



# CoConstruct – Digital learning meets sustainability

**LTTA Veliko Tarnovo, Bulgaria**

**29.05.2023 - 01.06.2023**



Co-funded by the  
Erasmus+ Programme  
of the European Union

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BGZ Berliner Gesellschaft  
für internationale  
Zusammenarbeit mbH  
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Berlin 2023



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## 1. THE PROJECT

The digitisation is altering the demands on vocational education in Europe. The aim of CoConstruct was to showcase perspectives for the successful integration of digitisation and innovative technologies in vocational education, exemplified in the construction sector.

BGZ brought together vocational training centres and universities from 5 countries through CoConstruct: Germany, Bulgaria, Finland, Romania, and Poland. The project primarily focused on the transfer of innovation.

We consolidated good practices to promote digital job-related competencies, assessed their usability across the EU, and explored possibilities for their institutional integration. Throughout this process, we closely collaborated with associated partners from business associations, chambers of commerce, authorities, and construction companies.

Our objective was to disseminate proven content, methods, materials, and tools, foster closer collaborations between vocational and higher education, and enable educators to enhance their competencies through the project. Through the transfer of European good practices, we aimed to enhance educational offerings in the construction industry and make the profession, especially for technically inclined young individuals, more appealing.

Furthermore, as a result of CoConstruct, we anticipate concrete recommendations for modernising vocational education systems and a contribution to securing a skilled workforce.

More information:

[www.coconstruct.eu](http://www.coconstruct.eu)

[www.bgz-berlin.de](http://www.bgz-berlin.de)

## 2. BACKGROUND & GOALS

In our project partnership, we focused on construction and building professions, along with digitisation, while also considering environmental and sustainability aspects. The partners brought together good practices and new approaches to shaping vocational education with a focus on digitisation and technological innovations from five EU countries, evaluating their usability for EU-wide transfer and institutional integration.

The primary emphasis was on the use of digital devices on construction sites, as well as aspects of sustainable construction industry. The learning activities described here benefited from the synergies of the other two BGZ projects: the [DigiCon](#) project and the implementation of a flow within the mobility measure [Skills 4.0 Mobil](#) (topics in the field of digitisation). The insights and results from these projects strengthened the implementation of this learning activity.

The exchange within the project so far facilitated the sharing of concepts and materials, enhancing the execution of further EU projects within the partnership. This signifies a significant enhancement of competencies for them, which will aid them in the future to provide more engaging and appealing training and development materials, as well as modernizing their institutions.

The aim of this LTTA was to strengthen the skills of teaching staff in designing learning environments, handling innovative models and tools, fostering collaboration between vocational and higher education, and understanding the method of BIM (Building Information Modelling).

### 3. PREPARATION

For the preparation of the LTTA, the procedure and the precise contents were coordinated together with the entire project partnership. The BGZ developed a detailed programme for the learning activity and presented this for discussion among the partners. The programme was discussed in the local action groups and then further deliberated upon with all partners, and subsequently revised by the BGZ. Furthermore, all necessary technical working tools were accurately defined.

#### PARTICIPANTS

The participants of the LTTA are members of various networks at local, national, and European levels. This allowed them to serve as disseminators of information about the CoConstruct project and contributed to generating interest from other institutions. CoConstruct enabled the partners to expand their networks not only within EU countries (covering a broad geographical spectrum of the EU partnership: North, South, West, and East of the EU) but also to shape new collaborative initiatives with fresh ideas for cooperation. This enabled them to incorporate insights from the partnership's good practices into their concrete educational practices, integrating innovative pedagogical methods and digital tools.

#### Participating in the activity were representatives from:

- BGZ, coordinator
- Vocational Training Centre for Construction, Architecture, and Geodesy "Angel Popov" (PGSAG), Bulgaria
- Construction Industry Association Berlin-Brandenburg e.V. (BFW-BB), Germany
- Technical Vocational School for Construction (Zespół Szkół Budownictwa Nr 1 Posen, ZSB1), Poland
- Poznań University of Technology (Politechnika Poznańska, PUT), Poland
- MancomCentru (Mancom), Romania

## 4. IMPLEMENTATION

The LTTA seminars were implemented by the Vocational Training Centre for Construction, Architecture, and Geodesy "Angel Popov," Veliko Tarnovo = PGSAG Angel Popov, in collaboration with BGZ. These partners also took on the on-site coordination.

### PROGRAMME

The main thematic focuses of the LTTA included the following topics:

- Technological Change in Construction - Utilization of 3D in Planning and Execution
- Utilization of Digital Devices on the Construction Site - e.g., Digital Measurements
- Sustainable Construction Industry - Modern Materials, Panel Building Materials in Timber Construction, etc.
- Institutional Capacity Building in Vocational Education and Training
- Collaboration between Vocational and Higher Education

The LTTA seminars were conducted following the agenda outlined below:

1 <sup>st</sup> Day: Sunday 28.05.2023			
Afternoon	<b>“European house”</b> <b>Professionals skills for old and new buildings</b> Welcome/ Warm up with project partners gp-PARTNERS Introduction of activities for the next days BGZ & PGSAG		
Evening	<b>Free time</b> or dinner together, optionally from around 20.00		
2 <sup>nd</sup> Day: Monday 29.05.2023 PGSAG Angel Popov			
<b>Workshop</b> 10.00 - 16.00	Improving Quality, Market Relevance & Futur Capability of Training Courses in Construction Professions Collection + Testing of Good Practices		
10.00 - 11.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <b>Presentation of the current situation in education and training sector in Bulgaria</b>            (structures, regulations, risks etc.)             Presentation of the education and training programs of PGSAG Angel Popov         </td> <td style="width: 50%; padding: 5px;"> <b>PGSAG Angel Popov:</b>            Teodora Ivanova            Evgeniya Ilieva         </td> </tr> </table>	<b>Presentation of the current situation in education and training sector in Bulgaria</b> (structures, regulations, risks etc.)  Presentation of the education and training programs of PGSAG Angel Popov	<b>PGSAG Angel Popov:</b> Teodora Ivanova Evgeniya Ilieva
<b>Presentation of the current situation in education and training sector in Bulgaria</b> (structures, regulations, risks etc.)  Presentation of the education and training programs of PGSAG Angel Popov	<b>PGSAG Angel Popov:</b> Teodora Ivanova Evgeniya Ilieva		
11.00 - 11.15	Short break		
11.15 - 12.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <b>Presentation of the current situation in education and training sector in Poland</b>            (structures, regulations, risks etc.)         </td> <td style="width: 50%; padding: 5px;"> <b>PUT</b>  <b>ZSB1</b> </td> </tr> </table>	<b>Presentation of the current situation in education and training sector in Poland</b> (structures, regulations, risks etc.)	<b>PUT</b> <b>ZSB1</b>
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12.00 - 13.00	Lunch		
13.00 - 14.30	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <b>Presentation of best practices in Bulgaria</b>            – Hands-on testing with partners;            Hospitation by practical exams         </td> <td style="width: 50%; padding: 5px;"> <b>PGSAG Angel Popov:</b> </td> </tr> </table>	<b>Presentation of best practices in Bulgaria</b> – Hands-on testing with partners; Hospitation by practical exams	<b>PGSAG Angel Popov:</b>
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14.30 - 14.45	Short break		
14.45 - 16.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <b>Exchange of experiences</b> with teachers in technical laboratories, practical training            Best practice BIM         </td> <td style="width: 50%; padding: 5px;"> <b>PGSAG Angel Popov:</b> </td> </tr> </table>	<b>Exchange of experiences</b> with teachers in technical laboratories, practical training Best practice BIM	<b>PGSAG Angel Popov:</b>
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Afternoon	<b>Guided Visit of Historical Town of Veliko Turnovo</b>		



3 <sup>rd</sup> Day: Tuesday 30.05.2023 PGSAG Angel Popov		
<b>Workshop</b> 10.00 - 16.00	Improving Quality, Market Relevance, Futur Capability of Training Courses in Construction Professions Collection & Testing of Good Practices	
10.00 - 10.30	<b>Presentation of best practices in Poland -</b> Hands-on testing for partners	<b>PUT</b> <b>ZSB1</b>
10.30 - 11.30	<b>Exchange of experiences - the current situation in education and training sector in Germany</b>	<b>KomZet:</b> Matthias Kaiser <b>BGZ:</b> Grazyna Wittgen
11.30 - 11.45	Short break	
11.45 – 13.00	<b>Introduction &amp; Testing of selected digital tools by polish partners</b> Focus: Digitization in the construction sector promotes adaptations and innovations in the sense of a “Construction Site 4.0” Check of transfer possibilities	<b>ZSB1:</b> Mag. Ing. Joanna Ziomek
13.00 - 14.00	Lunch	
14.00 - 15.00	<b>Usefulness and application</b> – Testing of previous of selected digital tools by polish partners	<b>PUT</b> <b>ZSB1</b>
15.00 -17.00	<b>Construction highlights for old and new buildings</b> - Exchange of experiences restauration methods  <b>Visit to historical architectural construction site</b>	All partners

<b>4<sup>th</sup> Day: Wednesday 31.05.2023</b> <b>PGSAG Angel Popov &amp; Etar Museum</b>		
<b>Workshop</b> 9.30 – 16.00	Improving Quality, Market Relevance, Futur Capability of Training Courses in Construction Professions Collection & Testing of Good Practices	
9.30 - 10.30	<b>Presentation of the current situation in education and training sector in Romania</b>	<b>ManCom:</b> Dr. Birgit Schliewenz
10.30 – 11.00	<b>Presentation of Best Practice in Germany – Hands-on testing with partners</b>  The development of action scenarios along the entire construction process at the Construction Site 4.0	<b>KomZet:</b> Matthias Kaiser
11.00 – 11.30	<b>Presentation of Best Practice in Romania – Hands-on testing with partners</b>  <b>Cooperation Strategies between VET and political stakeholders</b>	<b>ManCom:</b> Dr. Birgit Schliewenz
11.30 -12.00	<b>Selection of Good Practices for Transfer Options in other countries</b> <i>Strategies / Methods / Instruments</i>	All partners
12.00 - 16.00  4 Workshop Groups  &  Visit to Etar Museum	<b>Workshop Groups - Conclusion for Good Practice Transfer Options for the partners other countries</b>  1. Improving Quality & Market Relevance 2. Capacity Building at Institutional Level  3. Improving Transparency & Permeability between Vocational and Higher Education  4. Promoting Cooperation between Educational Institutions in different countries	All partners
19.00	Joint Dinner	

5 <sup>th</sup> Day: Thursday 01.06.2023 PGSAG Angel Popov		
<b>Workshop</b> 9.30 - 13.00	Goals of providing EU-wide transferable and innovative solutions for the VET exemplarily for construction professions	
	<b>Conclusion for:</b> <ul style="list-style-type: none"> <li>• Further development of modern programmes and materials for VET-Institutions (ZSB1 &amp; PGSAG)</li> <li>• Promoting Cooperation between VET and HE (PUT)</li> <li>• Promoting Cooperation VET &amp; political stakeholders (BGZ &amp; ManCOM)</li> <li>• Capacity Building (ZSB1 / PGSAG)</li> <li>• Internationalization of VET-Institutions (BGZ)</li> </ul>	
09.30 - 10.30	<b>Capacity Building:</b> - Competences of PM-Staff in VET-Institutions - Competences of teaching personals, development of funding offers	<b>ZSB1</b>  <b>PGSAG</b>
10.30 - 10.45	Short break	
11.00 - 11.45	<b>Strategies for designing digital and environmental-friendly learning environments</b>	All partners
11.45 – 12.00	Short break	
12.00 - 12.45	<b>Evaluations of Seminars &amp; Conclusions</b> For further cooperation between different EU-countries	<b>BGZ:</b> Grazyna Wittgen Yves Montoya
13.00	<b>End of LTTA</b>	

## Welcome and Opening

The welcoming and introduction to the program by Teodora Ivanova, the Deputy Director of the Vocational Training Centre for Construction, Architecture, and Geodesy "Angel Popov," took place on Sunday, May 28, 2023. Background information specific to each country's situation was exchanged, and additional organizational aspects were discussed.

On Monday, May 29, 2023, the project partners were also received by Evgeniya Ilieva, the Director of the Vocational Training Centre, and were once again welcomed by Teodora Ivanova, along with Grazyna Wittgen, the Project Manager from BGZ.



Image 1-3: © PGSAG

The LTTA on Monday commenced with a visit to the hosting institution, providing a comprehensive view of its facilities and the diverse range of disciplines it covers.

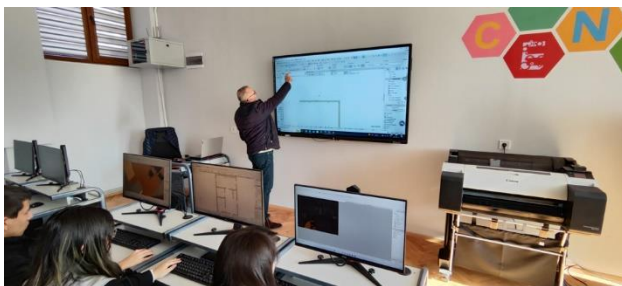


Image 4-7: © PGSAG

Following the tour, the LTTA workshops were conducted.



Image 8-9: © PGSAG

## Conducting the Workshops

Kicking off the workshops, our Bulgarian project partner once again addressed the current country-specific situation and the experiences gained in dealing with the pandemic. They presented industry-specific challenges and potential solutions, also sharing insights from other project partners in the participating countries.

In summary, the following challenges can be identified for educational providers in the construction industry:

- Adequate funding
- Facility equipment
- Competence of trainers
- Competence of apprentices
- Lack of attractiveness of the construction industry
- Insufficient alignment of education with industry needs
- Inadequate transition between vocational and higher education
- Declining population, shortage of skilled workers

During the subsequent joint learning seminars, participants explored their respective country-specific difficulties and challenges in the construction industry from the perspective of their own institutions, followed by presenting their own best practice solutions. Subsequently, there was a presentation of selected materials in terms of their transferability to other countries.



Image 10-11: © PGSAG

The cross-border exchange of best practices was coupled with the testing of various features/application possibilities of the proposed tools or learning resources.

As examples, some are mentioned below:

- Digital Backpack (GP Bulgaria): A platform that brings together all teachers and provides them the opportunity to view the work and exercises of other teachers.
- Various innovative tools for practical training in the field of Construction Design (including testing; GP Poland).
- Hybrid teaching sessions, both on-site and remote, online, synchronous, and asynchronous (including testing; GP Poland).
- Centre of Career: A platform that connects learners with the industry (Poland).

The next part of the workshops centered around the theme of Capacity Building at the institutional level. This included a specific focus on digitization, digital tools, requirements for educational staff, and the testing of selected tools. The Romanian partner, MANCOM, prepared a proposal for this in advance, which was discussed collaboratively.

Initially, in addition to the existing ones, additional needs were identified that pertain to enhancing the quality, labor market relevance, and future sustainability of education in construction professions:

- Funding for studies, courses, and workshops for teachers.
- Establishing a collaborative atmosphere between teachers and school administration.
- Creating tools and workshops for teachers.
- Motivation system for teachers based on their experience.
- Mentoring for new teachers by experienced ones.
- Involvement of teachers in projects that aid in networking and establishing new relationships.

Additional workshop topics included:

- Sustainable construction industry through modern materials such as panel building materials in timber construction.
- Collaboration between Vocational Education and Training (VET) and Higher Education (HE).



In these thematic areas as well, the project partners actively engaged, sharing their country-specific challenges and best practice solutions among themselves. Following this, feedback sessions were held first in small working groups and then in a joint round. During these feedback rounds, project partners shared their experiences within the group, provided insights into what worked well and what didn't, and proposed topics of future relevance.

Later in the workshops, participants gathered ideas for implementing the identified best practice solutions. The conclusion of the LTTA in Veliko Tarnovo involved evaluating the transfer proposals from the respective Good Practice partners and discussing lessons learned for the development of further teaching and learning materials and capacity-building concepts.

Shared dinners and visits to several construction sites, especially those involving the restoration of unique historical buildings in the old town, strengthened the substantive exchange among educational stakeholders and rounded off the program.



Image 12: © BGZ



Image 13: © PUT

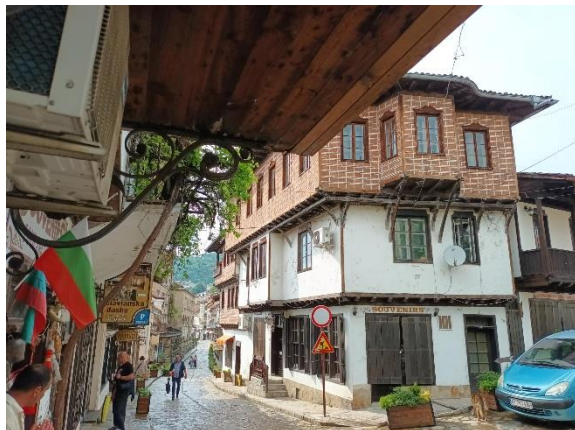


Image 14 -15: © BGZ



Image 16 - 18: © BGZ

## 5. RESULTS

Through collaborative work on the subject, project partners from different countries can each contribute unique experiences and expertise, which they can share with other educational stakeholders. In addition to the increase in competence among teachers, the learning activities also serve as capacity building at the institutional level.

Within the workshops, the participants also familiarized themselves with solutions for enhanced education, such as models for work-based learning, collaboration with companies, teacher training, and requirements for hardware, software, and cloud working.



Image 19: © PGSAG

## 6. CONCLUSION

The LTTA is considered a crucial element for expanding the competencies of trainers and teachers. This pertains to new technologies as well as digital vocational skills in construction and beyond.

Securing skilled workers for the construction sector, given the evident high demand for adequate and suitable personnel in construction and engineering, is in the interest of all EU countries. This concerns both new construction and the restoration and modernization of buildings, especially with regards to aspects of sustainable construction and the advancing digitization in the construction sector.

Ultimately, teachers need to convey new, innovative learning content and increasingly teach skills for working with digital tools, among other things. For this, they need to acquire both the technical learning content and practice using e-learning models themselves.

The constructive contributions, the variety of materials, methods, and tools for technologies in Construction 4.0 for education, as well as the presented solutions for strengthening the "institutional capacities" of vocational schools, serve as a basis for future discussions with policy-makers.

The LTTA reaffirmed the added value of joint project activities in person, aiming to exchange know-how in vocational education.

It was also confirmed that the successful development and capacity-building at the institutional level in the construction sector require both European and international cooperation, so that the "European House" can be built literally and metaphorically.

## Project Partners:



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### Poland

Politechnika Poznańska  
[www.put.poznan.pl](http://www.put.poznan.pl)



### ZSB1

[www.zsb1.poznan.pl](http://www.zsb1.poznan.pl)



### Bulgaria

PGSAG „Angel Popov“  
<https://pgsagapvt.alle.bg/>



### Romania

Mancom GmbH  
<http://www.mancomgmbh.de/>



### Finland

JEDU Vocational Educational Centre  
[www.jedu.fi](http://www.jedu.fi)