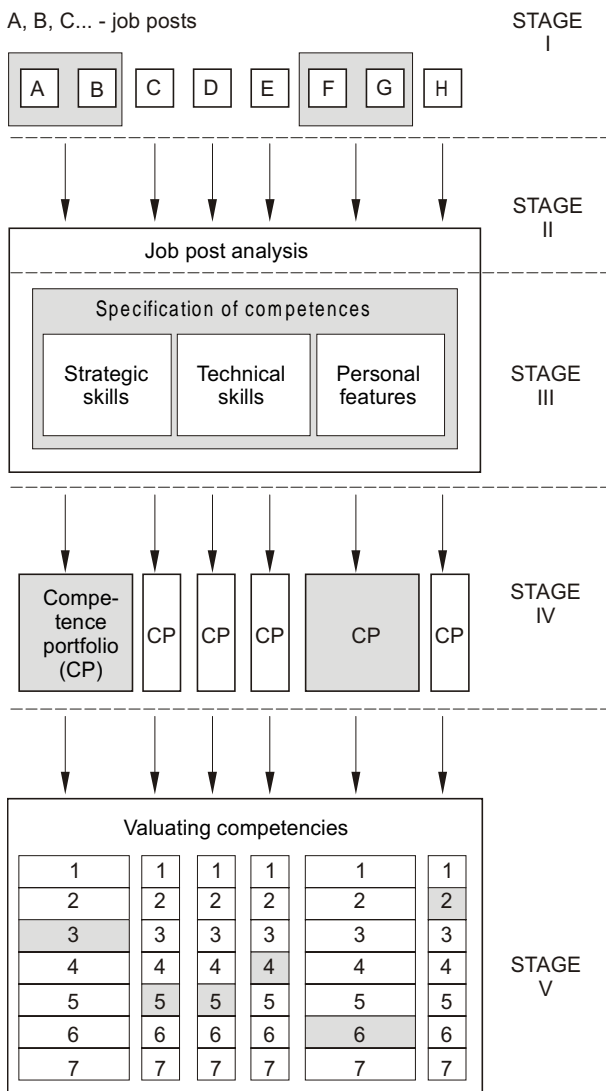


Figure 1. Course of actions during the process of constructing competence portfolios of job posts
 Slika 1. Tijek djelatnosti u procesu izrade kataloga zanimanja

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 per-

forming 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)**
 Tablica 1. **Katalog zanimanja za mjesto smjenskog poslovođe u valjaonici**

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

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 consid-

ering 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 competencies 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

Table 2. **A summary of competences of the organization studied**
 Tablica 2. **Sažetak kvalifikacija potrebnih u organizaciji koja je predmet proučavanja**

No.	Competence description	Frequency of occurrence
1	PF - Creativity	3
2	PF - Openness to changes	3
3	PF - Interpersonal skills	4
4	PF - Power of persuasion	17
6	PF - Resistance to stress	57
...
7	SS - Formulating goals	3
8	SS - Planning	3
10	SS - Ability of synthesizing	23
11	SS - Ability of analyzing	43
12	SS - Diagnosing - reasoning, making assessments	61
...
14	TS - Ability of setting the parameters of material bending	2
15	TS - Ability of performing the cycloping operation	4
16	TS - Ability of setting and adjusting the rolling equipment	6
17	TS - Ability of setting and mounting vertical roll rollers	5
18	TS - Ability of controlling overhead crane operation from below	58

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

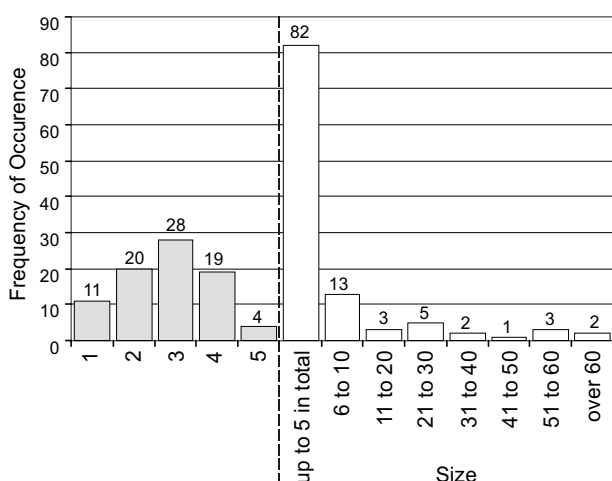


Figure 2. **Distribution of the frequency of competence occurrence on job posts**

Slika 2. **Rasoređenost učestalosti potreba kvalifikacija na radnim mjestima**

to bridge operators, whose work is pre-defined 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, and -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

Table 3. **Criteria for the classification of job posts into particular job groups**
 Tablica 3. **Kriteriji za kvalifikaciju radnih mjesta u konkretnim grupama poslova**

Lp	Analyzed features	A	B	C	D	E	F	G	H
1	Knowledge of works carried out at the level of the whole production process								
2	Education:								
2.1	High requirements								
2.2	Medium requirements								
2.3	Low requirements								
3	Experience:								
2.4	Great importance								
2.5	Little importance								
4	Responsibility for the safety of the course and consequences of work								
5	Responsibility for the safety of other people								
6	Over - average mental strain								
7	Over - average physical strain								
8	Ability of working in a group								
8.1	Requirements								
8.2	Marginal significance								
9	Great importance of dexterity								
10	Repeatability of activities, monotony								
11	Operation of complex machinery and equipment								
12	Adverse work environment								
13	Poor work content								
14	Connection with the production process								
14.1	Direct								
14.2	Indirect								

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 of his/her departure from work or sickness leave.

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