UNIHEAL+

UNIHEAL+ - Contextualizing UNIversal HEALth resilience through health professionals' re-skilling for digital health services provision.

Project Number: 2021-1-ES01-KA220-VET-000033271

R1: UNIHEAL+ Framework Courses – a completed approach.

SUMMARY OF REVIEW RESULTS

After LTT in Seville

Authors: M. Begoña Arenas and Ariadna Cánoves

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INTRODUCTION

The UNIHEAL+ project

UNIHEAL+ is an ERASMUS+ KA2 project with an implementation period of 24 months, between **01/02/2022 - 31/01/2024**. The project is being conducted by a consortium of SEVEN (7) partners from five (5) European countries: Spain, Lithuania, Romania, Cyprus and Greece.

The **digitization of health care** has long been on the European Agenda to modernize and improve healthcare and resilience across Member States; following the health impacts and the health care needs the global current pandemic has caused, OECD (Report 2020) has drawn some policy conclusions for health care provision pointing out that the Covid-19 crisis has demonstrated the importance of universal health education as a key element for the resilience of health systems, which can be issued successfully only through training and raising awareness for health professionals:

- On the one, reskilling and upskilling of the health professionals can be proven very useful to provide additional support and allows for a more flexible management of health risks and threats, and then for creating the grounds for a universal answer (at local-national level) to health services and consequently for health resilience.
- On the other, given the fact also that the digital transformation and the need for contemporary ways of services delivery have been established in the (vocational) education, skilling health professionals in an era-attached way means providing them with digital health services training: digital technology – including mHealth and eHealth is an inevitable part of the future of European Healthcare without meaning that automatically our health professionals are prepared.

Reports, research and papers have demonstrated not only the need but also the insufficient training on health digital technology or digital literacy on health with digital health services delivery The need for digital skills is widely acknowledged but there is limited reference to the health professionals as also the existing digital health professional curricula are inadequate – there is the need to strengthen the educational curricula of health professionals and use continuous professional development programs to provide them with useful digital skills training. As also intensively considered in Journal of Medical Education and Curricular Development (2020), integrating digital health into the curriculum entails how to educate future and present health professionals to work in an era of digital tools and reskilling them towards digital health services provision.

Taking this into consideration, there has been this **dilemma of how best to address the integration of digital health services into vocational curricula and training adapted to labor markets**. Arguably, it is in the best interest for health professionals to be reskilled and be prepared for adequate digital health services provision and to respond successfully to a health landscape that may see significant disruption due to technological upheavals.

The project main objectives are:

1. addressing the needs of the health professionals for further skilling, re- and upskilling, with a specific VET curriculum updated on further needs-centered skills building and adapted to labour market needs
2. recognizing the significance of digital health services deriving also from the recent health situation/emergency and the dominance of the ICT context in personal and professional life
3. equipping health professionals to better deliver their jobs, by digital health services training, thus improving their use of computational technologies, smart devices, communication media, etc, and, aids healthcare professionals and their patients manage illnesses, health risks, as well as promote health and wellbeing.
4. maximizing potential in their employment through the recognition of skills and qualifications due to the EQF, ECVET & ECTS units
5. constructing well-stepped units of training, educational materials, work-based scenarios, guides for the VET educators as well Health services providers, such as health professionals and nursing and midwifery professionals have been in the centre of our project for vocational empowerment and further coordinated and integrated training for re-skilling on digital health services provision.

The **UNIHEAL+ project consortium** is formed by consortium of consortium of SEVEN (7) partners from five (5) European countries: Spain, Lithuania, Romania, Cyprus, and Greece.:

Partner No.	Country	Name	Acronym
P1	ES	Fundación Ayesa	FA
P2	LT	MB Homo eminens	Xwhy
P3	GR	Xenios polis	Xenios
P4	RO	Gripen Europe	Gripen
P5	GR	Prolepsis	Prolepsis
P6	ES	Innovation Training Center, SL	ITC
P7	CY	CSI	CSI

The UNIHEAL+ LTTA in Seville

The Learning Teaching and Training event (LTT from now on) was carried out in Seville (ES) last 15 to 19th May 2022. 11 participants were in Seville face to face and 2 more participated via online on Monday and Friday.

The event was organized following this agenda to make sure the platform and all competence units were duly reviewed and reported:

Day 1. Monday, May 15th		
Time	*Content*	*Leading*
9:30 – 10:05	Welcome words Participants presentation Activity Introduction and goals/ Agenda Overview	Gloria Venegas All Gloria Venegas/Begoña Arenas
10:05 – 11:35	PR2 Session	Katerina Charokopou
11:35 – 11:45	PR1 presentation	Ariadna Cànoves
11:45 – 12:00	COFFEE BREAK	

12:15 – 13:55	Session 1. **CU1: Framework skills and aptitudes for digital communication**
	
	    Module 1 Summary 20min
	
	    Module 1 Moodle 30min
	
	    Module 1 Tools (Use Case) 20min
	
	    Module 1 Group´s results 30min (10min each group)
		Katerina Charokopou (Summary)
		
		3 groups of 3 people (Tools)

13:55 – 14:05	Debate and Debriefing	All
14:05 – 14:15	PR1- Internal content review	Ariadna Cànoves
14:15	LUNCH	

Day 2. Tuesday, May 16th		
Time	*Content*	*Leading*
9:00 – 10:40	Session 1. **CU2: Computer literacy, data analysis, data protection programs** Module 2 Summary 20min Module 2 Moodle 30min Module 2 Tools (Use Case) 20min Module 2 Group´s results 30min (10min each group)	Sissy Pelecanu/ Sintorela Chamiti (Summary) 3 groups of 3 people (Tools)
10:40 – 10:55	Debate and Debriefing	All
10:55 – 11:10	PR1- Internal content review	Ariadna Cànoves
11:10 – 11:40	COFFEE BREAK	
11:40 – 13:20	Session 2. **CU3: eHealth & mHealth context and content** Module 3 Summary 20min Module 3 Moodle 30min Module 3 Tools (Use Case) 20min Module 3 Group´s results 30min (10min each group)	Xenia Hadjikypri (Summary) 3 groups of 3 people (Tools)
13:20 – 13:35	Debate and Debriefing	All
13:35 – 13:50	PR1- Internal content review	Ariadna Cànoves
13:50 – 14:00	Day summary	Gloria Venegas
14:00	LUNCH	

Day 3. Wednesday, May 17th		
Time	*Content*	*Leading*
9:00 – 10:40	Session 1. **CU4: Medical devices compatibility** Module 4 Summary 20min Module 4 Moodle 30min Module 4 Tools (Use Case) 20min Module 4 Group´s results 30min (10min each group)	Eirini Oikonomou (Summary) 3 groups of 3 people (Tools)
10:40 – 10:55	Debate and Debriefing	All
10:55 – 11:10	PR1- Internal content review	Ariadna Cànoves
11:10 – 11:40	COFFEE BREAK	
11:40 – 13:20	Session 2. **CU5: Mobile applications, cloud storage, internet usability-functionality** Module 5 Summary 20min Module 5 Moodle 30min Module 5 Tools (Use Case) 20min Module 5 Group´s results 30min (10min each group)	Gloria Venegas (Summary) 3 groups of 3 people (Tools)
13:20 – 13:35	Debate and Debriefing	All
13:35 – 13:50	PR1- Internal content review	Ariadna Cànoves
13:50 – 14:00	Day summary	Gloria Venegas
14:00	LUNCH	

Day 4. Thursday, May 18th		
Time	*Content*	*Leading*
9:00 – 10:40	Session 1. **CU6: Universal digital health coverage** Module 6 Summary 20min Module 6 Moodle 30min Module 6 Tools (Use Case) 20min Module 6 Group´s results 30min (10min each group)	Tautvydas Bokmota (Summary) 3 groups of 3 people (Tools)
10:40 – 10:55	Debate and Debriefing	All
10:55 – 11:10	PR1- Internal content review	Ariadna Cànoves
11:10 – 11:40	COFFEE BREAK	
11:40 – 14:00	Activity Report	All
14:00	LUNCH	
Day 5. Friday, May 19th		
Time	*Content*	*Leading*
9:00 – 12:00	PR4 Session	Xenia / 2 groups
12:00 –12:30	COFFEE BREAK	
12:30 –14:00	Project Meeting	All
14:00-14:10	LTT Closing words	Gloria Venegas

This document

This report is the result of the analysis of the results of the online evaluation questionnaire and presents a summary of the evaluation improvements proposed by the partners after the validation exercise implemented during the LTT in Seville in May 2023. This document is structured as follows:
- RESULTS OF THE ONLINE EVALUATION
- SUMMARY OF IMPROVEMENTS PROPOSED
- Annex 1: link to evaluation questionnaire and returns.

1. RESULTS OF THE ONLINE EVALUATION

An online questionnaire was issues and responded by 12 participants. See annex 1 to see the link and evaluation returns. The questions were divided in 4 sections:

a. Organisational Issues
b. LTT CONTENTS
c. LTT RESULTS
d. BENEFITS

a) ORGANISATIONAL ISSUES

The respondents were requested to rate their satisfaction on aspects related to the ORGANISATION of the Training Event by selecting the relevant option on the provided scale, where 1 corresponds to Poor and 5 to excellent. **The average rate of organizational issues was 4,8, excellent**. Figure 1 below shows the results by item:
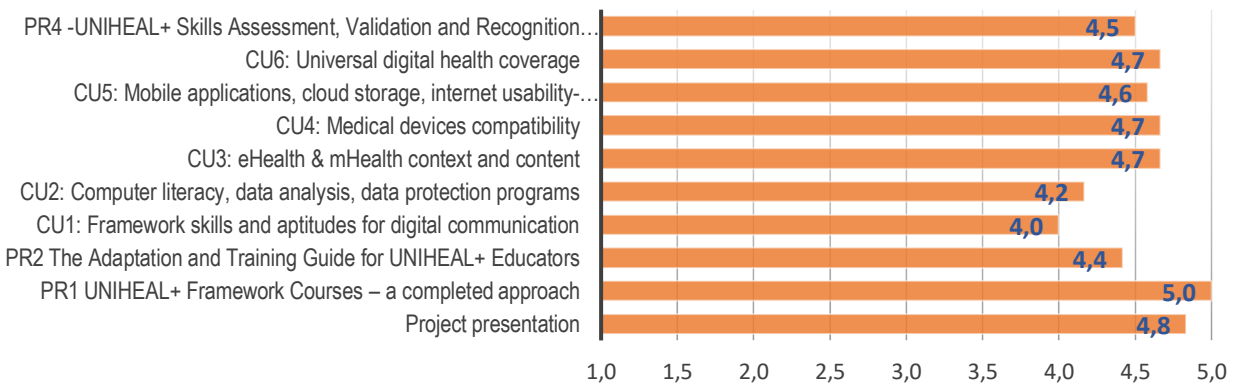
Figure 1: overall rating of organizational issues. Own elaboration
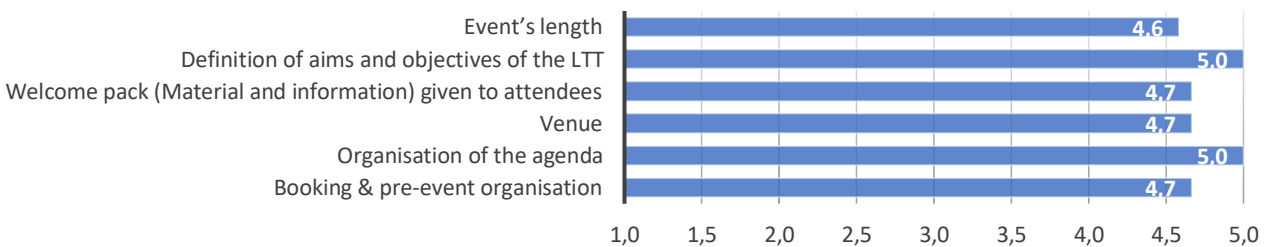
b) LTT CONTENTS

The respondents were requested to rate their satisfaction on the following aspects related to the CONTENTS of the Training Event by selecting the relevant option on the provided scale, where 1 corresponds to Poor and 5 to excellent. **The average rate of the LTT contents was 4,5 excellent**. Figure 2 below shows the results:

Figure 2: overall rating of LTT contents. Own elaboration

c) LTT RESULTS

The respondents were requested to rate their satisfaction on the following aspects related to the LTTA RESULTS - Please rate your satisfaction on the following aspects related to the RESULTS of the Training Event by selecting the relevant option on the provided scale, where 1 corresponds to Poor and 5 to excellent. **The average rate of the LTT results was again 4.5.**
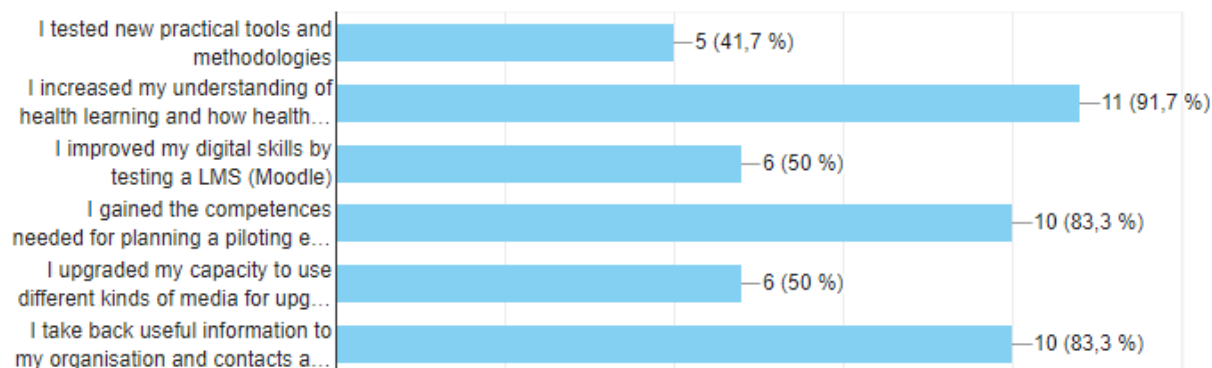
Figure 3 below shows the results:

Figure 3: Overall rating of LTT Results. Own elaboration
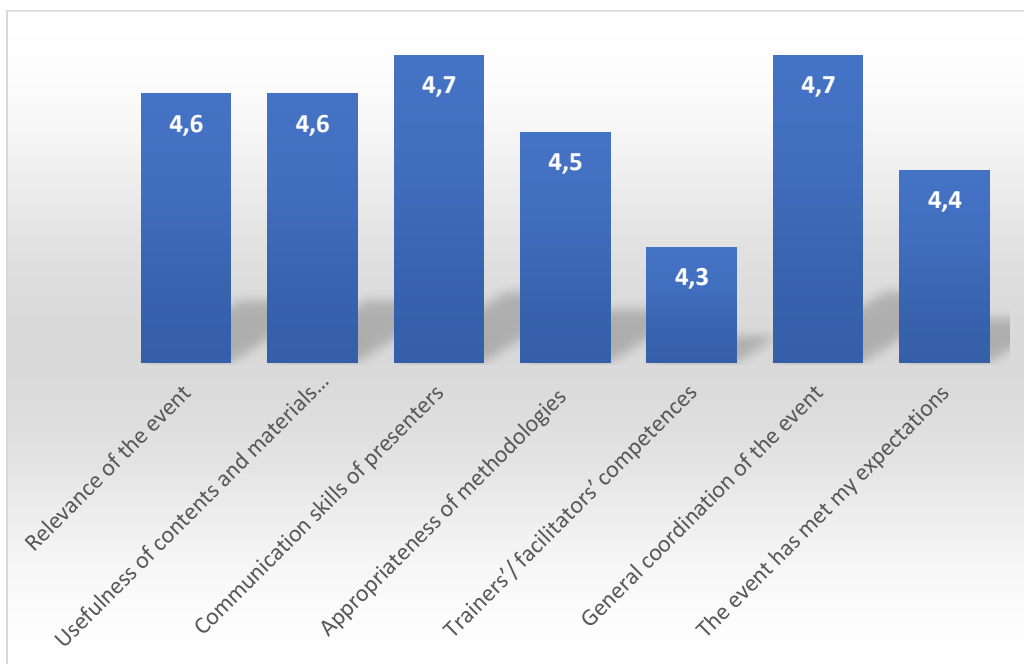
d) BENEFITS

Finally, the respondents were requested to tick the benefits **they have gained from attending the LTT. They could tick as many options as needed:** Figure 4 below shows the results:

Figure 4: Percentages of LTT benefits. Own elaboration adapted from Google results.

The most clicked benefits were:

- *I increased my understanding of health learning and how health professionals can be upskilled: 91,7%*
- *I gained the competences needed for planning a piloting event in the frame of UNIHEAL+, 83,3%*
- *I take back useful information to my organisation and contacts aimed at adopting the UNIHEAL+ approach also with 83,3%*

The average rating of all items evaluated during the LTT was 4,6 corresponding to excellent.

Regarding **improvement suggestions and comments**:

- *Try to give to the <u>training material an interactive format in the Moodle platform</u>.*
- *I think a lot of time was dedicated to discussing formatting, referencing issues that are universal to all modules. I don't think <u>it is efficient to repeat the same comments on each module. Instead, it would be better to mention it once</u> (agree with the partners on how the formatting should look like) and then dedicate more time to discussing the content.*
- this was an amazing week and training!!!!

In the following sections we include a summary of the improvements proposed.

2. SUMMARY OF IMPROVEMENTS PROPOSED

We will include first the general comments concerning all modules and All units, and then we will go through all Competence Units and practical cases:

GENERAL COMMENTS CONCERNING ALL THE MODULES:

- Logos NOT to be included in every page (include these in first page and then number the pages)
- Include table of contents
- Include citation style with bibliography – APA 7th EDITION.
- Figures need to include a CANVA link to be able to translate.
- Case study → Rename ALL OF THEM into "Practical case."
- Eliminate from page 1 at every CU: "TASK -: UNIHEAL+ Courses Instructional Design and Content and exercises Development."
- Highlight those words that are to be described later.
- Videos/articles that cannot be translated to all local languages should be moved to the end as extra contents.
- Review sources for all images/videos/articles

GENERAL COMMENTS CONCERNING ALL UNITS:

- Formatting mistakes: correct the gaps between the text and the figures positions.
- Figure legends need to include the source.
- Remember / Importance Boxes need to be included.
- Sources missing in some cases - include these at the end of the Units.
- When Videos / links are included, you need to give an explanation.

CU1: FRAMEWORK SKILLS AND APTITUDES FOR DIGITAL COMMUNICATION

CU1 UNIT1

- Take into consideration the term communication (page 4) comes from the Latin word - but in other languages? Maybe specify that for the English work this is true.
- Page 4 - communication is universal - need to define this.
- Importance of communication to include social life aspect / civil society participation.
- Page 8 - to develop professionalism in students - doctors and nurses (delete) and add health professionals THUS
- Page 8 - Rephrase It is important to be friendly with others.
- Verbal and non-verbal (page 8)
- Page 9 - repetitive
- Page 9 - instead of Speech / Lecture? instead of Radio - use the word Media?
- Non-verbal term - be consistent using this in this format.
- Topic 2 Verbal communication is not clear (there 1.4. and then topic 2)

CU1 U1 Case study/Practical case:

- The answer is too easy.
- American/British English mixed, it needs to be corrected. Choose one.
- Change the formatting of the text.
- Perhaps expand a little on the introduction.

CU1 UNIT2

- Admirable and Unsafe applications - need to give an explanation as to why these are considered as admirable and unsafe. (Page 14)
- Include Siilo application - communication between health care professionals.
- iMessage - is it unsafe?
- Content suggestion: when some methods or specific contents are suggested → complete them with suggestions of a set of tools or examples // not only at the end.
- Too many lists → maybe the information could be organized in more visual ways (spreadsheets ex.)

CU1 U2 Case study/Practical case:

- Better define the terms secure and non-secure applications in the text above.
- What's up - Whats app
- Add a bit more context about the patient.

CU1 UNIT3

- Correct formatting and source on the images a the end of the pdf.
- Page 4 - Hard skills should also include presentation software (PowerPoint), qualitative research method software programs.
- Page 5 - Check material again (copy paste from the internet) - paraphrase!

- page 7/11…part 5, it doesn't seem like the same font is used as that throughout the paper, ensure same font and size is used throughout the document.
- Topic 3… formatting is off, the size of the title of the topic seems smaller than the size of the titles of other topics, ensure uniform formatting throughout
- page 8, some figure labels are bolded (3.5) while others aren't (3.3, 3.4, & 3.6), should be uniform. Pictures have no context either or sources.
- page 10 has a list with a hyphen (-) yet earlier lists are with a bullet point, should be uniform. also, in the earlier lists there is a period (.) at the end of each bullet point whereas at page 10 there are none. should be uniform.

CU1 U3 Case study/Practical case:

- The situation described in the case study corresponds with the unit topic → A suggestion would be to make the case study more focused. It could focus only on one of the steps of improving the digital communication skills - e.g., focusing only on reviewing the digital persona, or remaining a positive persona in online situations. This would enable a deeper exploration of the topics discussed. E.g., you got a promotion as a head nurse and want to ensure that your digital persona reflects your newly acquired role. What steps do you take?
- Add a bit more of context about the head nurse.

CU1 UNIT4

- Replacing he/she with 'they 'throughout
- Might be helpful for the user to have a more descriptive title e.g., 'Free workshop(s) and how to complete one of them.
- Re-the digital skills training (page 3) - might be helpful for the user to have a description of what type of digital skills training are going to be mentioned below.
- Page -4- I think it would be helpful to have a more targeted description of these online workshops, the 1st descriptions is about a series of workshops provided by google and the 2nd and 3rd description are very generic- not clear why the user should be motivated/interested in seeking or completing these workshops. I think it would be beneficial to have a description of each workshop and why it will be helpful for health professionals or VET trainers.
- Page 5- one task is for users to complete one of the workshops noted. Is this necessary? This is an online training and not sure if it would be helpful having users having to complete another online training.
- Page 6- here a tool is described about an EU self- the assessment tool. Firstly, the title of the topic should change- one tool is described. Also, the reason why this training will be useful to HPs and VET trainers should be stated. Europass link is takes the user to the Greek version of the website- would be beneficial to take them to the English version.
- It would help if there is a short description of the whole Module at the beginning of Unit 1 (learning objectives etc.)

CU1 U4 Case study/Practical case:

- There are no options on the Case Study → include options
- If the content of Unit 4 will be reviewed, then maybe this practical case should be adjusted.

CU2: COMPUTER LITERACY, DATA ANALYSIS, DATA PROTECTION PROGRAMS

CU2 Unit 1:

- Videos - include an introduction.
- Figure 1.2 and 1.3 need to be replaced or edit in Canva
- Page 9 'According to a study' cite this
- Page 9 - Ways to develop digital skills - Suggestion of specific courses? Give the links to the free / paid courses
- Page 10 - basic parts of a computer - too easy/general
- Page 12,13 figures need to be replaced with more recent / relevant images / images from windows 7-10
- Page 15 figures need a figure legend - include the trademark in case we use brand names.
- Be consistent with the use of British English
- Formatting needs to be revised (capitals in middle of sentences)
- Page 6 - Data analysis should be considered as a basic digital skill for a health professional.
- Basic digital skills missing data presentation skills.
- Page 6 - Conducting web search (not research - that can be considered advanced)
- Page 7 - replace word researching with search.
- Page 7 - Microsoft teams should not be included in the collaboration tools (video calling tools)
- Page 8 - List - can't see the relevance to the health care sector.
- Page 10 onwards - talks about Windows only.
- Page 16 - include search engines for advanced medical research such as Google scholar, PubMed, web of science, Scopus, IATROTEK, CINAHL (biggest nursing database), Cochrane (systematic data analysis for health data)
- Please add Remember and very important! For all modules to have the same format
- Menu bar, status bar→ is an image without numbering and credit commons.
- How do I use my web browser to navigate the Web? None of the images are listed.
- Centring the images.
- Overall, it is recommended presenting information not only in bullet points, but also as full sentences in paragraphs. Cause now some pages are full of information in bullet points, which would maybe work if it would be presented in ppt slides, but as it is a word document, I would give preference for a differently presented text.

<div align="center">CU2 U1 Practical case:</div>

- The practical case has a scenario referring to a patient. If the whole unit refers to health professionals maybe the practical case should be presented from a health professionals' point of view. Also, the second option has several steps that the user needs to follow to create an email. This is a good idea- but this needs to be adjusted to be from an ehealth professionals' point of view → to create a case study which will include these steps, and then create a different practical scenario with a different case.

CU2 Unit 2: Data analysis

- Before jumping into the data analysis from the very beginning, maybe it could be useful to explain first what the key types of data are; what data is. How do you categorize it - e.g., qualitative, and quantitative etc. The unit could also reflect on different data collection methods, as now the unit focuses only on data analysis, which feels a bit out of context and an advanced step.
- general comments regarding formatting - referencing system; page breaks (avoid having pages where only one picture exists, etc.); page 12: remove the frame on text; page 13: should be "excel", instead of "ecxel" + the alignment.
- Images should also have captions, not only sources.
- Page 11: The image depicts a process very specific to concrete project (probably the one that this image was found from). It does not depict a process that is universal to different data cleansing processes.
- Page 7-8 the list of tools: maybe include also some more beginner-friendly tools? Or group the tools provided in the list according to difficulty, and by the use (e.g., for visualizing data, for statistical analysis, data mining etc.)
- Also, the unit could focus on some universal tools like Excel and explain its key features (see the comment regarding the case study)
- page 12-13: capitalize word "Excel"
- Page 7 and 8 - List of tools - to include SPSS, Nvivo, Atlas.ti
- Page 5 - importance of data analysis in medicine - replace word.
- A bit more of context for each video is needed.
- Overall, it was not clear to me whether this unit data analysis is aimed at health professionals that work in health service provision or in private practice- I think needs to be stated at the beginning. Are HPs going to do data analysis whilst working at a hospital for instance?
- Lots of bullet lists → a bit more of development in the information.

<div align="center">

CU2 U2 Practical case:

</div>

- The information provided in the case study about different Excel features should be provided in the core text of the unit. As it is now, the Excel features discussed in the use case are not discussed in the main body of text.
- Case study options: Option B should provide a list of alternative steps that are wrong. As it is now, it does not provide an actual alternative for the learner to choose from. To test them, it would be useful to have two lists of functions (one correct, and one wrong).

CU2 Unit 3: Data protection

- Weird page breaks
- No "Important" boxes.
- Practical case: huge difference between options, making so obvious the right one.
- Include a Bioethics section.
- First paragraph of the Legislation section is plagiarized, either quote & cite properly or paraphrase
- all data protection programs listed don't have sources
- Are the data protection programmes mentioned free? If yes, this should be stated. If no, not sure they should be included. Again, are these meant to be used in a healthcare provider setting? Are these meant to be useful for health professionals with private practices? This should be stated at the beginning of the unit

- page5. "Data protection laws secure" some of the content is also mentioned above (hacking, phishing..)

CU2 U3 Practical case:

- Huge difference between options, making so obvious the right one
- The practical case includes a scenario about 'data mishandling'. This is too vague, and needs further clarification. Later in option B it is mentioned that the user should digitize patients' files- but what if they have already been doing it? More details should be provided in the description. Also, same as before, one option has several steps that the user needs to follow. This is a good idea- but I think a separate case study should be created asking the user to complete these steps. Then create a different practical scenario with a different case and multiple options.

CU3: EHEALTH & MHEALTH CONTEXT AND CONTENT

CU3 UNIT 1

- Page 3: replace the existing statement - add the definition of the European commission.
- Definitions to be part of the text (not individually)
- Page 5: Chapter - replace ALSO Add mHealth definition of European commission.
- Page 6: Add to the roles - the European union policies.
- Page 11: Add Ireland as the first example - Increased clinician face time depending on the digital health literacy.
- Page 16: Robotics / exoskeletons check again whether these can be considered as eHealth services.
- Page 17: medical kiosk example of the Netherlands (drones delivering medicine?)
- Remove the word TOPIC from the titles.

CU3 U1 Practical Case:

- Pretty obvious the right choice.
- Could the 1st option be a bit harder? For instance, you forward the email to your team and ask them how to proceed etc.

CU3 UNIT 2:

- Spacing between paragraphs: pages 4, 6, 7, 8 (first paragraph between sentences), 9, 10, 16 (spacing between paragraphs is missing), 19, 20, 23, 26, 38, 39, 42
- Typo: page 5 instead "focussed" should be "focused"
- Page 5: description of NHS in the UK could be distinguished as a case study.
- p.9: "immaterial prescriptions" sounds a bit odd, maybe paperless prescription?
- p. 11: image could be of better quality
- p. 20-21: does the example of NHS Trusts and Care Providers refer to all NHS providers in general in different countries or to some specific country example? Found that a bit unclear when reading the text.
- p.22: Section "2.1.3.1 Research Evidence". Information can be presented more concise, it repeats a bit the idea that the number of remote consultations has increased due to Covid.
- p. 24: "Video consultations accounted for up to 27% of all consultations – about 1 million per week. " ← does not indicate which country the data is on

- p. 27: "Today, there are over 400,00 mHealth apps available in the app stores." ← I think the number is missing one 0. Shouldn't it be 400,000?
- p. 40: there is a link under the image that is unclear whether it is part of the caption
- p. 43: typo. instead of "eg." → e.g.
- iSaveLives application to be included
- Maybe a small paragraph that includes tips now to secure that a healthcare professional can communicate to a patient that their therapy session is secured.
- Maybe a remember for the healthcare professionals to their patients not to interpret the data from the apps alone

CU3 U2 Practical Case:

- Maybe a little bit obvious, probably it'll be better if we mention a tricky thing about privacy or something like that.

CU3 UNIT 3:

- Weird format (overlapping images)
- No text on page 11
- Weird page breaks
- Not sure if the title of subunit 3.1.2. (3.1.2 EU eHealth Week) is the right one here, as I believe a better fitting title could be found here, which would go well together with the title of 3.1.1. (3.1.1. Research Evidence). As the topic of the unit is Topic 3.1. eHealth challenges, it does not fit the concept I think, because Research evidence in a way does, though EU eHealth Week is a little bit out of the context. Maybe it could be Modernisation and digitalisation of healthcare systems, as the contents of 3.1.2. are mostly about that?
- - On page 12, not sure if the sentence is formulated in the most correct way - "Here, we present the most current challenges linked.."

CU3 U3 Practical Case:

- Maybe the problem definition is so long.

CU4: MEDICAL DEVICES COMPATIBILITY

CU4 Unit 1:

- Page 7: Historical inaccuracies (X ray development started in the 19th century)
- Page 7: Xray machine mentioned twice in the same sentence.
- Page 7: Implantable devices developed in the 20th century.
- Page 7: PACs system
- Page 8: Missing - PET, Lasers and ultrasound.
- Page 8: Image irrelevant?
- Page 9: Repetition of 'for example'
- Page 10: Topic 4 - potential of reducing the spread of infectious diseases.
- Page 11: Remote monitoring: Add implantable devices.
- Page 11: mHealth - enabling the healthcare professionals also to monitor.
- Page 11: Also, medical devices can be used in research

- Page 14: Personalised medicine / Medical training - to add that it also helps to plan better complex procedures.
- Page 16: Patient centric healthcare: Bioethics issue (tokens)
- Set the format like the rest (logo only on the first page, see CU3, CU5 and CU6 adding table of contents)
- Remove the word TOPIC from titles.
- Don't forget to put the images according to credit commons.
- Centring images and their titles.
- Topic 4: Innovation in the digital medical devices sector → 4. Innovation in the digital medical devices sector.
- Telemedicine→ 4.1. Telemedicine.
- Page 11 begins REMEMBER message box.
- There is a section of conclusions that is not in the rest of the modules. I think it is good to highlight the most important concepts but perhaps I would not create a point as such for it and I would use the very important or remember boxes throughout the text.
- Page numbers.
- There is a section of conclusions that is not in the rest of the modules. I think it is good to highlight the most important concepts but perhaps I would not create a point as such for it and I would use the very important or remember boxes throughout the text.

CU4 Unit 2:
- Page break - minor formatting
- Different way of citing figures - creative commons? follow prolepsis way?
- Page 11 / 13 - medical devices that connect with a smartphone are more expensive? If so, mention this
- Page 14: Normal levels of Blood glucose varies depending on many factors such as time of the day.
- Page 21: Your existing software - perhaps specify here whether you are referring to the smartphone software?
- Page 21: APIs in full
- Page 25: Challenge - Complexity - Low digital literacy (refer to devices connecting with a smartphone)
- Page 27: Healthcare professional challenges: the digital infrastructure of the clinic / practice might not support this.
- page 3 only has "level of difficulty: medium" ..can fit on page 2
- Figure 1's title isn't entirely under the link to the photo…. edit.
- can make some photos smaller to fit the page and formatting, does not have to be enormous.
- spacing is uniform throughout.
- in table of contents, should Digital Medical Devices all be capitalized for topic 2? it isn't in topic 4 and 5
- decide whether it will be capitalized or not throughout the document/module because it is capitalized in some parts of the document and not others.
- table of contents instead of a table make it like the other units??
- ensure red box is all on the same page.
- page 3: only has a line of text.
- page 18: "connecting a smart scale with a smartphone" you mention the below instructions and a video, probably you should mention which video and in which page can be found.
- Highlighting most important words (after page 9)

- say resorting only to traditional methods is frowned upon.
- Switching to ONLY traditional methods may not necessarily be the best solution as it can result in a loss of convenience and real-time data for the patient.

CU4 Unit 3

- p. 2: table with topics; different from other modules
- p.7: formatting - the picture
- p. 10: includes a list of cybersecurity laws and regulations in Greece ← since it won't be applicable to all countries, maybe this should be separated as a case study / example, or this info substituted with relevant links for each country?
- p. 12: in the image word "authentication" is missing an "n" at the end.
- p. 17: space between paragraphs
- p.17-18: the list of secure messaging apps provided in this unit contradict the list provided in Module 1 Unit 2.
- Cyber security laws and regulations in Greece- this needs to be removed or localized to the appropriate extent.
- Secure messaging- may still overlap with Module 1
- The text in the graph in 'secure emailing' section needs to be adjusted to fit.
- The table on page 8 does not fit in the page. Recommendation would be to make the table smaller, as now it starts on page 7 and continues all the way to page 9, though it could be easily fitted on page 8. Same comment would be for the table on page 14.
- On page 17 there is big space between the text and the following table. Regarding the table, among mentioned messaging systems, which are safe to share patient data securely, there are WhatsApp and Viber, which in the module's case study before were presented in different categories. This raises some questions, which approach is more correct here. This could confuse the reader.
- On page 20, the scheme's text is cropped.
- On page 25 and 26 screenshots are missing the source.
- Not sure if page 32 should be kept as it is now, as now it is empty.
- On page 34 line and paragraph spacing is different from the rest of the text.
- Whatsapp and telegram are included as unsafe applications, while in this module these are considered safe.
- p. 18: WhatsApp icon could be of better quality.
- p. 19: page break. "Secure emailing in healthcare is important because it helps health care professionals:" should be closer to the image it describes.
- p. 20: the words in the image are not visible.
- p. 22: some words are not visible, e.g., "Set-up two factor" ← I think a word "authentication" is missing? also "encrypted".
- p. 23: space between paragraphs
- p. 32: left empty.

<div align="center">**CU4 U3 Practical case:**</div>

- The practical case is good, is of appropriate level of complexity. Maybe add that Dr. Smith should inform not only authorities but also the hospital's administration (or a data protection officer at the institution)

CU4 Unit 4

- Check headers and page numbers.
- Weird page breaks
- Huge tables, little hard to follow, maybe avoid it and use lists.
- Images citing, no creative commons.
- Some links without translation, maybe put them on the end of the unit.
- Remove the word TOPIC from titles.
- Centering images and their titles
- - On page 4 the table could be fitting into page 5. Links in that table are recommended to be moved to the right side of the table, as the following tables follow this structure.

CU5: Mobile applications, cloud storage, internet usability-functionality

CU5 Unit 1

- British vs American English, e.g. p.7
- I think trademarks should be noted for all applications mentioned.
- The whole Unit is focused only on Microsoft Windows users. What about other Operating Systems, like macOS or Linux distros?
- If we say Google Chrome, not just Chrome, we should also say Mozilla Firefox, not just Firefox, as that's its full name.
- Standard/ pre-installed browsers, like Microsoft Edge and Apple Safari should be mentioned; also, it should be mentioned that Mozilla Firefox or Chromium are often standard browsers in Linux distros. Please, relate all this with p.2. that reads: "It is true that, in order to download the installer of the chosen browser, we will need to access the web from a browser."
- p.2 What is the source for the claim that Google Chrome is the most popular browser in the market?
- p.8 The text for tab # bookmark is not very clear and a bit confusing and repeats many times the word tab to describe two distinct things. Perhaps, add first a paragraph/ section explaining what a tab is, and then explain in another paragraph what a bookmark is.

<div align="center">**CU5 U1 Practical Case**</div>

- p.23 The word navigator instead of browser is used for the first time in the text! Either change it to browser, either explain at the very beginning that a browser and a navigator is practically the same thing.
- p.23 vademécum medicaments??? What is this??? Does it make sense in English? Drugs Formulary, perhaps??? It is necessary to find something that can be used in all countries or differentiate depending on the language/ country.
- p.23 Clarify strange info; clarify why option B is not correct

CU5 Unit 2: nothing

<div align="center">

CU5 U2 Practical Case

</div>

- pp.42-43 Nice case study, but a bit irrelevant; privacy hasn't been discussed in this unit.
- Make sure that all apps are mentioned with their correct name and style, for instance OneDrive, not One Drive. Again, use the full name, i.e., Microsoft OneDrive, not just OneDrive
- p.2 Source for the claim that "Google Drive is the cloud storage par excellence"?

CU5 Unit 3 and 4:

- General comment: Perhaps it's best to have this as a separate module (more technical / practical) and not Mod 5? Will facilitate flow of content.
- Figure 3.1: Strange image - replace?
- Formatting - spaces in figure legends
- General comment regarding the figures: Will these be translated?
- Gen figure comment: Very small letters - Not easy to read / understand. Important to include images though.
- Page 10: Gap in upper part of the page - formatting

<div align="center">

CU5 U3 Practical Case of

</div>

- Your manager asks you / How should I proceed / We log in

<div align="center">

CU5 U4 Practical Case:

</div>

- because the email requesting access to our computer is apparently an email from a technician. We can't really say that! Specify that a recognised email should be a company's email address.
- hacker367@gmail.com - Replace with something Less obvious

CU5 Unit 5

- page 2: regarding Gmail, is it a pre-installed app also for iphones?
- page 2: "On The first screen we see when we start the application, …" should be paraphrased.
- page 2: spacing in the image caption (applies to other images as well)
- page 2-3: describes the process of logging in if one already has a Gmail account. It should be mentioned that in case one does not have an account, they need to register.
- p.3: "For this explanation we have clicked on Don´t turn on, but this choice is a question of the needs that we have." → suggest changing to something like "In this demonstration we clicked on "Don't turn on", however, each user can decide based on their needs."
- p. 5: "To go to Gmail, click on the TAKE ME TO GMAIL button below…" → suggestion to add button names in quotation marks, like "TAKE ME TO GMAIL", and no need for "…" at the end of the sentence.
- p. 6: ", just click on the + icon at the bottom of the screen." ← the image provided does not have a "+" icon, but this:
- p. 24: screenshots illustrating the text are missing.
- p. 25: "WhatsApp Web is a utility that allows us to use the WhatsApp application on our mobile device on a computer." ← delete the "our mobile device" and just leave "on a computer"?

CU5 U5 Practical case:

- Option A and Option B are too similar and in theory could be both considered correct. Need to make the Option B a bit more different than Option A.

CU5 Unit 6:

- p. 2: instead of "our accounts" should probably be "your accounts"?
- p. 9: "6.11" above the image should not be there.
- p. 21: * next to numbers should be removed.
- MORE EXAMPLES OF PASSWORD MANAGERS

CU5 U6: Practical case:

- A good practical case

CU6: UNIVERSAL DIGITAL HEALTH COVERAGE

CU6 Unit 1

- Inconsistency of usage of personal antonyms (e.g. "we will learn [...] you will learn", p.1)
- Inconsistent usage of the term mHealth; sometimes is mhealth, some others m-health, others MHealth (e.g. p.1, p.9)
- British vs American English (e.g. p.2)
- Some screenshots have poor image quality (e.g. p.10)
- I have the feeling that there is no mention of mHealth apps dedicated to data collection and research, such as Magpi (https://www.magpi.com/)
- p.1 "More information mhealth…" -> More information on mHealth…"
- p.1 "covered in different angles…" -> "covered from different/ various angles…"
- p.1 "while diagnostic applications are in more depth are analyzed"
- p.1 "We will introduce you…" - > "You will be introduced…"
- p.1 "to introduce mHealth phenomena and risks and opportunities." -> "to introduce mHealth phenomena, risks and opportunities."
- p.2 Wearable (Mobile) Devices: not sure if the explanation "(Mobile)" is needed
- p.2 "provide tracking, motivation and reminders" -> "provide monitoring, tracking, motivation and reminders" also, define tracking, as often has negative connotations
- p.2 "Wearables are specific add-on devices or sensors…" perhaps rephrase by adding an explanation that in this context "add-on" means "to wear" (e.g. "Wearables are specific add-on devices or sensors, i.e. devices or sensors that a person "wears" on them…")
- p.5 "clinic workers" -> "healthcare professionals"
- p.6 "gender-specific data" -> "sex-specific data"
- p.6 "Sleep Cycle app is offering…" -> "Sleep Cycle app offers…"
- p.6 "Just keep in mind that no sleep tracker is 100% accurate, so if you are really struggling with your sleep, you may need to see a dedicated sleep specialist." Again, I'm confused. Is the target-group of this module citizens/ patients or healthcare professionals???
- p.9 "The results of the doctors' work…" - > "The results of the healthcare professionals' work…"

- p.9 "Medici app that allows the doctor and patients to communicate" again, not only medical doctors, but other healthcare professionals, too
- p.9 "This might not be required since you already know the doctor." again, are we addressing the patient or the healthcare professional???
- p.10 "It is more of the best mHealth app…" -> "It is one of the best mHealth apps…"
- p.12 "However, there are a few limitations of the app including spinal cord and brain injuries, numbness, chest pain, multiple broken bones, lacerations, coughing blood, vomiting, paediatric ear infections, severe burns, and so on." ???
- p.15 Again, not only medical doctors. E.g. a psychologist, a physiotherapist, a midwife, an optometric can be healthcare professionals that a citizen/ patient would contact directly, without a doctor's order/ consultation
- p.15 The acronym "ML" is used, but hasn't been previously explained what is stands for
- p.15 "The overall study goal is to determine the relationship between wish to die, and suicide attempt and changes in sleep quality and disturbed appetite using Smartphone and wearable technology based using ecological momentary assessment (EMA). The principal objective of the study is to identify the correlation between quality of sleep monitored via the digital footprint and suicidal events including and suicide attempts in a cohort of suicidal patients."
- Needs some rephrase:
- "The overall study goal is to determine the relationship between wish to die, and/ including suicide attempt, and changes in sleep quality and disturbed appetite, using smartphone and wearable technology, using ecological momentary assessment (EMA). The principal objective of the study is to identify the correlation between quality of sleep, monitored via the digital footprint, and suicidal events, including suicide attempts, in a cohort of suicidal patients."
- p.15 "seemed to perceive newness"???
- p.17 "There is a common misconception that people can use this device…" what device???
- p.18 "Since privacy laws may not cover healthcare apps,"??
- If the app can only be found in English, it should be suggested another option available in local languages.
- page 15. "Wish to die" maybe a more medical terminology suicidal ideation.
- Put the references at the end and with a link in the number.
- Put all as we discussed yesterday a single exclamation mark.
- There is a Case Study in the middle of the text:
- Are we going to leave the images of the Apps in English? in case the App is not available in the other languages? I understand that the image 1.2: Ada App is an image taken from the Ada website, not that you have created it. So for the translation part it would be useful to have available the link from which you have obtained all these images.
- There are several sections with more information: would it be better to put it at the end of the unit as additional information?

CU6 Unit 2:

- It would be good to state in the beginning that eHealth was also mentioned / covered in Module 3 where you can read about other eHealth applications. Also true for mHealth
- Page 3: Is the citation for the whole list? or just the last point?
- Page 6: Reference to e prescription. A bit confusing, there is a link but maybe it s best to remove this part.
- Page 7: Disadvantages to include Low digital literacy of stakeholders and to stress the need for training.

- Page 11: Do disadvantages of EMR apply also to disadvantages of EHR and vice versa?
- Page 12: Remember box - decision making does not include diagnosis and treatment? Unclear - maybe rephrase.
- Page 15: The graph below? Better to include the graph as a figure not just a citation
- Page 18: HIP in full
- Page 19: Very good to present such examples but we need to mention in which languages are these systems available and whether there is a subscription and how easy it is to implement these in your practice/clinic.
- Differences EHR/EMR → more visual format, maybe a table to clearly stablish the differences.
- Ehealth good practices → pictures of the countries? maybe better about the outputs of the projects or news or something related to the subject.

CU6 U2 Practical Case

- Very good pr case: All diagnoses and treatments that the patient experienced in your healthcare institution. Replace word with was provided
- OPTIONAL: Provide maybe a more critical approach of the content as it was done on the rest of practical cases.
- Practical case: too abstract, specify the illness and some other details. It seems too easy maybe a more critical approach that makes the user think a bit more → this is pure validation of theoretical contents.

CU6 Unit 3:
- a general comment on the use of "telemedicine" and "telehealth": the introduction explains that these terms are often used interchangeably, yet they are different. Maybe the differences between these terms can be further explained? Or, since later in text these terms are used interchangeably, maybe it could be also stated in the beginning that in this unit these terms are used as such. It becomes a bit confusing whether these are two different terms or not, e.g.:
- p.2-3: the terms are used together (e.g., "telemedicine (telehealth)")
- p. 4: "Even though you may agree with the aforementioned advantages of telehealth you still may not see the context of it, as you might think that telemedicine is something widely used in your country." ← telehealth and telemedicine is used interchangeably here. Also, "you may not see the context of it" sounds odd. What does it mean?
- page 5: remember box. Maybe it would be worth to say that telehealth can encompass telemedicine? Telehealth is broader than telemedicine because it includes a wider variety of communication means?.
- p 9: "Telehealth has exploded during the pandemic, when screening potential Covid-19 cases and helping elderly high-risk patients diagnoses became a necessity". ← "patients diagnose became a necessity" sounds odd. Also, if correctly understood telehealth here is used to refer to virtual doctor-patient consultations. Based on the definitions provided in the beginning of the unit, this should refer to telemedicine?
- Formatting, grammar etc.:
- page 4: footnote 7. The reference is incomplete.
- review for some grammatical errors, e.g., like page 11: "[...] when having to organize in a video consultation [...]"
- p. 12: "As there are hundreds and hundreds of these applications, [...]" ← maybe just "a lot"?
- Style - different from other modules and units?:
- "type in what you are looking for and download the first one suggested, right? Well, not really. "

- "stick with us!"
- "This question will be answered below, therefore continue reading!"
- p. 9: the heading is "1. TIME, TIME and one more TIME!" → would suggest paraphrasing it in a more neutral language like "Schedule the appointment time"
- p. 16 onwards: there could be short descriptions on how these apps could be used in day-to-day work; is it free to use or not; maybe also add a logo? Also, some of these apps have very low no of downloads - are these apps the most widespread in the market?
- p. 21: "Doctor on demand" app provides opportunity for citizens to consult a doctor licenced by Doctor on demand company. I.e. it is not a videoconferencing tool that can be used by any healthcare professionals wanting to connect with their patients. "Doctor On Demand employs hundreds of board-certified physicians and mental health professionals to offer support for any healthcare need." The same applies to p. 22: "MyOnCallDoc Telemedicine"
- page 8 the patient has the "capability", maybe change it with skills
- page 2-3's definition of telehealth and telemedicine is a run-on sentence and difficult to follow, instead of combining definitions to both terms in one sentence consider breaking it up
    - also telemedicine (telehealth) are used together even though you just said they're different ? but in the intro you say they are used interchangeably.. clarify how they are related
- proper citations in APA (some are some aren't)
- we vs. you, pick one and stick with it
- end of page 6 there a re two links, only in English? put to the end?
- will screenshots be translated to different language
- page 4 'you may not see the context of it' consider rephrasing
- page 12 'hundreds and hundreds' consider rephrasing
- the rhetoric is a little more colloquial and relaxed than the other modules, ex: "Stick wiith us!"
- when outlining the examples of apps maybe also describe how they can be useful for health professionals &/or patient's?
    - some have downloads # and others don't, either put them for all apps or eliminate?

CU6 U3 Practical case:

- The description could be shortened
- Both options are correct - a very different format from other practical cases

CU6 Unit 4:

- "You will see artificial intelligence (AI) and machine learning (ML) as tools which help to be more effective, provide better services and hopefully technological progress won't frighten them."- unclear meaning please review.
- Once you have introduced the abbreviations of AI and ML, these can be used throughout the text.
- Would replace 'abnormalities' with 'disorders', 'health conditions', 'other illnesses' etc.
- Page 3: "Other artificial intelligence subsets include: natural language processing (NLP), computer vision, robotics, expert systems, neural networks, evolutionary computing, fuzzy logic, speech recognition, planning and scheduling, automated reasoning. "I would suggest explaining 2-3 of these AI subsets and their relevance to the field of healthcare.
- Page 4: sentence to be revised: 'Be attentive to coming up technological progress, experts identify the following areas as showing the most potential for artificial intelligence (AI) and machine learning (ML) integration: '

- Page 4: areas of AI and ML: I think a sentence indicating the healthcare setting that these technologies can be applied to, would be helpful for the students.
- Page 5: really enjoyed the critique!
- before going into the practical application of AI (maybe at the beginning of this unit) I would like to see some mention to the role of AI in health promotion, prevention of health care issues, chronic conditions, mental health issues etc.
- Page 6: the link takes the user to the company, and it is in English, is it OK to refer users directly to companies?
- Page 7: SPOT sounds great!
- Page 7: "This enables HCA Healthcare" the abbreviation should be explained as well as their role.
- Page 8: "A study published in Nature in 2020 found that AI was as effective as, or even superior to, human experts in the image-based diagnosis of skin cancer" citation is needed. Underneath the text, you have linked a study conducted in 2020, published in The Indian Journal of Dermatology, is it a confusion?
- page 8: Information on AI systems that can detect skin conditions including skin cancer is fantastic!
- Page 9: the description of the smartwatch that detects seizures includes link to the website where people can pay the product, is this ok?- there is the option of a free trial
- Page 12: "this field and look for ways how artificial intelligence and machine learning technologies might serve you, "please review this sentence.
- Suggestion for all modules: formal language and refraining from abbreviations like you're, you've e.g. page 13 'they're'
- Page 13: indent the part written by the chatbot.
- Page 13: "If you came this far without noticing machine intervention, perhaps chatbots could help you out too?" I would remove the question mark at the end of this sentence.
- Page 13:It was great the mental health has been mentioned here, it is crucial to discuss mental health along with physical health in this context
- Practical case is great! Would you consider changing the type of vaccine in the after- COVID-19 era?
- Logos on every page, page numbers, content table…
- Maybe explain how the IAs can be biased, how to avoid it…
- Exclamation mark on the beginning of the Remember box p.5 and Important p12
- Links without translation
- Additional links must be on the end of the unit
- Practical Case: Both options can be correct, maybe reformulate one of them

CU6 U4 Practical case

- Would you consider changing the type of vaccine in the after- COVID-19 era?

Annex 1: link to evaluation questionnaire and returns.

The link to the evaluation questionnaire is:

https://forms.gle/c4ckHQNPSGGXAcoZA

The table with the evaluation returns:

Partner	Name and surname
ITC	Ariadna Cànoves
ITC	Begoña Arenas Romero
Prolepsis	Vasiliki Radaios
Fundación Ayesa	Gloria Venegas
Xenios Polis	Eirini Papageorgiou
CSI Cyprus	Xenia Hadjikypri
Gripen Europe	Sintorela Chamiti
Xwhy / Agency of Understanding	Tautvydas Bokmota
SCI Cyprus	Michail Drakomathioulakis
Xwhy / Agency of Understanding	Rasa Gostautaite
Fundación Ayesa	Álvaro Cantarero
XENIOS POLIS	Katerina Charokopou