

Polish Lift Industry Education & Training

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Abstract. The Polish Association of Lift Manufacturers (PALM) has been running a staff education program for the lift industry since 2004. This was due to a shortage of employees for the installation and maintenance of lifts. This deficit widened after Poland's accession to the European Union and the rapid outflow of specialists from the Polish market to EU countries. PALM decided to conduct staff education in the public education system in Poland at the level of secondary technical school (technical school). PALM runs this program in a situation of continuous educational reform, especially vocational education. The reform began in 2000 and continues to the present, which makes the program very difficult. In addition, in the initial period PALM taught a profession that did not exist in the list of professions of the Ministry of National Education, so PALM had to create this profession and then enter it into this list.

1 INTRODUCTION

The education system in each country is shaped by many years of tradition, cultural conditions and state policy. In the case of vocational education, the conditions resulting from industrial culture and its condition must also be taken into account. In Poland, as a result of the system transformation after 1989, there was a huge restructuring and privatization of state-owned enterprises. Many of these enterprises went bankrupt or split into smaller units. At the same time, vocational schools were liquidated in these enterprises. In addition, the number of secondary technical schools and the opportunities for students of these schools to practice in enterprises have decreased. This political and economic situation in the years 1990 - 2004 caused a growing problem with the recruitment of employees by companies, especially in the area of advanced technology. Additionally, a lack of employees results from Poland's accession to the European Union. Over 2 million young Poles left Poland, which deepened the bad demographic situation. Also, the reform of the vocational education system introduced in 1999 caused the outflow of young people from vocational schools.

2 PALM PROGRAMME – SECONDARY TECHNICAL SCHOOLS

2.1 Public vocational education in Poland structure 1999-2020

The reform of the public vocational education system has been in Poland for 20 years. After 20 years, we returned to the system that was in Poland before the reform of 1999. The reform of 1999 ruined the system of vocational education. Almost all basic vocational schools and a large number of secondary technical schools have been liquidated.

The time schedule of the implemented vocational education reform in Poland:

- **1999 - The reform of the education system – beginning**
- 1999- 2017 Basic vocational school - 3 years
- 1999 -2019 Secondary technical schools – 4 years
- **2012 - Amending the act on the education system - liquidation of specialization from 2014, Apprenticeship only in occupations approved by the Minister of Education**

- **2017 - entered into force: Education Law and Regulations introducing the Act - Educational Law**
- 2017/2018 – Basic vocational school -> Stage I sectoral vocational schools – 3 years
- **2020/2021 – Stage II sectoral vocational schools – 2 years**
- **2019/2020 - Secondary technical schools – 4 years -> 5 years**

2.2. Curriculum delivered by the Polish Association of Lift Manufacturers

The PALM personnel education and training program for the lift industry began in 2004. PALM curriculum was designed for the **public technical secondary schools**. Our goal was the best possible preparation of young staff for the lift & escalator industry based on core curriculum for technical secondary schools. The programme is realised in co-operation with the Polish Office of Technical Inspection.

The time schedule of implementation of PALMs' programme:

- **2004-2010** - from the 3rd Grade, **specialization in existing official professions - electrician technician, mechatronics technician, electronics technician.**
- **2010-2012** – Realisation of Human Capital Operational Programme, Priority 9 Development of education and competencies in the regions, Measure 9.2. Improvement of attractiveness and quality of vocational education – **New opportunities, new qualifications - specialization of mechanic of lifting equipment (€ 250,000 EU subsidy).**

The Program resulted in the development of a professional specialization program respecting the Employee Skills Methodology (MES) module.

Curriculum Structure:

- The curriculum was divided into 10 M (Modules),
- Each of the 10 M is divided into 40 TUs (Training Units),
- The 40 TUs containing 210 hours of teaching,
- Placements: 4 weeks in grade 3
- Practical training at employers' sites: 50% of all the classes in grade 3 and 4,
- SEP (Association of Polish Electricians) Certificate -- maintenance up to 1kV awarded in grade 3,
- Category III qualifications – maintenance awarded in grade 4.

The list of Modules:

- M-01: Defining the types of lifts and escalators, their structure and work cycles
- M-02: Maintenance of mechanical elements assembled in a lift shaft
- M-03: Machine room and sheave room maintenance
- M-04: Electrical drive assembly maintenance
- M-05: Brake systems maintenance
- M-06: Hydraulic systems maintenance
- M-07: Control and electrical systems maintenance
- M-08: Determining the principles of conducting overhauls, commissioning and maintenance work in lifts
- M-09: Maintenance of lift devices for the disabled
- M-10: Revision/preparation for examination

- **2012-2014** PALM creates a new professional qualification for the lift industry - **lift equipment technician** which has been approved by the Minister of Economy and the consent of the Minister of Education.

PALMs' participation in the development of curriculum documents for a new profession:

- Basics of program education in the profession
- The curriculum for the profession
- Qualifications exams

Goals of education in the profession - performing the following professional tasks:

- Mounting lifting devices,
 - Assessment of the technical condition of lifting equipment
 - Performing activities related to the operation and maintenance of lifting equipment,
 - Modernization of lifting equipment,
 - Organizing works related to the assembly, operation, maintenance and modernization of lifting equipment.
- **2015 – 2019** PALM realised programme in secondary technical school – 4 year
 - Grade 2 - 17 days professional practice in companies (one day a week)
 - Grade 3 - 30 days professional practice in companies (one month).
 - **From 2019/2020** – secondary technical school – 5 years - recruitment of students to these schools began in May 2019.
 - **From 2020/2021** – Stage II sectoral vocational school – 2 years - there are no necessary ordinances of the Minister of National Education (**as a result of our experience, also to meet the needs of lift companies, we are thinking about launching a stage II sectoral vocational school program**).

PALM, together with representatives of Schools, conducts the promotion of the profession (educational fairs, open days, technology days, seminars, website, social media – Facebook).

For the needs of the new profession, lifting equipment workshops are created in schools. There is a possibility of taking patronage over the workshop of lifting devices by lift companies.

Purchases of the necessary equipment for vocational education and for exams in professional qualifications are being carried out. The purchases are financed from the EU structural funds and from the budgetary resources of local municipalities

The PALM program can also be used in vocational adult education. This program can be implemented in the same schools in the form of courses lasting 750 or 1000 hours depending on whether a person works in the lift industry or not.

The dynamic development of technologies, including technologies in the lift industry, makes us think about tools supporting the curriculum, such as virtual reality. These tools are already being used by lift companies to train their employees and are beginning to be used to conduct, among others, diagnostics and maintenance of lifts. The development of technology raises questions about the meaning of many years of education. Maybe soon the only justification for

it is that young people have to acquire experience in the area of safe, responsible and independent work on a lift within a few years of school.

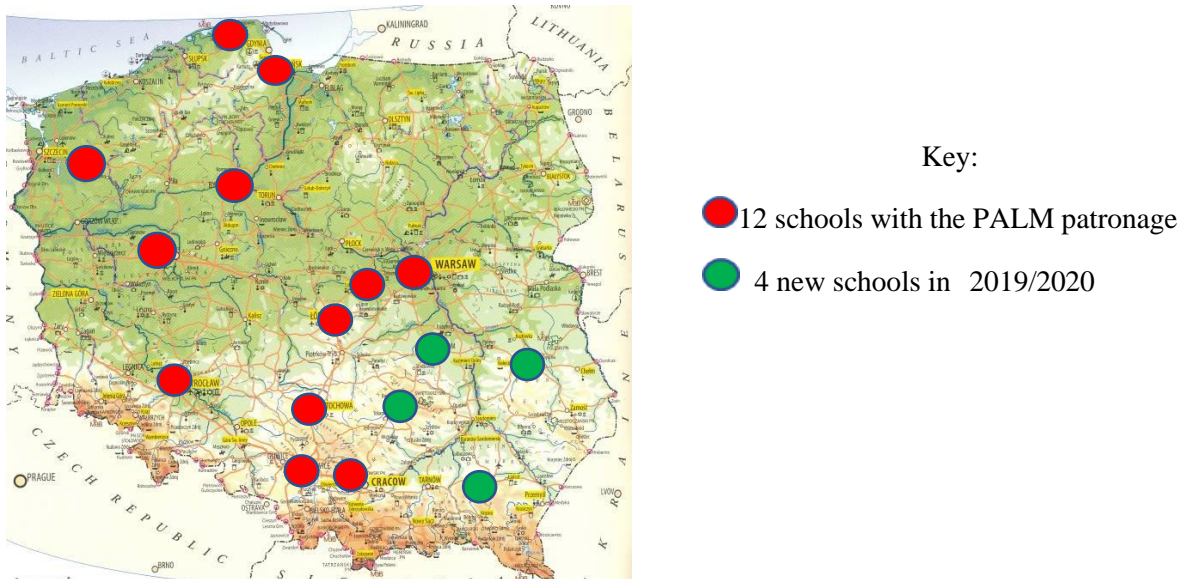


Figure 1: PALM programme – secondary technical schools in Poland – where we are

3 CONCLUSIONS

The vocational training program in post-elementary schools is implemented within 4 to 5 years. It requires political stability because, first and foremost, students should be recruited and their parents should be persuaded to support their decisions. In addition, schools need to adapt to new conditions together with changes in the education system, both due to their educational base and teachers. Employers also have to adapt to these changing conditions, for example by changing the safety procedures for young people. This paper shows how difficult it is to implement the education program of future employees, including, for example, the lift companies, in a situation of nearly 20 years of reforming education in Poland.

BIOGRAPHICAL DETAILS

Tadeusz Popielas - MSc. Environmental engineering. A graduate of the Faculty of Environmental Engineering at the Warsaw University of Technology. Postgraduate studies at the Warsaw University of Technology. A member of the Mazovian Chamber of Civil Engineers. Secretary General of the Polish Association of Lift Manufacturers, member of the Technical Committee No. 131 of the Polish Committee for Standardization of elevators, escalators and moving walkways. Member of the Statistics Committee and member of the Working Group on education and training of the European Lift Association (ELA). He is an organizer of a number of seminars and conferences related to the safety and accessibility of passenger lifts, escalators and moving walkways. Author of numerous articles and publications devoted to the safety of lifts. He is an initiator of the personnel training program for the lifting industry in Poland at the level of secondary technical school.