



## D2.5 Educators Training Report

### 5G-DiGITs

Cross-sectorial education and talent development for beyond 5G Digital and Green Industrial Technologies.



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## Abbreviations

DoA: Description of Action

Dx.y: Deliverable No y of Work Package x

EC: European Commission

EU: European Union

GA: Grant Agreement

HE: Higher Education

HEI: Higher Education Institution

PBL: Problem-Based Learning

VET: Vocational Education and Training

WPx: Work Package x

5G: A mobile communications standard intended to replace 4G, allowing wireless internet access at a much higher speed

## Executive Summary

Deliverable D2.5 is designed to summarize and review the feedback from participants of webinars (1. “Discover How to Apply 5G in Real Vocational Education and Training (VET)”; 2. “Turn Your University Classroom into a 5G Lab (HEI)”) organized by 5G-DIGITS project on their opinions on various aspects: relevance of webinars content, quality of webinars organization, smoothness of the webinars delivery process, and others.

The webinars attracted a majority of participants from VET and HEI institutions, particularly administrative representatives, vocational teachers, and lecturers. This composition highlights the strong interest and commitment of these educational institutions to enhance their expertise in 5G development and in the practical application of the Problem-Based Learning (PBL) methodology. Their active engagement demonstrates a clear institutional motivation to integrate innovative teaching approaches and emerging technologies into their educational practices. Furthermore, the predominance of specialists with more than ten years of professional experience among the attendees indicates that the webinars reached a highly experienced audience with a genuine and rational need for continuous professional development. These participants showed an eagerness to broaden their knowledge and stay updated on future-oriented topics related to advanced 5G technologies, reflecting a proactive attitude toward adapting to the evolving digital and industrial landscape. In addition, the positive feedback received from students and educators (who widely reported that the presented case studies would be beneficial for their academic and professional growth) suggests that the 5G-DIGITS project and the selected areas of analysis are both timely and relevant. The themes explored during the webinars align well with current and emerging needs in education and industry, ensuring that the project’s outcomes will continue to hold significant value in future academic and professional contexts.

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# 1. Introduction

As part of the EU-funded 5G-DiGITS project and in the context of Task T2.3 (**Design and implement real problem-based teaching and learning methods**) led by Karlstad University (KAU), two webinars were carried out.

## Webinars:

1. **Problem-based Learning for Cross-Sectorial Education in the 5G Digital Era: The 5G-DiGITS Approach – Vocational Education and Training (VET) Webinar<sup>1</sup>**
2. **Problem-based Learning for Cross-Sectorial Education in the 5G Digital Era: The 5G-DiGITS Approach – High Education Institutions (HEI) Webinar<sup>2</sup>**

These webinars, carried out on September 29, 2025 (VET Webinar) and October 1, 2025 (HEI Webinar), were designed to present a summary of the 5G-DiGITS activities related to the integration of the Problem-Based Learning (PBL) methodology in the 5G-DiGITS educational curriculum and courses. The events included the presentation of 7 PBL Case Studies developed by the 5G-DiGITS Consortium. The duration of each webinar was 2 hours.

The educators training plays a central role in achieving WP2's goal of embedding project-based learning (PBL) into the joint curriculum. By equipping educators with the necessary pedagogical knowledge, facilitation skills, and practical tools to design and implement PBL activities, the webinars ensured a shared understanding and consistent application of PBL principles across webinar listeners. It can be assumed that these capacity-building classes strengthened educators' ability to guide interdisciplinary, real-world projects, fostering active student engagement and collaboration—thereby integrating PBL as a core, sustainable element of the joint curriculum.

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<sup>1</sup> Link to the webinar: <https://www.youtube.com/watch?v=m6zeyQwECLs>

<sup>2</sup> Link to the webinar: [https://www.youtube.com/watch?v=nR5\\_TTtCE9A](https://www.youtube.com/watch?v=nR5_TTtCE9A)



## 2. Technical and organizational information for the webinars organized

### 2.1. Webinar for VET audience

#### 2.1.1. Webinar banner / digital flyer in www and social media

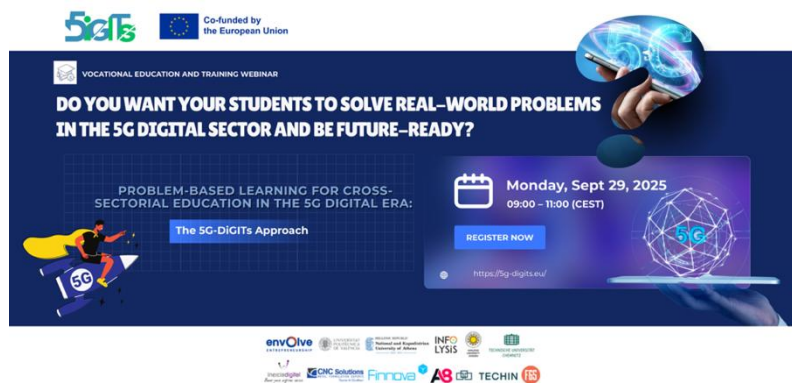


Figure 1. Webinar for VET banner



Figure 2. Webinar for VET digital flyer

### 2.1.2. Webinar agenda and speakers

Order	Speaker	Topic	Duration
1	Eirini Papadopoulou	5G-DiGITs Project Overview	10 min
2	Benjamin Molina Moreno	Overview on WP2 "Joint Curriculum Development"	10 min
3	Giuseppe Caso	Overview on Task 2.3 "Design and Implementation of real problem-based teaching and learning methods"	30 min
4	Marius Ablačinskas	The 5G-DiGITs PBL case studies	60 min
5	All	Q&A and invitation to provide feedback	10 min

Table 1. Webinar for VET agenda and speakers

### 2.1.3. Link to the webinar on Youtube

<https://www.youtube.com/watch?v=m6zeyQwECLs>

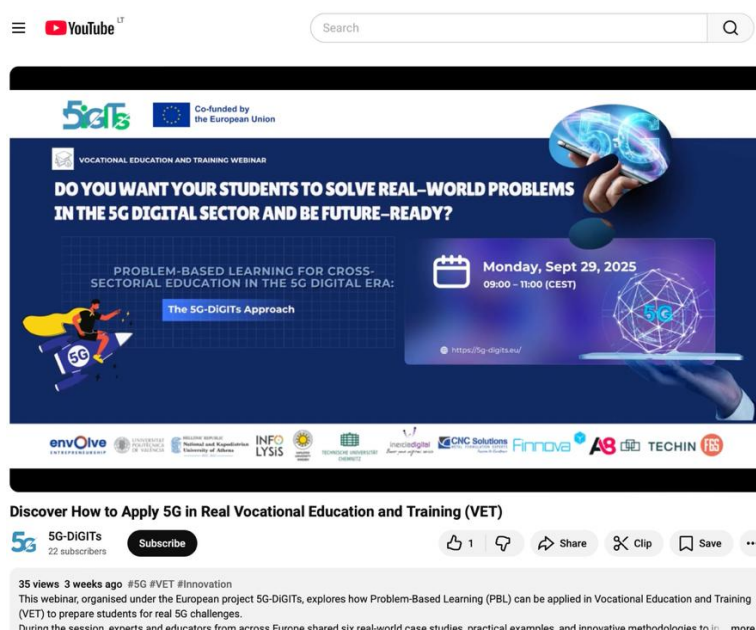


Figure 3. Webinar for VET on Youtube

## 2.2. Webinar for HEI audience

### 2.2.1. Webinar banner / digital flyer in www and social media



Figure 4. Webinar for HEI banner



Figure 5. Webinar for HEI digital flyer

### 2.2.2. Webinar agenda and speakers

Order	Speaker	Topic	Duration
1	Eirini Papadopoulou	5G-DiGITs Project Overview	10 min
2	Nikos Passas	Overview on WP2 "Joint Curriculum Development"	10 min
3	Giuseppe Caso	Overview on Task 2.3 "Design and Implementation of real problem-based teaching and learning methods"	30 min
4	Dr. Dionysia Triantafyllopoulou	The 5G-DiGITs PBL case studies	60 min
5	All	Q&A and invitation to provide feedback	10 min

Table 2. Webinar for HEI agenda and speakers

### 2.2.3. Link to the webinar on Youtube

[https://www.youtube.com/watch?v=nR5\\_TTtCE9A](https://www.youtube.com/watch?v=nR5_TTtCE9A)

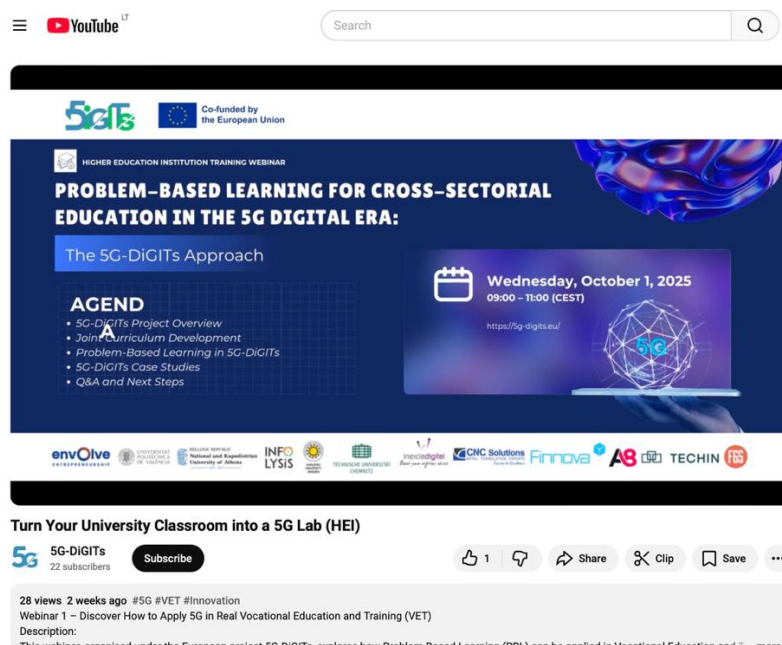


Figure 6. Webinar for HEI on Youtube

### 3. Statistical information on interest in organized webinars and their viewership

#### 3.1. Webinar for VET audience

The event gathered **38 unique users** and a total of **47 views**, with connections from **14 countries**.

**Greece led the attendance with 8 participants, followed by Spain, Lithuania and Romania with 5 each.**

Attendees also joined from Poland, Belgium, the United States, Bulgaria, Germany, Sweden, Latvia, Portugal, the United Kingdom and Malta, underlining the international reach of the project.

#### 3.2. Webinar for HEI audience

The event registered **more than 50 participants**, with a peak of **27 live attendees**, including researchers, lecturers, students, and tech-sector representatives, from **10 countries**.

**Spain led the attendance with 25 unique participants, followed by Greece (13 participants), Germany (9 participants) and Sweden (8 participants).**

Attendees also joined from Romania, Italy, Lithuania, United States of America, Nepal and Malta, underlining the international reach of the project.

## 4. Feedback survey of visitors to the webinars organized

### 4.1. Feedback survey: general information

In total **35 participants participated in the feedback survey**. More specifically, 8 lecturers, 7 administrative employee, 4 VET teachers and 4 personnel (HR) specialist, 4 researchers and 3 foremen as well as one employee, volunteer, manager, senior telecom engineer and internship also participated.

### 4.2. Feedback survey: data summary

The following section will present a representation of the results of each parameter of the webinar participant feedback survey, while formulating the main message of the survey participants' reactions to each parameter.

- Almost half of all respondents were from Spain (7 people), Poland (5 people) and Lithuania (5 people). Other respondents indicated Italy, Bulgaria, Greece, Ukraine, Latvia and other countries as their country of residence. See **Chart 1**.

#### Country of residence

35 responses

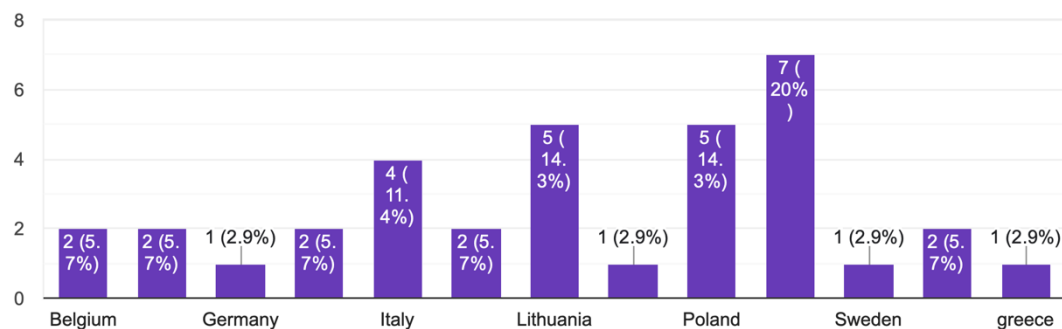


Chart 1. Country of residence

- Lecturers (22.9 %), administrative staff (20.0 %), vocational teachers (11.4 %), personnel specialists (11.4 %), foremen (8.6 %) and researchers (5.7 %) accounted for 4/5, while representatives of various other professions and functions made up 1/5 (20. %) of all respondents. See **Chart 2**.

Occupation / position held in the represented organization or educational / study institution or company  
35 responses

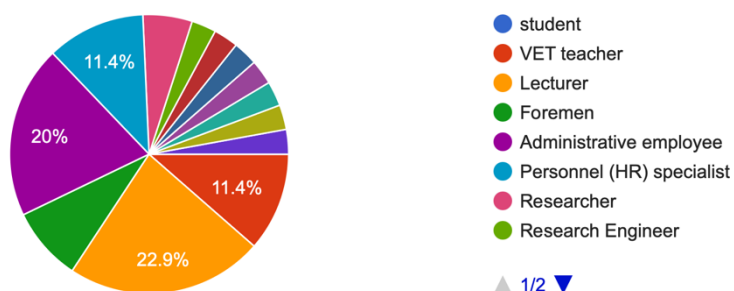


Chart 2. Occupation / position held in represented organization

- Almost half (48.6 %) of all respondents indicated that they had been working for 10 or more years. See **Chart 3**.

If you indicated that you are a lecturer, vocational teacher, foreman, administrative employee, personnel specialist or other, please indicate the length of your professional experience  
35 responses

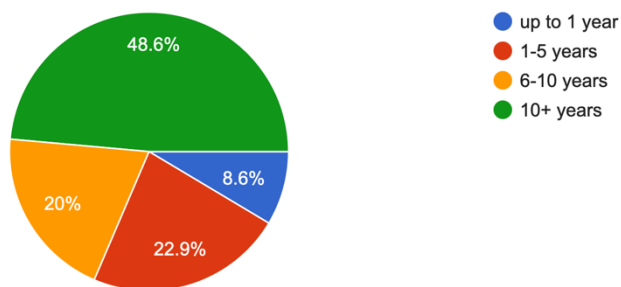


Chart 3. The length of professional experience



- All respondents rated the webinars as excellent or good. See **Chart 4**.

#### 1. Overall Experience: how would you rate your overall experience at the webinar?

35 responses

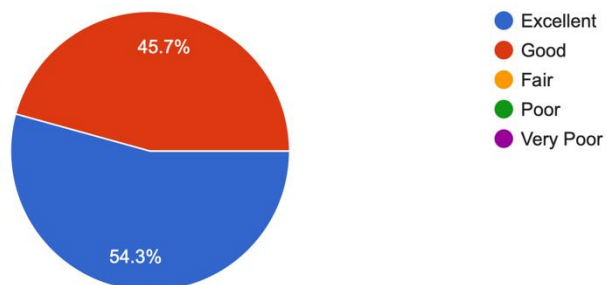


Chart 4. Overall experience at the webinar

- The majority (65,7 %) of respondents indicated that the webinars were very relevant and useful. See **Chart 5**.

#### 2. Relevance: was the webinar content relevant and useful to you?

35 responses

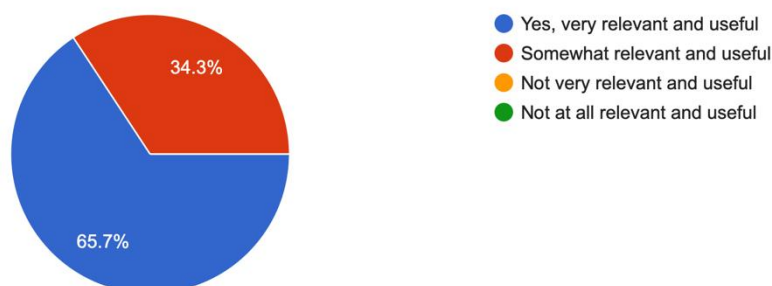


Chart 5. The relevance of webinar content



- The vast majority (88.6 %) of respondents indicated that they would definitely recommend or would recommend these webinars to friends or colleagues. See **Chart 6**.

### 3. Recommendations: how likely are you to recommend this webinar to a friend or colleague?

35 responses

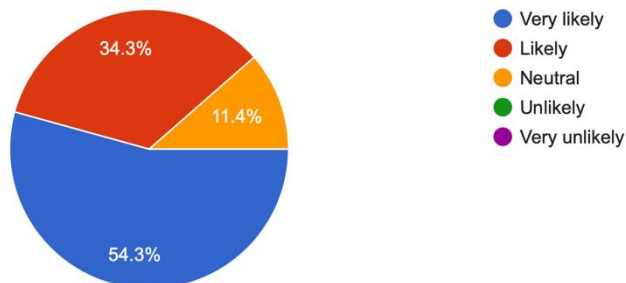


Chart 6. The usefulness of webinar

- More than half (60.0%) of respondents indicated that the case studies presented in the webinar were extremely useful or useful for their further career development. See **Chart 7**.

### 4. Professional Development: how beneficial do you consider the presented case studies for your future career?

35 responses

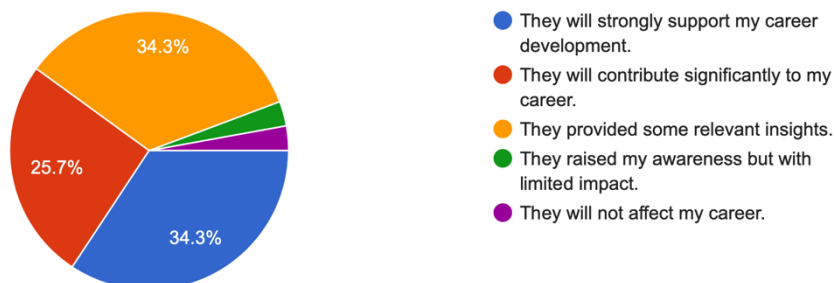


Chart 7. The relevance of case studies presented

- More than 3/4 (77.3%) of the students who provided feedback indicated that they would definitely use or would use the case study information in their further studies. See **Chart 8**.

#### 5. Professional Development: as a student, how likely are you to enroll in one or more case studies?

22 responses

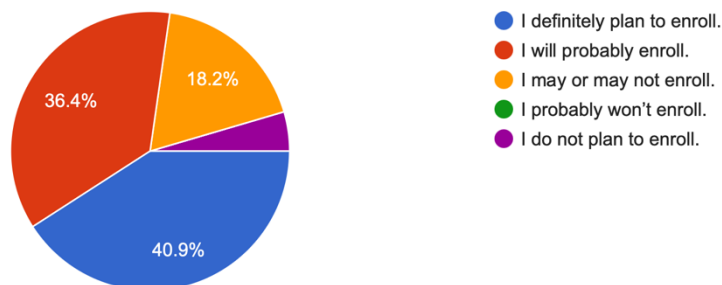


Chart 8. The usefulness of case studies presented: students feedback

- Essentially, all lecturers or vocational teachers who provided feedback indicated that they would definitely use or would use the case study information in their further studies. See **Chart 9**.

#### 6. Professional Development: as an educator, how likely are you to use these case studies in your teaching material?

31 responses

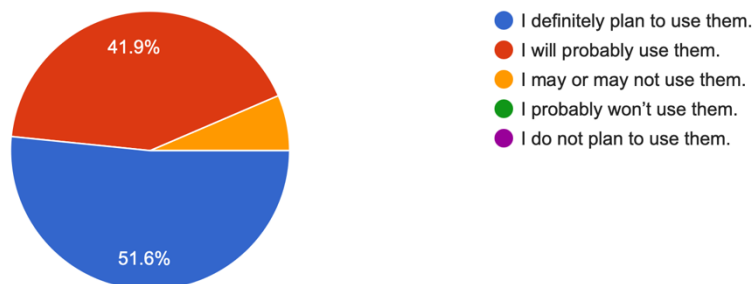


Chart 9. The usefulness of case studies presented: educators feedback

- All webinar participants confirmed that the webinars met their expectations. See **Chart 10**.

#### 7. Learning Objectives: did the webinar meet your learning objectives?

35 responses

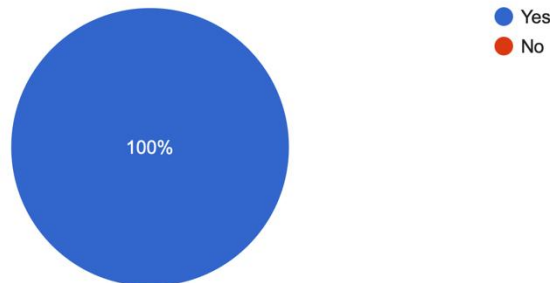


Chart 10. Satisfaction with the webinar

- **Likes:** the opinions of the participants in the webinars about what they liked the most were varied: the topics, the panelists, presentation of the 7 PBL use cases, clarity of the presentations, the definition of PBL etc. One statement was extremely detailed and significant: *"I appreciated the focus on integrating Problem-Based Learning (PBL) into the 5G-DiGITS educational framework. The approach of linking digital and green industrial technologies through real-life case studies seems particularly valuable for fostering cross-sectoral collaboration and applied learning."*
- **Dislikes:** most of the webinar participants didn't have anything they didn't like, but a few pointed out significant observations for the further organization of such activities:
  - no possibility to ask the questions,
  - too much information regarding the project,
  - the platform seemed a bit unstable - had to reconnect several times,
  - no Q&A session - no discussion at all,
  - maybe a little bit more time to discuss also in groups the content,
  - participants weren't able to participate through a chat or similar tools,
  - some parts of the presentation could have benefited from a more detailed explanation of how the PBL cases are implemented in practice and assessed for effectiveness.

- Suggestions: the webinar participants' suggestions for improvement are the following:
  - not webinar, but seminar,
  - some videos and/or testimonials of real use cases would be good,
  - could be a selection of use cases,
  - webinar without direct interaction is pretty much similar than a recorded video and reduces the use case discussion,
  - an intro slide would facilitate the content structure of the webinar, maybe it could be organized as seminar...
  - in order to have some discussions with participants,
  - increase participation and improve the tool,
  - it would probably be useful to discuss some aspects, so the webinar format could be replaced with a seminar,
  - including short interactive segments or live demonstrations of one or two PBL case studies could make the session more engaging and practical.
  
- When asked what topics they would like other webinars on, the event participants made the following suggestions:
  - circular economy,
  - case studies related to 5G networks in rural areas,
  - cyber security / telecom security,
  - Internet of Things,
  - 5G certifications,
  - developing of culture of cyber security,
  - adapting EU regulation for AI usage,
  - how PBL can be used to teach sustainability and green innovation in digital industries,
  - any topic that deals with the future of communication theory and systems, education development based on examples.

## 5. Conclusions and future steps

The webinars attracted a majority of participants from VET and HEI institutions, particularly administrative representatives, vocational teachers, and lecturers. This composition highlights the strong interest and commitment of these educational institutions to enhance their expertise in 5G development and in the practical application of the Problem-Based Learning (PBL) methodology. Their active engagement demonstrates a clear institutional motivation to integrate innovative teaching approaches and emerging technologies into their educational practices. Furthermore, the predominance of specialists with more than ten years of professional experience among the attendees indicates that the webinars reached a highly experienced audience with a genuine and rational need for continuous professional development. These participants showed an eagerness to broaden their knowledge and stay updated on future-oriented topics related to advanced 5G technologies, reflecting a proactive attitude toward adapting to the evolving digital and industrial landscape. In addition, the positive feedback received from students and educators (who widely reported that the presented case studies would be beneficial for their academic and professional growth) suggests that the 5G-DiGITS project and the selected areas of analysis are both timely and relevant. The themes explored during the webinars align well with current and emerging needs in education and industry, ensuring that the project's outcomes will continue to hold significant value in future academic and professional contexts.

### Things that can be improved during further project implementation:

- **Changes can be implemented taking into account the significant observations of the webinar participants:**
  - no possibility to ask the questions,
  - too many information regarding the project,
  - the platform seemed a bit unstable - had to reconnect several times,
  - no Q&A session - no discussion at all,
  - maybe a little bit more time to discuss also in groups the content,
  - participants weren't able to participate through a chat or similar tools,
  - some parts of the presentation could have benefited from a more detailed explanation of how the PBL cases are implemented in practice and assessed for effectiveness,
  - not webinar, but seminar,
  - some videos and/or testimonials of real use cases would be good,
  - could be a selection of use cases,

- webinar without direct interaction is pretty much similar than a recorded video and reduces the use case discussion,
  - an intro slide would facilitate the content structure of the webinar, maybe it could be organized as seminar...
  - in order to have some discussions with participants,
  - increase participation and improve the tool,
  - it would probably be useful to discuss some aspects, so the webinar format could be replaced with a seminar,
  - including short interactive segments or live demonstrations of one or two PBL case studies could make the session more engaging and practical.
- **The participants made the following suggestions concerning the topics they would like other webinars on:**
  - circular economy,
  - case studies related to 5G networks in rural areas,
  - cyber security / telecom security,
  - Internet of Things,
  - 5G certifications,
  - developing of culture of cyber security,
  - adapting EU regulation for AI usage,
  - how PBL can be used to teach sustainability and green innovation in digital industries,
  - any topic that deals with the future of communication theory and systems, education development based on examples.

In summarizing the feedback, it is relevant to remember that in the case of other training sessions, it is worth using a seminar format rather than a webinar, at least so that participants can ask questions and engage in active discussions with each other and with the speakers. It is worth noting that in other training sessions some videos and/or testimonials of real use cases would be good, while also considering the need for including short interactive segments or live demonstrations of one or two PBL case studies, to make the session more engaging and practical.

## ANNEX 1. Feedback form / questionnaire

Training webinar

### Problem-Based Learning for Cross-Sectorial Education in the 5G Digital Era: The 5G-DiGITS Approach

Participant feedback questionnaire

Country of residence	
Represented organization or educational/study institution or company	
Occupation / position held in the represented organization or educational / study institution or company	<input type="checkbox"/> student <input type="checkbox"/> VET teacher <input type="checkbox"/> lecturer <input type="checkbox"/> foreman <input type="checkbox"/> administrative employee <input type="checkbox"/> personnel (HR) specialist <input type="checkbox"/> other:
If you indicated that you are a student at an educational/study institution, please indicate the level and year you are studying.	
If you indicated that you are a lecturer, vocational teacher, foreman, administrative employee, personnel specialist or other, please indicate the length of your professional experience	<input type="checkbox"/> up to 1 year <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> 10+ years
Your contact email address	

#### GENERAL QUESTIONS

- **Overall Experience:**

How would you rate your overall experience at the seminar?

Excellent	Good	Average	Poor	Very Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- **Relevance:**

Was the webinar content relevant and useful to you?

Yes, very relevant and useful	Somewhat relevant and useful	Not very relevant and useful	Not at all relevant and useful
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- **Recommendations:**

How likely are you to recommend this seminar to a friend or colleague?

Very likely	Likely	Neutral	Unlikely	Very unlikely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- **Professional Development:**

How beneficial do you consider the presented case studies for your future career?

They will strongly support my career development.	They will contribute significantly to my career.	They provided some relevant insights.	They raised my awareness but with limited impact.	They will not affect my career.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As a student, how likely are you to enroll in one or more case studies?

I definitely plan to enroll.	I will probably enroll.	I may or may not enroll.	I probably won't enroll.	I do not plan to enroll.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As an educator, how likely are you to use these case studies in your teaching material?

I definitely plan to use them.	I will probably use them.	I may or may not use them.	I probably won't use them.	I do not plan to use them.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



- **Learning Objectives:**

Did the seminar meet your learning objectives?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
If not, what were your objectives and how were they not met?	<i>enter text here</i>

**OPEN-ENDED QUESTIONS:**

- **Likes:** What did you like most about the seminar?

*enter text here*

- **Dislikes:** What did you like least about the seminar?

*enter text here*

- **Suggestions:** Do you have any other suggestions for improving the seminar?

*enter text here*

- **Future Topics:** What other Problem-Based Learning topics would you be interested in learning about in future seminars?

*enter text here*