

## IMPACT OF COMPETENCE FRAGMENTATION ON EMPLOYEE DEVELOPMENT IN PUBLIC SERVICES IN LATVIA

**UldisZandbergs, MaksimsKazakovs**  
Baltic Computer Academy, Ltd., Latvia  
uldis@bda.lv

**Abstract.** Competence management has been assigned a strategic priority in Latvia and public service organizations have started several initiatives in the field. The approaches used at the moment for the competence management require significant effort but often provide results that are not sufficiently detailed to make relevant management decisions. Description of both competences and their respective development solutions by using more detailed skills may provide organizations with an option to align the results of employee evaluation with the corresponding competence development solutions, improve the effectiveness of reducing competence gaps, and set the stage for automation of competence evaluation and development planning with the support of suitable information systems. This article shows the approach of describing and managing competences and developing a set of competence development solutions for the front desk employees at a public service organization, an application of a computerized competence evaluation test and the creation of individualized plans for competence development indicating the benefits of the approach in terms of possible savings made by the organization.

**Keywords:** competence evaluation, competence development, automated development planning.

### Introduction

Competence management of existing and potential workforce has been indicated as one of the priorities in Latvia according to the National Development Plan for 2014-2020 [1]. As a result several attempts at competence management have been started or developed further by several public services institutions in the country. Information systems have been developed for the purpose of managing data of employee competences and supporting the decision making process of the managers of the organizations. However, although the general idea for the need of competence management has been accepted by the public service organizations, the implementation of the procedures has been haunted by several problems including subjectivity of the competence evaluation methods, lack of motivation for competence management, and loss of trust in the value of the approach.

As a result, some middle level managers and HR experts expressed doubts as to whether the expected results of their competence management approach can be used in the decision making process involving HR management and its link to strategic management of the organizations. Some managers felt the obligation to follow with the competence management procedures because of the investments already made and pressure from the regulations form one side and the want to improve their public image in the eyes of general society or their actual target customer by increasing the satisfaction with the services they provide due to increased capabilities of their employees.

For this purpose we have selected a specific role within the public service organizations, e.g., front-desk employees directly involved in customer service and applied modified competence-based approach to the evaluation of limited amount of competences [2] using computer-based competence evaluation tests [3]. The results were later used for the creation of individual development plans [4] centered around a detailed competence dictionary as a part of the general principles used in the competence-based HR development solution [5].

The modification included in the proposed competence management approach stresses the need for more objectivity and automation in the evaluation and succeeding improvement of competences and is based on the general definition of the competence consisting of knowledge and skills as described in the European Qualifications Framework [6] and also indicated in NDP [1]. Fragmentation of a competence into skills corresponds to the principle used in the description of curricula of development solutions for some technical competences that are later on used for the increase of the level of competence of an employee. The method of defining the competence, creation of the competence evaluation test, the assessment process and the corresponding creation of employee development plans is described in the next chapter. The results of the approach and their comparison to the previous approach are discussed in the results chapter. The conclusions are made at the end of the article.

## Materials and methods

The term *competence* has been a topic of discussion in several studies. In fact, two similar terms *competence* and *competency* have been used in several published articles sometimes with contradictory explanations [7]. This article uses the term *competence* to describe a characteristic of an employee that indicates if the said employee is capable of successfully completing the tasks assigned to them.

Several sources indicate that individual skills may be considered as part of competence or more or less similar to competences [6-9]. In this case a competence model was used that defines individual skills as part of the competence [2]. In fact both required knowledge and skills that are considered part of competence are by using the same term, e.g., skills for the sake of shortness. For example, the skill groups mentioned later in the article may actually be consisting of individual skills and bits of knowledge depending on the content of the skill groups agreed upon by experts.

According to the universal competence model [2; 3] a list of competences was created for the employees of the organization and a single generalized competence profile was created for all of the employees in question since they all had similar responsibilities at their work and were all considered filling the same role. Only one competence was selected for the evaluation because of several reasons; the relevance for the employees, the priorities of the organization, the fit of the description of the competence and the time-constraints of the organization. A computerized test was proposed as a tool for evaluation of competence gaps to demonstrate the time savings, detailed test results and reusability of the test for the managers of the organization.

Planning of employee development is one of the most complex processes in HR management. On the one hand, it is difficult to formalize and automate because it depends on subjective or human factors [10]. On the other hand, development planning is time consuming since the competences of each employee need to be evaluated and the development needs to be adjusted to the evaluation results. Therefore, the organizations tend to use a simplified approach in employee development by applying development solutions (DS) for a group of employees without prior assessment of the development needs, base their development plans on employee self-evaluation, or base their employee evaluation and development planning on generalized information without going into much detail [11]. The competence-based approach gives a solution for these problems and allows for automation of employee development planning with a support of an IT system which helps streamline HR management by using a common language, e.g., competences for all stages of the process [4].

For the employee development planning to give a significant economical effect a certain precision degree in HR management should be acquired. The more thorough we are in the recognition of the development needs the more likely we can find a DS that is a better fit for employee needs and the more effective is the employee development process. By dividing a competence into skill groups and individual skills we increase the precision of the input for development planning, the likelihood of finding a more suitable DS, and improve the economical gain from the savings in HR management as is indicated in the next section.

But in order to gain the benefits promised all of the DSs used in employee development planning need to be made "competence-ready". The description of DS should be competence and skill based to correspond with the competence-based approach. The DS should preferably be modular in nature and corresponding to at least skill groups allowing for only the parts of DS to be used as needed to cover the competence gaps as needed for the individual employee development plans.

Creation of DSs for this case was based on HR Development Management Model (HRDMM) [12]. HRDMM helps designing employee development plans, which come in form of a set of proposed DSs that stimulate the reduction of individual competence gaps as much as possible, but taking into account 12 different factors influencing the selection of DSs including time and budget restrictions, individual learning preferences for the employees and the conditions set by the organization that may affect the planning process.

The planning process of employee development underwent four individual stages [4], which are not described in detail in this article, but were used in the process:

- Creation of a development solution catalogue [13] with the corresponding list of competences the DS improves and preparation of the list of available DS.

- Creation of a short list of selected DSs according to the HR management policy of the organization and 12 factors of HRDMM.
- Creation of possible development plans (DP) out of the short list of DSs where DPs are having similar characteristics to individual DSs [14].
- Selection of the most appropriate DP by using an Analytical Hierarchy Process [15], which is a method that was used to formalize the decision making process in order to simulate the automatic HR development planning.

## Results and discussion

The evaluation of competences and creation of competence development plans were conducted at a single public institution. 135 employees participated in the test from 14 departments located in different geographical locations of the country. All of the participants had similar job responsibilities working with customers at front desk positions.

Before conducting the test several key experts from the top and middle level managers and HR management experts from the organization were selected and asked to participate in 3 workshops. The goal of the workshops was selection of competence that was considered the most crucial for the selected employees, preparation of detailed description of competence in question including related skills and attributed knowledge, and identification of business situations that would be organization-specific and familiar to the employees and should be used to test the presence of the competence.

A single test was prepared for the competence assessment using a database of 60 multiple-choice scenario-based questions, of which only 24 were selected for each employee semi-randomly, e.g., 6 questions were selected for each skill group, but individual questions for each skill group could have been different for the employees. This was done after the decision of the managers of the organization to use the hierarchical level of skill groups not individual skills for the analysis of the test results.

The test was conducted using the learning management system Moodle for all of the employees at the same time to diminish the chance of unfair conduct. The results were exported from LMS Moodle and processed using Microsoft Excel spreadsheets and compared with the existing results received within the organization by using alternative evaluation methods.

Table 1 shows the processed results of the tests according to the competence levels of the employees. The first row shows the results of the whole competence or in this case *Orientation on customer*. The other rows show the results of the individual skill groups included in the competence. The columns indicate the amount of employees in percent out of total 100 % divided in 3 groups of proficiency:

- low or result of 0 to 49 % of correct answers,
- average or result of 50 to 66 % of correct answers,
- high or result of 67 to 100 % of correct answers.

Table 1

**Test results for competence and skill groups**

Competence or skill group	Test results (in percent)		
	Low	Average	High
Orientation on customer	20	54	26
Inquiries about customer needs (SG1)	14	28	58
Fulfillment of customer needs (SG2)	16	25	59
Recognizing difficult customers (SG3)	44	31	24
Dealing with difficult customers (SG4)	24	37	39

As the numbers in Table 1 indicate, the assessment of competence as a whole shows a group of the employees with low results and insufficient competence level, a big group of employees (54 %) with average test results and a competence level that may be acceptable for tasks not requiring complex decision making process, but may be arguably insufficient for the strategic goals of the organization, and a group of employees with high results showing promise as potential top experts in the field. At the same time results in individual skill groups show a different picture. Two of the four skill groups show big share of results in the high result group, e.g., 58 % and 59 % of all employees for

the skill group 1 and skill group 2 respectively. These numbers should be interpreted with care as not all of the employees who received high results in one skill group are the same ones who received high results in another group. This idea is explained in Figure 1.

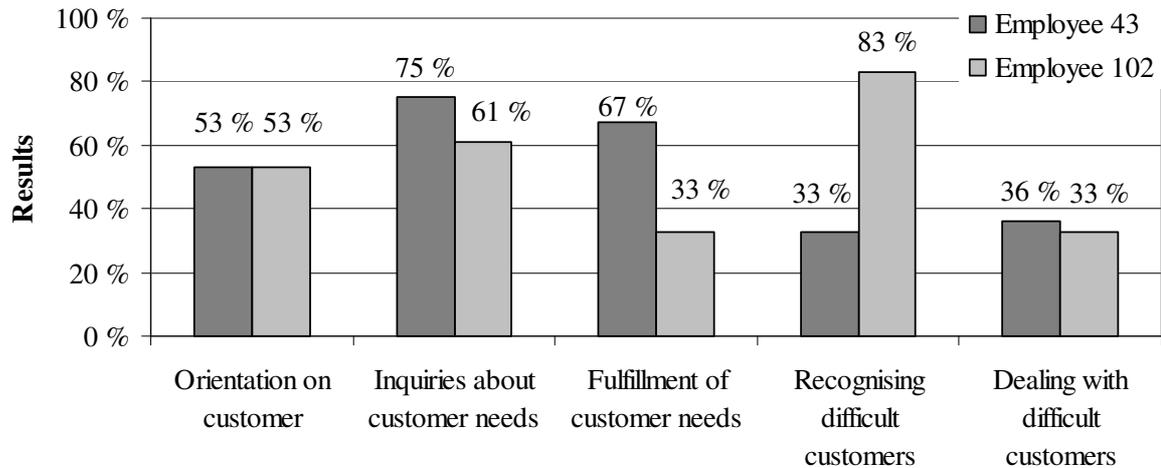


Fig. 1. Comparison of two individual tests results

In Figure 1 two employees were selected from the pool of 135 employees purely to represent the need for detailed view on the competence. The employees had average results in total, but different results in each of the skill groups. Both employees have big differences in two of the four skill groups with *employee 43* having high result in skill group 2 and low results in skill group 3 but *employee 102* having low result in skill group 2 and high results in skill group 3.

Based on the employee test results for each skill group individual development plans were proposed. In this case a decision was made to plan for training of all the employees that received the test results lower than 67% of correct answers, but only in the skill groups with low results. Figure 2 shows the differences in development needs of all 135 employees indicating 15 possible modifications to respective development solutions that would be required for each of the employees of the organization.

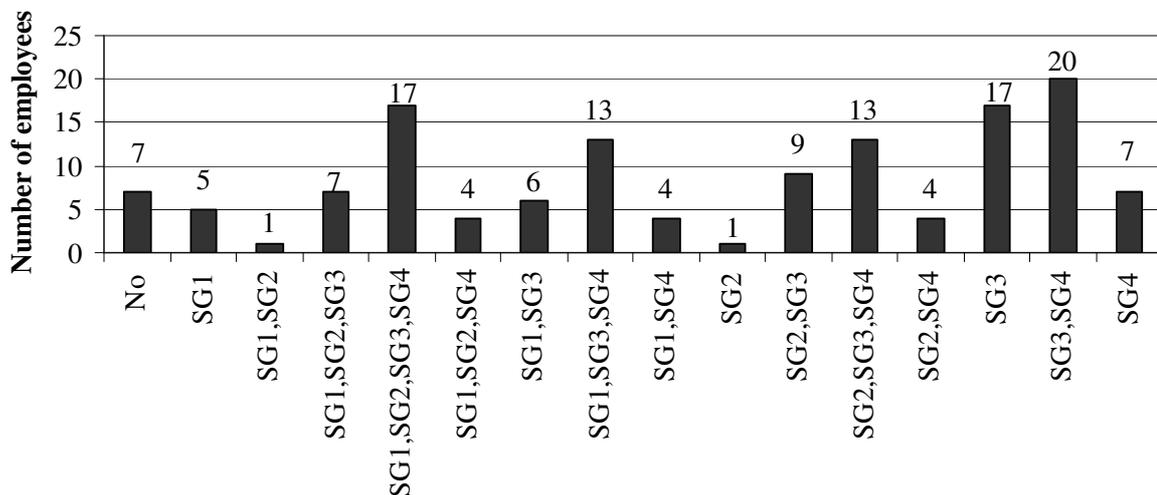


Fig. 2. Number of employees with similar development need

In Figure 2 *No* indicates no need for the competence development, were *SG1* to *SG4* represent individual skill groups as in Table 1. In this case 7 employees needed no training in any of the skill groups and 17 employees needed training in all four of the skill groups but the rest of them required improvement in some of the skill groups but not the others. Each of the combinations of skill groups therefore indicate the need for a possible development solution needed with the exception of option *No*, which indicates no need for training. The total number of employees requiring development in separate skill groups is indicated in Table 2.

Table 2

**Employees needing training in separate skill groups**

<b>Skill Group</b>	<b>Number of Employees</b>
Inquiries about customer needs (SG1)	57
Fulfillment of customer needs (SG2)	56
Recognizing difficult customers (SG3)	102
Dealing with difficult customers (SG4)	82

The results of the test were compared to the previously used approach for planning the employee development. Without the knowledge of the detailed results a typical approach for the organization would be to send all employees to training virtually treating them as if they received results equally low in all four of the skill groups (see Formula 1). The information received from the detailed tests indicated the possibility of planning for only some of the training (see Formula 2).

The following calculations were made for the two approaches to figure out the differences between the development need using average test results for the competence and the detailed results according to the skill groups. In both cases *DS* represents a development solution available to the organization with characteristics including the time and training budget spent on the training.

1. All 135 employees receiving full development of the competence that consists of four skill groups ignoring the differences in the skill groups during the assessment of the competence:

$$135 \times 4 \times DS = 540DS. \quad (1)$$

2. Employees receiving only necessary development after detailed competence evaluation in particular skill groups; 57 employees in SG1, 56 employees in SG2, 102 employees in SG3 and 82 employees in SG4:

$$57 \times DS + 56 \times DS + 102 \times DS + 82 \times DS = 297DS. \quad (2)$$

The total positive effect that could be reached implementing developments plans based on skill groups would be based on the difference between the two numbers and would suggest the economy of resources of up to 45% in an ideal situation. These savings could be expressed, for example, in time the employees spent on training as opposed to working or in the training budget the organization would spend on the development of its employees. The real effect will depend on the implementation of the development plans and the existing calculations for training needs. The available development methods may not allow for the realization of the maximum savings. For example, offsite intramural training courses are difficult in terms of effective logistics and may require additional expenses as opposed to e-learning development solutions that could be individualized very efficiently. Also the calculation did not take into account the differences in offers of development options in the market or even the availability of the said offers.

**Conclusions**

Competence management in public service organizations in Latvia is seen as a strategic priority that should help improve the effectiveness of the employees and the public image of the organizations. However, currently it is used sparingly because of the limitations perceived by the managers of the organizations. Competence management in public service is often based on subjective and generalized assessment and may not be aligned with the competence development solutions.

Division of competences into skills and evaluation of the competences accordingly provide detailed information about competence gaps of employees that can be used for development planning. Using this approach indicates the possible savings of time and effort spent on development of employee competences although it requires initial setup and description of competence descriptions, competence profiles and development solutions but strongly suggests a use of an appropriate IT support system for the management of competence evaluation and development planning.

## Acknowledgement

Research is a part of the project “Competence Centre of Information and Communication Technologies” run by IT Competence Centre Ltd., contract No. L-KC-11-0003, co-financed by the European Regional Development Fund.

## References

1. Cross-Sectoral Coordination Centre. National Development Plan of Latvia for 2014-2020, [online] [29.03.2016]. Available at: [http://www.pkc.gov.lv/images/NAP2020%20dokumenti/NDP2020\\_English\\_Final\\_\\_.pdf](http://www.pkc.gov.lv/images/NAP2020%20dokumenti/NDP2020_English_Final__.pdf)
2. Judrups J., Zandbergs U., Kazakovs M. Competence based human resource development solution. Engineering for Rural Development. Jelgava; 2015. pp. 669-674.
3. Zandbergs U., Judrups J. Evaluating competences with computerized tests. Engineering for Rural Development. Jelgava; 2015. pp. 625-630.
4. Kazakovs, M., Verdina, A., Arhipova, I. Automation of Human Resources Development Planning. Procedia Computer Science, 77, 2015, pp. 234-239.
5. Judrups J., Zandbergs U., Arhipova I., Vaisnore L. Architecture of a Competence-Based Human Resource Development Solution. Procedia Computer Science. 2015; 77, pp. 184-190.
6. Descriptors defining levels in the European Qualifications Framework (EQF) [online] [29.03.2016]. Available at: <https://ec.europa.eu/ploteus/content/descriptors-page>
7. Sunthonkanokpong, W., Jitgarun, K. and Chaokumnerd, W. The Development of an Adaptive Model of Competence for the Electronics Industry in Thailand. Proceedings of the EDU-COM 2008 International Conference. Sustainability in Higher Education: Directions for Change, Edith Cowan University, Perth Western Australia, 19-21 November 2008.
8. Paquette G. An Ontology and a Software Framework for Competency Modeling and Management. Educational Technology & Society, vol. 10(3) pp. 1-21 2007.
9. Champion M. A., Fink A. A., Ruggenberg B. J., Carr L., Phillips G. M., Odman R. B. Doing Competence Well: Best practices. Personnel Psychology, vol. 64, 2011, pp. 225-262.
10. Bowen D. E., Ostroff C. Understanding HRM–firm performance linkages: the role of the “strength” of the HRM system. Academy of Management Review, 29(2), 2004, pp. 203-221.
11. Kazakovs M., Development of competence based human resources development management model. Pre-research review (In Latvian – Kompetenču bāzēta cilvēkresursu attīstības pārvaldības modeļa izstrāde. Priekšizpētes pārskats), SIA „IT kompetences centrs”, Rīga, 2013.
12. Kazakovs M. Analysis of Factors Influencing the Choice of Solutions for Human Resource Development. Procedia - Social and Behavioral Sciences, vol. 156, 2014, pp. 111-115.
13. Kazakovs M. Development of a model of human resources development management process (in Latvian – Modeļa izstrāde cilvēkresursu attīstības pārvaldības procesam), SIA „IT kompetences centrs”, Rīga, 2014.
14. Kazakovs M. HRDMM validation and adjustment (in Latvian – Cilvēkresursu attīstības modeļa validēšana un koriģēšana), SIA „IT kompetences centrs”, Rīga, 2014.
15. Saaty, T.L. Decision making with the analytic hierarchy process. Int. J. Services Sciences vol. 1, No. 1, 2008, pp. 83-98.