

Problemy edukacji dorosłych w Polsce i na świecie

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Building renovation sites as work places with specific skills requirements – international challenges

Plac budowy jako miejsce pracy o zdefiniowanych wymaganiach kompetencyjnych
– wyzwania międzynarodowe

Słowa kluczowe: rozwój zawodowy, kwalifikacje, role i funkcje zawodowe, kierownik budowy, brygadzysta, budownictwo, remonty obiektów budowlanych

Streszczenie: Artykuł prezentuje wyniki prac badawczych zrealizowanych przez międzynarodowe partnerstwo projektu RenovUp. Projekt koncentruje się na rozwoju kompetencji średniej kadry menadżerskiej zarządzającej zespołami realizującymi prace remontowe obiektów budowlanych. Etap badawczy miał na celu m.in. analizę specyfiki projektów renowacji obiektów budowlanych, które wpływają na ewolucję funkcji kierowników budów i brygadzystów, identyfikację specyficznych umiejętności oczekiwanych od nich przez pracodawców, jak również zdefiniowanie rekomendacji i wskazówek co do przyszłych prac nad modyfikacją procesów doskonalenia tych grup pracowników sektora budowlanego.

Pięć krajów uczestniczących w badaniach (FR, GR, IT, ES, PL) wykazało zbieżne potrzeby i wskazało na podobne wyzwania sektora remontowo-budowlanego. Badania potwierdziły między innymi potrzebę rzeczywistego wykorzystania szkoleń w sytuacji pracy oraz ogólnie – koncepcji work – based – learning, jak również rozpoznawania i potwierdzania efektów uczenia się (np. w formie Open Badges) zdobywanych przez kandydatów na ścieżce ich rozwoju zawodowego.

Key words: professionalization, qualifications, professional functions & roles, site manager, team leader, construction sector, buildings' renovation

Abstract: The article presents the results of research carried out by the international partnership of the Erasmus+ project "RenovUp". The project focuses on the development of the competences of the middle management on building renovation sites. The research stage aimed at the analysis of the specificity of renovation projects that affect the functions of site managers and team leaders, the identification of specific skills expected of them by employers, as well as

defining recommendations and guidelines for future work on the professionalization processes of these groups of employees in the construction sector.

There appears to be an agreement the five project countries (FR, GR, IT, ES, PL) regarding the current needs and challenges of the building renovation sector. It is acknowledged and understood that any designed training scheme should take into consideration real work life cases. Such cases along with a work-based-learning approach, within a framework of recognized learning outcomes (e.g. in the form of Open Badges) are set to assist professionals in the path of their professional development and advance.

Work background and justification

Renovations of buildings are very often specific type of works. Not only the expectations of clients are changing, but also the available construction technologies or technologies supporting the process of managing investment projects. These, in turn, have an impact on the functions performed by the middle managerial staff on construction sites and on the competence required of site managers and leaders of small teams (foremen) specializing in renovation projects. Moreover, the current training offer in European countries does not fully respond to these challenges.

The specific skills of middle management on building renovation sites are not, to the authors' knowledge, sufficiently recognised. Construction companies specialised in the renovation of buildings are rather small in European countries. They employ few salaried workers and their functions are often blurred, where a clear distinction between highly skilled independent worker, team leader and even site supervisor is often quite impossible to make. Therefore, a methodological observation and categorisation of work situations in terms of activities and tasks, as well as a pragmatic and simple identification of capabilities (in terms of skills and abilities) for these functions or a clear recognition of competence are rather complex challenges.

The systematic recognition of skills, even informal, would therefore be a first step towards identifying their specificity more clearly and thus contribute to the greater emergence of a professional identity specific to team leaders and site foremen working in the building renovation sector.

This is the goal set by several research and training institutions representing construction sector in five EU countries (France, Spain, Greece, Italy and Poland). Since October 2020 they implement together the international project *Professionalization of the site managers and team leaders to the specific management of the renovation building projects in Europe (RenovUp)*, financed within ERASMUS+ programme¹.

The project meets the expectations of small and medium-sized enterprises in terms of skills development of their site managers and team leaders, linked to the

¹ www.renovup.org

renovation of buildings. During the implementation phase, following results are planned to be achieved:

- Identification of problematic work situations specific to the renovation of buildings, their understanding and translation into an activity repository,
- Design of training modules (which will be called "professionalisation paths", individualised and taking into account specific needs), integrating work situations on worksite, training in vocational school or centre and e-learning via digital platforms,
- Development of a master plan for the recognition of learning outcomes,
- Experimental training of teachers, trainers and tutors in the analysis of work situations on site,
- Experimental training for site managers and team leaders (current or future).

Qualitative research, to identify specific professional profiles and training needs, was the first step of common work.

Research methodology

The RenovUp partners proceeded implementing an in-depth analysis of the technical, organisational and normative specificities of building renovation sites which affect the evolution of the functions of site managers and team leaders. Following the analysis, the next step was to identify, in each partner country, the specific skills expected of site managers and team leaders by companies specialising in building renovation.

In order to achieve the above-mentioned research objectives, two methods of qualitative research were chosen and implemented in each partnership county: desk research and interviews with experts of construction sector. Results were supplemented by focused groups comprised of representatives of social partners, employers of building renovation works in the construction sector, HR managers etc.

Desk research was run parallel in Poland, France, Spain, Italy and Greece between November 2020 and February 2021. Five national reports were developed.

As the next step, each partner country proceeded in organizing interviews with renovation as well as VET experts in order to discuss the current status of renovation activities in their country, the profile of the team leader and site manager in terms of expected evolution and possible gaps of skills and competences as well as the level of professionalization expected by the companies and the methods they follow, to cover their staff' training needs. Over 80 interviewees in total (employers & employees from companies working in the renovation field, VET experts and academics as well as experts from construction associations and entrepreneurs) took part in the research.

Interviews were carried out online or face to face, following a questionnaire prepared in advance and validated in common. Each of them lasted from 1 ½ to 2 hours and was composed of analytical and synthetic part.

The outputs of the field research were validated and enriched through national focus groups of 5 to 10 experts attending to 1 or 2 meeting(s) face-to-face or online. They were employers of buildings renovations works in the construction sector, VET representatives, site managers, team leaders and specialists in training engineering.

Main findings and recommendations from desk research

The primary motivator encouraging the implementation of renovation sites in recent years in European countries was the need for energy and economic efficiency, to which the *Renovation Wave*² has played a critical role as a catalyst for most countries. The partner countries have developed national plans and established objectives addressing the issue of energy efficiency in building construction³. The need for the restoration and preservation of heritage and traditional buildings was identified as the second important driver for renovation projects.

All countries have been working towards developing the renovation sector nationally in accordance with the latest EU laws and policies. Among them, some distinguishing characteristics that have a significant impact not only on the development of the renovation sector, but also on the roles and responsibilities of site managers and project managers include the Italian government's policy, which has instituted tax breaks for owners who renovate their properties and improve their energy efficiency. Another concerns the Polish ministry's decision to make the use of BIM technology mandatory in all public works projects by the year 2025⁴.

As a general observation, the roles of the site manager and the team leader seem to be quite the same in the five partner countries. In general, the team leader is a person responsible of a team of workers with a specific purpose and task. (S) he holds technical knowledge on the project that his/her team has undertaken and is responsible to guide them and deliver a specific result. The site manager organizes the site, in coordination with the hierarchy and in compliance with all kinds of specifications. Even though technical knowledge is fundamental for his/her legitimacy, his/ her role is primarily managerial in nature with varying degrees depending on whether they are site managers or team leaders. **Both functions become more complex on a renovation site than on a new construction one.**

² *A wave of renovation for Europe – greening of buildings, creation of jobs, improvement of quality of life*; Communication from the Commission to the European Parliament, the Council, the EESC and the Committee of the Regions (COM (2020) 662 final, https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0018.02/DOC_1&format=PDF [access: 27.09.2021].

³ In Poland: Projekt Długoterminowej Strategii Renowacji, <https://www.gov.pl/web/rozwoj-technologie/dlugoterminowa-strategia-renowacji> [access: 27.09.2021].

⁴ Cyfryzacja procesu budowlanego w Polsce. Mapa drogowa dla wdrożenia metodyki BIM w zamówieniach publicznych file:///C:/Users/oem/Downloads/BIM_PL_d6_Mapa_drogowa_2020_07_22_PL_R2.pdf [access: 31.05.2021].

Aside from these broad classifications, we can discern some distinctions between them. In Greece, for example the relationship between the site manager and the team leader is sometimes reverse. Whereas in France, the balance between the technical and the managerial skills of the site manager seems to be in favor of the managerial. In Italy, it is more common for these two roles to overlap because companies have a limited number of employees, despite the fact that the differences between the two profiles are clear. In Poland the site manager is a regulated profession, whereas the team leader is the most capable of the workers of his/her team and functions as the foreman.

In recent years, the majority of EU countries have taken steps to improve the energy efficiency of their buildings as well as the long-term viability of the construction industry as a whole. This means new legal procedures arise from national laws and action plans, that need to be met with. Also, energy efficiency of the buildings means that the team leaders and site managers must get familiar with new technologies and materials. This creates a new market as more and more clients seek out renovation options in order to improve the energy efficiency of their properties, obtain building certificates that are becoming mandatory, as is the case in Greece, or take advantage of tax breaks, as is the case in Italy. Therefore, **energy efficiency is the main field from which new challenges derive, at a technical, legal and organizational level.**

Noteworthy is that the legislative environment at the national level is shifting in favor of environmental policy and sustainable growth, as well as in accordance with technological advancement and the specificities of each country's environment and culture. This will have an effect on the work being done on the renovation projects. The regulation for the promotion of Circular Economy imposes a slew of new legal obligations on contractors and site managers, all of which must be carefully planned and implemented. Technical knowledge for the various materials and their recycling potential was pointed as necessary to be obtained.

A serious organizational challenge for the construction sector is the outflow of professionals that has been going on for years, e.g. in Poland, about 70% of construction companies report problems related to the acquisition of new and outflow of already employed employees. The influx of workers from other countries (mainly from the East) is associated with language and technological barriers. Emigrants very often do not have qualifications, their experience is based on working with outdated ineffective and non-ecological techniques. In addition, investing in their development is difficult because these people are often oriented towards further migration to the West.

Also the necessity of digitalization and integration of new technologies, such as BIM and the use of prefabricated elements, constitutes a significant challenge in those two countries as well as in Spain.

In France, waste management and health and safety rules are considered to be the most important challenges⁵, while Greece is more focused on energy consumption and efficiency. Italy is more concerned about the organizational and managerial changes on the worksite, but it agrees with Poland and Greece on the issue of BIM technology and how it is going to be smoothly integrated on the job. These aspects become even more crucial on building renovation sites, where it is more difficult to find compromises between the new standards and the need to respect the specificity of old buildings.

As a final phase before proceeding to the next methodological step of the field research, there are some **recommendations** gathered, which could be used as a guide for the development of the planned professionalisation training:

- There is a pressing need for training programmes to become even more customized and work based;
- Prior to enrolling in training, positioning modules must be provided, allowing the course objectives to be reconciled with the information and abilities that candidates already possess;
- Recommendation for the creation of ad hoc recognized courses where practical training hours are preferred;
- The training paths to be designed should teach professionals how to cope with unforeseen situations on-site and how to communicate more effectively with colleagues and clients;
- Renovation sites should be approached globally, with health and safety training taking into consideration the specifics of each site (both organizational and situational);
- The circular economy is an element that should be included in the upcoming training paths, as it is linked to the installation, operation, and destruction of materials' life cycles, with all the specificities proper to renovation sites.

Selected key findings reached through the field research (interviews)

Because the RenovUp's main goal is to design well-profiled professionalization paths for site managers and team leaders acting on renovation sites, interviewees were asked to describe what changes they've seen at these sites in recent years and, as a result, to lead the partnership to build up training schemes matching the market's expectations and the learners' profile.

⁵ The challenges faced by site managers and team leaders on building renovation sites in France (in French), [https://www.batiactu.com/edito/artisans-batiment-ont-beneficie-reprise-fin-2020-61051.php?utm_source=cc_alert&utm_medium=email&utm_content=\[access:05.11.2021\]](https://www.batiactu.com/edito/artisans-batiment-ont-beneficie-reprise-fin-2020-61051.php?utm_source=cc_alert&utm_medium=email&utm_content=[access:05.11.2021]).

Despite the many variances between the interviewees, the partners indicate consistency in their national reports, as each partner country experiences similar challenges and opportunities in the field of renovation and the required skills that site managers and team leaders should obtain in order to fulfill companies' expectations.

Within the framework of the new European initiatives and targets such as the *Green Deal* and the *Renovation Wave*, new environmental criteria have been born in terms of energy efficiency, new materials as well as digitalized tools used in renovation works that appear to be the main drivers of change in the field of renovation works in all partner countries. It was noted by all interviewees that clients are increasingly becoming more demanding and informed about new materials and techniques regarding renovation works for their property leading to greater interaction with site managers and team leaders.

It seems that due to these changes, the overall function of the two profiles is being re-shaped with partner countries focusing on different aspects. So, there arise new questions: What are the new roles of the site manager and team leader on the building renovation worksite? What are the skills needed in order to be able to perform their activities?

As a general observation, in all five countries, the site manager is described as the representative of the company on the site. Site managers are the administrators who are in charge of organizing the entire site. They supervise the team leaders and are in charge of the overall project's timeliness and smooth progress. Team leaders on the other hand are the leaders of the technical team. They have to coordinate their team, supervise its work, assign tasks according to each workers' skills in order to optimize the efficiency of the group in ever more complex situations observed on renovation sites. Furthermore, they have to be experienced and skilled technicians themselves, at least to perceive problems and find appropriate technical solutions when unexpected situations arise.

An important factor discussed in the interviews has also been the correlation of the two roles since in France, Spain, and Poland the two functions appear to overlap in small projects and businesses. In these cases, it is even difficult to distinguish between the two functions and only one is present, known in France as the "site coordinator". In reality, (s)he is a team leader with extended responsibilities. This is often the case when buildings are being renovated. In addition, the teams supervised are multi-activity.

In accordance with the role of the site manager and the team leader, the interviewees from the companies were called to give their opinion on what is valued as criteria of good professional performance. The findings in the five countries are quite similar for site managers and can be summarized in: good organizational and planning skills, ability to coordinate workers, having technical knowledge, sufficient to inspect the materials and equipment.

Additionally, in France, a quality that is particularly valued is the ability to foresee hazards from the start of the project. The use of 3D tools is also appreciated⁶. In Italy & Spain, knowledge, and ability to apply health and safety rules is considered important, while in Poland, the behavior of the site manager towards the workers, the clients and the company is considered an essential skill.

The criteria for team leaders are also common: Technical responsibility of the site, Team supervision, Communication with the managers/clients, Application of safety rules.

Due to the role of the site managers and team leaders, managerial challenges are constant. Moreover, digitalization is another driver of change bringing further challenges to the two roles as both site managers and team leaders are called to develop and evolve digital skills starting from horizontal i.e., being able to prepare spread sheets to specific i.e., understand or use digital tools such as BIM.

The role of younger professionals in combination with the overall sector attractiveness was also a matter of discussion. In countries such as Greece and Poland the **mobility of skilled workers** has affected the renovation sector heavily as unskilled migrant workers came to fill the gap while younger generations tend to avoid the construction sector as a career path in favor of more managerial positions.

When it comes to technical issues, new materials and techniques are considered as a significant challenge for the two profiles. The function of new materials extends from the point of their specific characteristics and their installation to their strength and recycling in all types of renovation works. All five countries emphasized on the need for both profiles to develop their knowledge and skills in regard to such materials which is also linked to the overall concept of circular economy.

Within the rest of challenges discussed in the interviews, the new EU regulations as well as normative barriers related to the site managers and team leaders' work were also discussed (i.e.: Italy, Spain and Poland focused on the constant changes of the regulations that creates frustration to site managers and tam leaders as they fail to keep up).

Finally, on the very important issue of health and safety, the interviewees were called to answer about the difficulties that arise. France reported that the most dangerous situations that call for site managers and team leaders to be able to manage concern shoring and demolitions, while Greece such hazards are associated with electricity and confined spaces. In Italy, health and safety regulations constitute a rather crucial aspect of the responsibilities of a site manager and a team leader. Partners from Spain report a similar situation as in Italy while, positively enough, in Poland the findings indicate that health and safety rules are respected without setting significant challenges. Some interviewees emphasised that absolute compliance

⁶ Job descriptions for site managers and team leaders (in French) on the sites: www.batiactu.com and www.ffbatiment.fr, [access: 05.11.2021].

with safety rules on renovation sites is a difficult task, as one is confronted with more complex building configurations, with difficult access, as well as with the behaviour of workers who are not sufficiently aware of the potential dangers specific to these sites.

Furthermore, the interviewees discussed about the methodologies used by companies for recruiting site managers and team leaders. All countries agree **that finding employees capable of undertaking the responsibilities of the two role is hard**. In France, Italy, and Spain the roles are filled mainly through internal promotion, while Greece and Poland further discussed the mobility of workforce, with Greece also adding the topic of relocation since workers tend to turn down a job offer if the work site requires them to relocate.

Moving further to the re-skilling and up-skilling of the targeted profiles, all countries agreed that training schemes are rare in small companies. Both site managers and team leaders usually get trained in informal ways and more specifically via **“learning by doing”** while watching more experienced employees in the field. In addition, some partners like Poland and Greece also point out the use of self-learning, as a method of professional development chosen by workers. Even though in all countries VET training schemes do exist, the need for continuously updated curricula that contain a significant dedication of learning hours in practical experience and **real working environment** cases constitutes the most obvious choice by all partner countries so that a high professionalization level is achieved.

Conclusions and recommendations for professionalization schemes

Following the analysis for specific partnership countries, below there is a short summary presenting the most characteristic areas that came up as expected for both profiles specializing in building renovation (see tab. 1).

It was concluded that the types of activities of the two occupational groups concerned (site managers and team leaders) are the same. These activities follow the rhythm of the building renovation sites and they can be grouped into three phases: 1 Preparation of a renovation worksite; 2: Management of activities on a renovation site and 3: Acceptance of the work done and quality control.

The responsibility, autonomy and tasks is what distinguish these two job profiles – site manager from a team leader.

It was also identified what skills and knowledge are activated by site managers and team leaders during their professional activities on renovation sites. These results demonstrate that the generic names of the skills and knowledge are identical for both job profiles (see tab. 2).

The input collected from the partner countries regarding the build-up of the RenovUP trainings is relatively homogenous. The main points and suggestions gathered, are presented in the list below:

- Standard modules are not considered as appropriate for the two profiles, therefore training based only on theory must be avoided;
- The professionalization paths to be designed must be in the form of real cases from the working environment, in alignment with all functions of the two profiles ranging from technical, managerial, and commercial to safety & financial. These functions constitute a lever for success, requiring adaptability and agility from the workers in order to be capable of dealing with unforeseen events;
- The real cases from the working environment can rely on demonstrations (e.g., presentation of models in different situations, presenting what happens under the influence of different phenomena);
- The training courses should provide for orientation & specialization according to the profile and skills of each trainee, taking into account his/her experience;
- The appropriate learning modality urges for flexible and continuous learning methods that call for blended learning which focuses on visual and practical activities, as well as with on-site practical training, where new technologies, systems and materials are being introduced;
- The designed trainings should be formal, evaluated & accredited (if possible) their learning objectives should be clearly identified.

Table 1. Most specific areas expected for site managers and team leaders on renovation sites (to be adjusted to specific work situations on renovation sites)

Technical	Soft	Managerial & Organizational
<ul style="list-style-type: none"> - Application of new renovation techniques linked to energy efficiency - Use of renewable energy solutions - New construction materials and rules of their recycling - Application of circular economy principles (waste management) - Application of health & safety procedures (specific to renovation sites) - Measurements and construction staking - Plan interpretation - Demolitions - Analysis and control of the execution with relevant technical quality check methods 	<ul style="list-style-type: none"> - Multi-level communication with all relevant stakeholders - Problem solving - Negotiation & conflict resolution 	<ul style="list-style-type: none"> - Team management - Time management - Knowledge and use of of all relevant regulations & legislation - Control of the work process and the interrelationship among the construction trades - Quality and environmental control - IT tools supporting the work of managers, including costing

Table 2. Generic skills and knowledge “activated” by site managers and team leaders during their professional activities on renovation sites (to be adjusted to specific work situations on renovation sites)

Generic Skills	Generic Knowledge
<ul style="list-style-type: none"> – Ability to analyse and assess problems, project, anticipate and adapt to complex situations, also taking into account on-site co-activity – Internal communication capabilities on site and within the company, including the search for alternative solutions in complex situations. Ability to use appropriate communication tools – Capabilities of communication with external partners (clients, subcontractors, suppliers, etc.). Ability to use appropriate communication and monitoring tools – Ability to mentally manage workload, including management of stress and job strain – Ability to use software tools to analyse, evaluate and anticipate 	<ul style="list-style-type: none"> – Knowledge of planning, implementing and controlling the quality of production processes on renovation sites, including the organisation and control of supplies – Knowledge to plan and control the quality of intermediate and final productions – Knowledge to manage financial issues and the budget allocated to the renovation site – Knowledge to integrate an update to the energy standards of buildings during their renovation and to use the appropriate control tools – Knowledge to integrate the circular economy on renovation sites and to use the appropriate control tools – Knowledge to integrate occupational health and safety prevention into renovation sites and to use appropriate control tools

What's the next step?

The partners of the RenovUp project are currently facing a major challenge, which is the design of professionalization pathways for site managers and team leaders working on building renovation sites. These should be, as agreed, individualised and built upon work-based learning, in line with the expectations of enterprises, identified during the research phase.

These trends are also visible in the information collected (within the RenovUp project too) when identifying existing examples of work-based learning, individual positioning of learners before they enter their vocational training, as well as validation of personal abilities, skills and competences. Identified methods and practices show the importance of the following factors, which should be taken into consideration when planning effective vocational training, also for middle management staff in construction sector:

- Increased consideration of **co-activity and unpredictability** in professional activities, including those of site managers and team leaders on building renovation sites (in all partner countries);

- Recognition of the role of the **company** in the training process **as the primary place for acquiring professional skills** and not just a place of internship, especially on renovation sites which are non-standard in nature and highly unpredictable;
- The understanding of "**competence**" as a cross between "capacity" and "activity" in concrete work situations, in coherence with the definition given by the CEDEFOP;
- **Initial positioning**, different from final evaluation of learning outcomes, even if it is not yet practised to its full potential everywhere, remains a future and an indispensable added value for the professionalisation pathways to be developed;
- **Validation and recognition** of both personal skills and learning outcomes takes place not only in training organisations or specialised examination centres, but also **in company**, with appropriate company tutors.

It is visible for RenovUp project's partners, that there are training requirements for construction sector workers that are not being met satisfactorily by the existing educational infrastructure. It is primarily due to the form and structure of those programmes rather than the content. Therefore a training programme designed for the professionalization and upskilling of site managers and team leaders on renovation projects within RenovUp project, should be individualized, with ad hoc courses and practical on – the – job training. Recognition of learning outcomes should be included, not only to serve as a motivational tool, but also to improve the mobility of the employees involved. The proposed approach will follow the logic of the attribution of an Open Badge, understood as a digital image in which information such as: the field of attribution (or definition/description of the path of professionalisation followed), the identity of the issuer and receiver of the badge, the statement of the targeted competences, the criteria for the attribution of the badge and the evidence justifying the competences acquired will be recorded. To respect its open character, it will not only constitute a certificate of a successfully completed career path, but it may also consider other experiences, achievements, competences, commitments, values or aspirations of the person who will obtain it.

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