MONITORING DEMAND FOR PROFESSIONAL SKILLS IN SMES OF THE WIELKOPOLSKA REGION

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Summary: According to the Central Statistical Office of Poland, in the year 2012, there were as many as 8.56 million out of 15.59 million of economically active employees (nearly 55%) with secondary vocational education, post-secondary education or vocational education. In spite of this, entrepreneurs have a deficit of employees with professional skills. Additionally, competences of vocational school graduates are perceived as inadequate by entrepreneurs acting as employers. This concerns both competences directly related to the profession and soft skills. Availability of workers with professional skills in the labour market is a significant factor of economic development; therefore, it is necessary to monitor available knowledge and professional skills in this market, as well as to ensure this information is accessible to entrepreneurs. In Wielkopolskie Voivodeship, System for Professionals was implemented in 2013; one of its objectives is to monitor employer demand for professional skills. The aim of this article, after outlining theoretical aspects of the problem concerned, is to present chosen results of a survey on demand for professional competences, carried out on a sample of several hundred entrepreneurs. The main focus falls on SMEs being an important, specific group of business entities. In the Wielkopolska Region they comprise 99.5% of all registered businesses. The possible directions of research in this field are indicated.

Keywords: professional skills, SMEs, monitoring, system

1. System for Professionals – its origins and main functionalities

System for Professionals may be seen in two perspectives. In the wider perspective, it is a group of subjects and relationships among them. They create an economic and educational network, whose one function is to inform about competences. In the narrower perspective, it is an IT tool facilitating acceleration of access to information about competences in the labour market. The concept of the system was created in 2006 and was developed by the authors and other members of the concept team (Szafrański, Grupka and Goliński 2008, pp. 158-167). Its development and testing was financed as part of Wielkopolska System of Monitoring and Forecasting, in the Human Capital Operational Program System (ed. Szafrański 2011). The system has been operating in Wielkopolskie Voivodeship since 2013, in chosen aspects only. Due to priorities in the regional policy, mentioned in the Summary, the system was first implemented in order to accelerate information flow in the educational and economic network, presented graphically by M. Szafrański in one of his works (2015c). A significant paradigm accepted for the development of the network and system is that vocational education is a preventive action (Szafrański 2015b) as understood in quality management (Szafrański 2013), which lowers costs and shortens the time span of creating knowledge while starting activity in enterprises (Szafrański 2015a).

System for Professionals was designed as a systemic and functional solution, which should meet the needs (changing over time) of various groups of recipients. The structure of the software (source code) and the composition of databases allow development of the tool through functional modifications and day-to-day improvement of the interface. Due to a large

scope of tasks realized in the system and numerous groups of users, the system is composed of modules. In the latest version of the system, released in 2015, the following functionalities can be listed:

A module for the entrepreneur allows precise definition of requirements for an employee in a particular position. The structure of the user interface and dictionaries of the IT tool ensure an intuitive solution to creating an offer for an employee, apprentice or trainee. The system makes it possible to describe the profile of competences; thus, playing the role of a mobile recruitment system; module of employees – a base describing the competence profile, which is automatically compared against job offers in the base; module of career counselling - enables planning the educational path and support in professional development; module of manager of practical training – allows facilitation of the process of managing trainings at the employer's site and organization of forms of employment other than full-time/part-time; module of trainings – a base of offers of courses and trainings responding to the needs of a labour market and complement the formal school education; e-learning module (a module of distance learning) – a form of integrated education and self-education system, which together with "anticipatory" vocational practice, takes the form of triplex education as a developed form of dual education [Goliński, Grupka, Szafrański 2014]; Analytical module – allows production of reports and bipartite analyses in real time on labour market and education in the Wielkopolska Region. Demo access to all modules can be found at http://demo.zawodowcy.org/

2. Examples of the use of System for Professionals in monitoring the needs for professional skills in SMEs

2.1. A survey of the significance of professional skills from the perspective of SMEs

Information based on data from the system facilitates solving decision problems: how to shape and complement professional skills of candidates for the job so that new employees can be fully involved in their job positions (higher job quality, lower risk of errors, lower costs of adaptation of the employee in the job position). A chosen example of how to analyse the significance of professional skills from the perspective of SMEs and its change over time is given below.

Table 1 shows basic characteristics of professional skills and their indications in job offers, apprenticeship and training (indication means the entrepreneur marked this skill in the job offer as required in the job position). A total of 757 SMEs registered in the system were used for the survey. It should be stressed that, in spite of the large number of enterprises and indications of skills, the survey from the beginning of 2015 should not be set as a reference point for the whole region and should only be used to talk about the situation in those enterprises that cooperate within the information exchange network. A further development of the network and maintaining entrepreneur activity will enable more detailed analyses and communicate the needs of SMEs in the area of professional skills. Such information should be used mainly by institutions responsible for the policy of the regional labour market, training institutions, public and private entities providing vocational education and occupational counsellors.

Current research suggests that SMEs using the system signal the needs for professional skills according to the Pareto-Lorenz principle. About 25% of skills indicated in offers as necessary translates into 70% of all indications of these skills. The system accepted the classification of professional skills according to the system of vocational education in Poland. Based on the above observation, it may be stated that for the SMEs which use the system, about 70% of skills indicated at least once and those not indicated but described, are not significant. System

for Professionals is a solution giving ground for more statements of this kind, so they can be verified with the active help of entrepreneurs, and in turn influence changes in the system of vocational education.

With the use of data from the system, changes of significance of each skill can be monitored, examining the relation of indications of that skill to the total number of indications of all professional skills in job offers, apprenticeship and training. An example of such an analysis is presented in Figure 1. The trend line should be treated as an example (among other aspects, it is necessary to consider the seasonal nature).

Table 1. Basic data from a survey of professional skills (PS) significance based on SME offers in System for Professionals

Period	# of indications of PS in all job offers, apprenticeship and training in the system	PS indicated at least once		70% of all indications of PS in the system	Most often indicated PS, form the group of 70% of indications		30% of all indicated PS in the system	Most often indicated PS, from the group of 30% of indications	
		# of PS	% of all indica-ted PS		# of PS	% of all indica-ted PS		# PS	% of all indica-ted PS
01.2013-06.2014	13 456	2 405	100%	9 485	642	27%	4 087	82	3%
11.2013-04.2015	15 980	2 901	100%	11 261	768	26%	4 872	115	4%

Source: own elaboration based on data from System for Professionals

Figure 1: Changes of the percentage of indications of a chosen skill among all indications of professional skills in System for Professionals
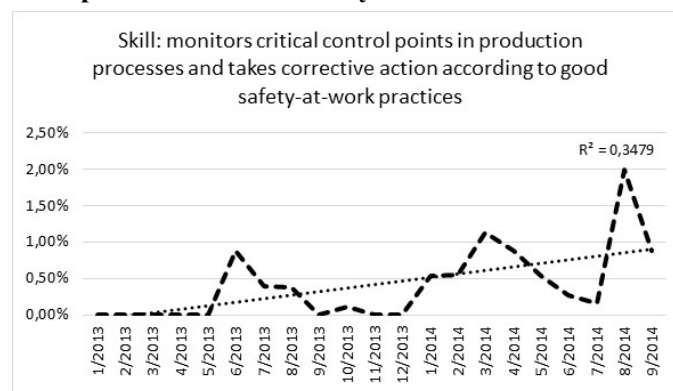
Source: own elaboration based on data from System for Professionals (September 2014)

2.2. Using methods of space analysis for professional skills

2.2.1. Mobility of employers as a determinant in searching for an employee

System for Professionals is dedicated to managers responsible for employee recruitment in SMEs. The needs of entrepreneurs were taken into consideration while designing the system. Among expectations connected with the employee profile description, mobility appeared in "competences". The distance between place of residence and place of work is often an important factor when choosing a job. Mobility concerns the choice of a job, and before that – the choice of place and method of education. Decision of employees are reflected in the

decisions of employers regarding managing the business (opening a branch, remote work) and payroll policy (commuting and housing expenses compensation). Earlier research of the authors' on mobility was used to design the system (Goliński, Szafrański 2012; Goliński, Szafrański et al. 2012; Goliński 2014). The development of functionalities of the system enables the use of the system on a smartphone.

2.2.2. An example of the use of data from System for Professionals in space analysis

System for Professionals assumes not only day-to-day, detailed communication between employers and employees, but also the possibility to draw conclusions on the labour market. An example may be the use of hierarchical clustering. Table 2 presents a chosen selection of groups of uniform data based on Euclidean distances. Due to the limitations of this article, only potential analytical-prognostic possibilities of System for Professionals are presented. Factors taken for the analysis of sub-regions concerned unemployment figures in the sub-region, number of trades offering jobs, number of job offers and number of professional skills expected by employers.

Table 2: Basic data of significance of professional skills based on offers of SMEs

Region	Area [km²]	Unemployment [#of people]	Line of business	Job offer	Skills
Poznanski	9 541	41 018	33	207	25 624
Pilski	6 459	21 995	11	29	2 441
Koninski	6 397	23 955	13	21	1 625
Kaliski	5 786	24 823	30	150	24 849
Leszczynski	3 602	13 856	12	19	1 168
City Poznan	261	13 800	32	155	25 274

Source: Data from System for Professionals (April 2015)

As a result of comparison of the qualities mentioned above, characterizing the labour market and employers looking for employees through System for Professionals, a diagram of average differences was created (Figure 2). Based on the analysis of concentration, the following typology groups can be defined: a) Kalisz region and the city of Poznań b) Leszno, Piła and Konin regions and c) Poznań region. The analysis carried out is a starting point for in-depth research based on more synthetic data and for conclusions on the needs of business management.

Figure 2: An example of hierarchical clustering, grouping regions of similar typology based on offers of SMEs from System for Professionals
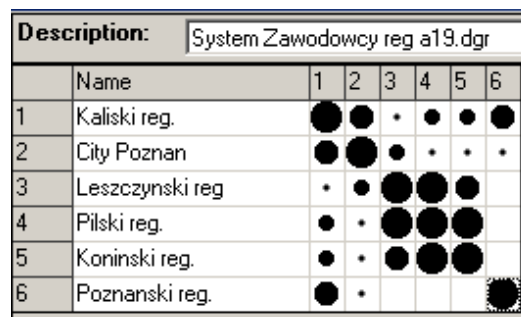
Source: Data from System for Professionals, software MaCzek 3.3, www.antropologia.uw.edu.pl

Space analyses was based on data obtained from System for Professionals for individual regions or cities facilitate recruitment or trade decisions taken by entrepreneurs, as well as strategic decisions regarding the future development of the business. As the system develops

and data grows, entrepreneurs, especially SMEs, will be offered more precise and complex analyses and forecasts.

3. Future development of System for Professionals and research using the system

The scope of implementation of System for Professionals does not exhaust its possibilities. Developmental work is being carried out and is described by M. Szafrański (Szafrański 2015a, pp. 239-240). It is justified to include other target groups and regions. It is important to convince SMEs to the benefits of participating in the system. They obtain wider knowledge on competences on the labour market and begin to have influence on formal and lifelong vocational education. The system may be used in the strategic aspect, widely described by Romanowska and Gierszewska (Romanowska 2009, Romanowska and Gierszewska 2009). Access to data and information in the system may become the factor that accelerates the shaping of social capital in enterprises and in regions (ed. Bylok and Czarnecka 2011).

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