

**Transfer of Qualifications and Learning Standards
in Plastic Sector**

StandPlast VET

**SURVEY
OF/BY EMPLOYER IN THE SECTOR
OF PLASTICS INDUSTRY
(SUMMARY)**

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SURVEY OF/BY EMPLOYER IN THE SECTOR OF PLASTICS INDUSTRY

2. AIMS OF QUESTIONNAIRE SURVEY

Slovak plastics cluster (7 members) coordinates international project Transfer of Qualifications and Learning Standards in Plastics Sector StandPlast VET. The aim of this project is creation of a List of job titles and a List of adequate qualifications in sector 22 – Production of plastic products and rubber. Another important aim is description of key competences (knowledge, skills and attitudes) and simultaneous creation of the framework of educational programmes to these key competences.

Survey of employers in the area of production and processing of plastics and rubber is only the first step to fulfilment of these aims. Whole process will continue with work of international workgroups and realisation of workshops in Slovak Republic. Managers for human resources, (representatives from the industry), also representatives from educational sector will be invited to these workshops. During the year 2014 the “GUIDE OF JOB TITLES, QUALIFICATIONS AND VOCATIONAL EDUCATION IN THE PLASTIC SECTOR” will be created in cooperation by workshop participants. This guide will help employers to clearly define professional job titles in own organisations (standards), to draw information for internal (inside the firm) professional education, to draw demands/requirements for external professional education (schools and educational institutions). “The Guide” will respect European Qualification Framework (EQF). Information in the Guide will enable preparation of professionally qualified workforce in area of plastics and rubber to meet the standards in EU countries.

3. PREPARATION OF QUESTIONNAIRE

In the framework of “Survey of/by employer in the sector of plastic industry” were realised these activities:

- a) Preparation of survey questionnaire according to the rules for sociological surveys (combining qualitative and quantitative survey)
- b) Preparation of electronic version of questionnaire
- c) Implementation of pre-survey (testing of questionnaire reliability in real practice - on sample of 10 firms)

Questionnaire was elaborated during the period from 26.03.2014 – 04.04.2014

3.1. Form and content of questionnaire

Questionnaire contains 3 parts:

A. Identification data. The aim is to identify the size of firm, localise the seat, to gain information about used technologies, branch classification, final area of customer. This information could serve as comparison of results of parts B and C.

B. Questions on the job titles – these are questions on existing job titles, on actual or future needs of human resources for these job titles, also managing positions in the firm, etc.

C. Questions on the key competences and education – this part of questionnaire is more demanding for respondents. Out of 9 questions only 3 are oriented on key competences. They are more extensive because the respondents are asked to answer on each job title a competence separately. In this part, respondents are asked to answer on form and method of cooperation of firms with schools at secondary and tertiary levels, on form of education in the firm, also on information on possibilities to qualify, re-qualify or specialise the employee.

Form of questionnaire:

- form of closed or semi-closed questions
- form of electronic questionnaire, which is more convenient to respondent, also to research worker,
- tables were used for complex questions, graphical and colour differentiable information
- 1 questionnaire with 3 separate parts. Due to the length of questionnaire, respondent optically fills only 1 part (1.part has 6 questions, 2.part has 6 questions, 3. part has 9 questions.)

4.2 Selection of sample for dissemination of questionnaires

Selection of sample was made on the basis of these criteria:

- size of firm according to number of employees (firms largely over 100 employees)
- sort of ownership (to be involved different sort of ownership)
- legal form (to be involved different sort of legal form)
- regional setting (to be represented in all regions with accumulation of plastics industry.

Firms were chosen aliquot percentage to the real functioning.)

Conclusion: In the survey, it was recommended to address the questionnaires to the transparently selected firms - sample of 44,86 % from the list of all entrepreneurial subjects. (Database of Statistical Office of SR – 2014 and other sources.)

Sample of 109 firms from 243 subjects in Slovak Republic was according the stated criteria was satisfactory. These firms were distributed with questionnaires including explanatory letters.

Explanatory note: Return of questionnaires was rather low, on the limits of statistical reliability of results of the survey. Survey had informative and rather qualitative nature/character, its main aim was not to quantify and compare the results (between big and middle-size firms, etc.). Low return on the limit of 27 % did not endanger results of evaluation. Generalisation of results (parts B and C in connection to identification data in part A) was not possible. It would have been necessary to have at least return of 49 % questionnaires from distributed sample of 109 questionnaires for adequate statistical reliability.

B. Answers to the Job titles

Comparison of job titles which firms actually have in their organisation structure, or they think they should have. This part is comparing and *not managing* job titles which are directly or indirectly taking part on manufacturing operations.

The table shows recorded answers to the questions in **B1 and B2 of questionnaire.**

Conclusion: All firms answered (100% - grey) that 5 job titles are necessary and key in every firm:

- technologist of manufacturing
- logistics worker
- machine tool setter
- maintenance handyman and electrician
- processing operator

By comparison, the answers to which job title firms have in the organisational structure in plastics industry and which should be included in the list of job titles in this type of industry – there is a major shift in **4 cases (yellow):**

- production planner
- designer
- laboratory technician
- auxiliary worker in manufacturing

All these job titles are directly connected to production programme of firms, except the position of production planner. **Production planner is essential job title** in every production company. The firms lacking this position in their organisational structure or its activities, create another job title or they are only in the process of drawing up the description of this position and selection of candidate on this job title.

Job title of designer depends on sort of production, scale of manufactured products and extent of changes required to make, proportion of repetitive products to the new manufacturing programmes, added value of products, etc. Therefore these firms have such position currently.

Job title of laboratory technician is connected to exacting manufacturing programme and requirements on quality control, also with the philosophy to have own testing laboratory. The need to have auxiliary worker in manufacturing is closely connected to automation and robotic automation in every plastics manufacturing. The higher automation and robotic automation in manufacturing, together with more sophisticated storage and logistics, the lower the need for this position. The need for this job title is also reduced by good organisation of work. The duties of auxiliary worker are performed closely connected to these operations in manufacturing.

On the question B3, which job titles should be on the list – the firms answered:

Job titles which should be integrated into the organisational structure of plastics enterprise:

Tools Designer

Programmer of industry robots and systems

Conclusion: respondents answered in 45 % of cases, that the list of standard job titles in the plastics industry must integrate job title of **tools designer**

It is interesting that 23 % respondents think that **Programmer of industry robots** should be also standardised job title in this sector. This information should be contextualised with the fact that majority of larger middle-sized firms in the Slovak Republic uses industry robots and manipulators in plastics industry. It may be due to the fact that majority of suppliers of plastics products have automotive industry as final product customers. It also points to the fact that Slovak Republic has mostly larger-sized plastics manufacturing companies.

Important question in the questionnaire was B4 - question on cumulation of job titles.

Correct cumulation of job titles is necessary to know. This cumulation depends on particular job titles, also on manufacturing programme of company. I.e. supplier for automotive industry has another organisational structure, due to different parameters in the framework of manufacturing and logistics chain, he uses different cumulation of job titles. **Cumulation of job titles is closely connected to division of labour in the firm.** In large organisational units, the division of labour is so high that cumulation is not suitable. On the other hand, large company has to take into consideration the optimisation of firm's management and must create certain cumulations of job titles.

In cumulation of job titles there are some "unwritten rules". When certain activity is very time-consuming, we cannot combine it with organisational work, where communication and coordination of people is often necessary. Cumulation of job titles greatly depends on **competences of concrete job titles**. We should not combine work in the framework of manufacturing management with position of quality control. There is a question of which competences quality technician has, what responsibilities this position has and which competences quality controller has. The basic rule is that the person participating in production cannot control its quality. Although manufacturing process functions considerably on self-control, it is not sufficient for quality control and quality assurance of final product.

We can also use simple principle in cumulation – analysing the process in concrete firm, processes following the sequence chain in series or parallel. The need for similar competences is possible under certain circumstances and through given rules based on theory of work organisation connecting it. We can see this in the table in cumulation of job title of purchasing officer and job title of logistic worker.

Job titles that can be cumulated	Job titles cumulated with left side column (% of respondents who answered)
Production Planner	Maintenance Engineer (44,6 %)
	Leader of operation (22,2 %)
Logistician	Purchasing officer (100%)
Maintenance Engineer	Quality Control Technician (11,1 %)
	Quality Controller (22,23,%)
	Toolmaker (11.1 %)
Process/Machine Tool Setter	Operations Electrician (33,32 %)
	Shift leader (11,1 %)
	Technologist (11,1 %)
Maintenance Engineer/ Technical Manager	Process manager (22,23 %)
	Maintenance Handyman (22,23 %)
Operations Electrician	
Quality Control Technician	Quality Controller (11,1%)
Commercial manager	Project manager (3,4 %)

On question B5. Respondents should answer what an actual and prospective need/use of human resources for individual job titles is.

Two respondents did not understand precisely the meaning of question and instead wrote number of employees who should work in these positions. Due to the fact that we do not know number of employees in individual job titles, it was not possible to evaluate these.

The question had not been identified as unclear in the pre-survey. The aim of question was to discover which workplaces and to which extent it would be necessary to prepare the employees (from internal sources or from external labour market).

Result: By analysis of table on human resources' needs, implementable **within next 3 years** we have discovered that respondents elected only **8 job titles**. Regarding planning of professionals in the labour market, there is interest in the job title of operator (operating of production lines and machines) and settupper. With statistically lower numbers but higher importance for the firms, there is requirement/demand for technologists and toolmakers.

By analysis of table on human resources needs prospective **within next 5 years**, respondents elected 15 job titles out of 16. Cumulatively, the demand for human resources and staffing increases in job titles of operator and machine setter. On the other hand, this will increase the demand for professionals in job titles of technologist of quality and quality controller. The reason is the pressure of purchasers/customers on quality of production, but also the pressure on quality management of production process in the firms. The demand for job titles of maintenance man and toolmaker will increase. The demand is connected to the development of technologies, different innovations in the firms, meanwhile the workforce group age steadily increases. Only 1 position out of 16 – “worker in logistics” - was not mentioned as needing greater staffing and recognition of importance.

Question B6 asked which managerial and leadership positions in the company are directly or indirectly involved in management of production process.

Result: Question B6 was semi-closed question; respondents could add other job titles, which are involved with management. No respondents added another job title, although at least 5 of them noted that these positions already were in the firm.

All respondents answered that in their organisational structures there is position of **“production leader”** and **“leader of operation”**. **“Manager of maintenance”** is less commonly employed (22 cases).

Positions of **“manager of logistics”** and **“shift-leader”** were significantly present as well. The amount and frequency of these is understandable and logical, because of manufacturing companies themselves being oriented on final purchaser in automotive industry.

One downside of the results and graph portrayal is that **“development”** and its management in plastics companies still has not become a common practice. Only ¼ of firms were employing staff as **“manager of development”** or recognising such position.

C. QUESTIONS TO THE KEY COMPETENCES – evaluation

In the framework of C1 the respondents should assign the key competences to individual job titles according to their importance. The scoring was of importance in range from 1 to 5 (1 being lowest and 5 the highest). The next table (also provided to respondents) lists simple definitions of specified competences for unequivocal and common comprehension of competences.

Basic description of competencies:

Area of competency	Description of area of competency
Professional knowledge	Science on materials, knowledge of technology of processing plastics and rubber, knowledge of technological process management, knowledge from rheology, knowledge of relations plastics/rubber-technology – tools design, basic knowledge on machines and devices, basic knowledge on quality, etc.
General literacy:	Knowledge and skills PC, language knowledge and skills, basic economic knowledge - literacy
Skills:	Ability of problem solving and own responsibility for risk, organizational flexibility, stress resistance, interpersonal skills, assertiveness, manual skills...
Ability of application:	Ability of application of gained knowledge and skills to new conditions
Attitudes:	Initiative, self-confidence, orientation on performance, being aware of high quality of work

Job title	Professional knowledge	Professional skills	General literacy	Ability of application	Attitudes
Production Planner	3,25	3,25	3,50	3,00	4,00
Polymer Technologist	4,67	4,11	3,89	4,00	4,44
Product Design Technician	4,80	4,20	4,40	4,40	4,60
Quality Control Technician	4,14	3,71	3,71	4,00	4,14
Laboratory Technician	4,43	3,86	3,71	3,86	4,00
Process/Machine Tool Setter	4,22	4,33	3,00	4,25	4,38
Toolmaker	3,83	4,33	3,00	4,00	4,33
Operations Handyman	3,78	4,00	2,78	3,78	3,89
Operations Electrician	3,78	4,00	2,78	3,78	3,89
Process Operator	3,33	3,56	2,22	4,14	3,89
Quality Control Inspector	3,63	3,38	3,25	3,75	4,00
Process Technician	3,29	3,71	3,57	3,71	4,00
Assembler	3,00	3,57	2,43	3,14	3,57
Auxiliary worker in manufacturing	2,43	2,86	2,00	2,71	3,43

Result: The table provides answers of respondents and which areas of competences should professional programmes for individual job titles be oriented.

22,2 % of respondents did not answer this question. The others assigned mostly 2 competences that should be in focus of further education, training and development. Values in the tables are % representation of individual preferences. Yellow colour marks the highest % share of preferences and green colour marks second highest share of preferences.

According to the respondents, the educational programmes in the firms should be oriented largely on improvement of general literacy in majority of job titles with exception of worker of production logistics and technician of quality.

The results **cannot be generalised** - they are only topic for discussion of experts and managers of human resources. Respondents by evaluation of general competences of job titles could potentially slip into the evaluation of specific competences of own employees and their further education instead of general considerations.

In the part C3, respondents expressed which level of achieved formal education demands individual job titles.

Due to fact that the respondents are from different firms in plastics industry, with different demands of manufacturing, contradiction of demands and essential roles and their understanding, took place between positions of „**operator of production**“ and „**controller of quality**“. Larger part of respondents assigned these positions to the acquired level – **454 – Completed secondary level education with graduation diploma**, smaller part of respondents has written demands only acquired level **253 – basic technical education without graduation certificate or diploma**.

Above mentioned positions need to be defined in standardised terms and thus become more specific regarding minimal requirements for achieved education of interested current and prospective employees.

The largest difference is in requirements on education for job titles „**technologist of manufacturing/production**“ and „**laboratory technician**“. By standard definition of demands and tasks of every job title and relevant key competences, the firms will provide tailored educational requirements on job-seekers/transferees. **Therefore we recommend implementation of standard definitions of positions and minimal requirements for these.**

C. Questions on education – evaluation

Questions in second part of section C (C4-C9) were focused on educational system and cooperation with formal educational institutions.

Result: Respondents had the biggest (%) preference of area for cooperation - „assigning of topics of elective technical projects at secondary level “. On one hand, such cooperation does not cost companies any extra expenses (neither financial, nor time), on the other hand the firms can improve practical qualities and experience of school graduates, closely connected to relevant real world practice.

In the question C5, we have asked the respondents whether they would be willing to create ‘Centre of practical training’ within the company?

Only 33 % of respondents gave positive answer. This answer directly corresponds with preferences in the previous question (see answers in the part „PRACTISE and CENTRE“). If such centre were to be created, it would certainly be aimed PLASTIC or OPERATOR of MANUFACTURING. All positively responding also stated maximum number of students per year would be 2.

Result: Respondents decided on **4 areas of same importance** for cooperation with universities. 55,5 % of respondents prefer cooperation with universities in the area of **election of topics for Bachelor and Masters final year projects** (thus strengthening the connection of theory with practice by university students) **and internships** in the firms. Such cooperation would also help the university students gain practical experience and know-how while strengthening their practical skills. The graduates could therefore progress into full-time employment with the company during the study or shortly before graduation.

In the parts C4-C6 respondents were asked on area of formal education, in the parts C7 – C8 were asked questions related to non-formal education.

In the question C7 the respondents had opportunity to choose from options of education type, which would take place in firms they work in. This question was semi-opened.

Result: Respondents prefer **internal firm education, which can be delivered through external companies as long as it is coherent system** tailored to the specific needs of the firm. Interesting answer of respondents was choice of preferences in the area of initial training in the new technologies. **No respondents mentioned**, that this took place in the own firm. Mostl likely it would be initial training via suppliers of technological complex/machines – **via external companies, not internal trainers.**

In the question C8. were respondents asked about their preferences regarding formal and informal vocational training in the area of plastics and rubber for employees. They had choice of 3 options and able to add own.

Result: It is clear that:

- They would try to do vocational training in the form of initial training for the needs of own firm (internal, induction training)
- Vocational training should be organised in most economical way – job-seekers to be trained/re-qualified via Labour office (OLSAF /UPSVAR), which would be covered mainly by accredited educational institutions, vocational /secondary schools and universities. These could be asked to create and provide the courses at special non-commercial rates.

Mentioned preferences are connected with pressure of management of firms to restrict expenses on educational activities through external providers.

In the question C9, respondents were asked whether they would welcome regularly updated database or catalogue of educational organisations in the area of plastics industry and rubber at different levels (regular seminars, short courses and workshops, long-term modular education, etc.)

All responded welcoming such idea of catalogue of educational providers in the area of plastics and rubber industry.

Part of questionnaire survey took place as phone call surveys.

Telephonic surveys took place between **19 –28.5.2014**. Eleven firms of different size (from 99 employees till 500 employees) were elected, including HR managers, personal managers, specialists for area of HR and personnel officers.

2 basic questions were asked over the phone:

- **Do you have systemisation of job titles – catalogue of job title in the firm?**
- How do you choose content, form of vocational education/training for employees in your firm?

Only 3 firms provided complete telephone survey information – similarly low return of answers as other survey types. Therefore it was not possible to statistically process and generalise the feedback/answers.

It was possible to make unified conclusion:

- Although some of firms have created a catalogue of job titles, they do not know to compare it to any existing standards. The same refers to key competences of defined job titles.
- Considering the lack of standardisation of key competences for particular positions, it is difficult for HR personnel to define and draft a form and plans for further education and minimal requirements of educational credentials (see results of questionnaire on individual job titles). Considering the fact that 2/5 of plastics industry firms normally employ 24-50 employees, they cannot cumulate job titles adequately.
- Besides, one has to realise that in the small and middle-sized firms, there are HR specialists, therefore defining of job titles rests with personnel officers and personnel managers as applicable. Disunity of understanding of some job titles, duties and requirements, **creates issues in mobility of employees** both in the Slovak Republic and the framework of European Union. Key competences of specific job titles should be defined together with minimal educational standards. Failing to meet these standards, job-seekers should be able to identify and achieve further training and education tailored to specific roles and posts they seek.

Standardised definition of job titles and relevant competences would **contribute to the increase of quality:**

- formal education at secondary and tertiary level
- informal education delivered via both external and internal providers
- workplace environment (increased job satisfaction)
- human resources (greater stability and retention, lower attrition rates, better adaptability)
- placement of job-seekers to relevant positions by HR personnel

Up to 56 % of plastics firms have some foreign capital investors and share-holders and 8 % of plastics firms are international/global. Therefore, correct understanding of job titles and their competences are conditions required for intra-company mobility as well as within industry, as well as for education specific to plastics industry and cluster.

Report compiled from empirical survey: PhDr. Katarína Ikrényiová

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