strengthenING diGital pEdagogy skills aNd competencIes Of edUcatorS

NATIONAL REPORT: GREECE

Intellectual Output No. 1:	IO TITLE: Innovative Methodology for assessing VET Educators' digital skills
Document:	National Report: Greece
Tasks No.: 1-1, 1-2.	REPORT ON 1-1. Implementation of assessment procedure 1-2. Evaluation of assessment procedures' feedback
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Abbreviations and Acronyms

Abbreviations and Acronyms:	

1. IMPLEMENTATION OF ASSESSMENT PROCEDURE

1.1. Introduction

In the framework of the INGENIOUS project, the two partners from Greece cooperated for the realization of the assessment procedure, based on the questionnaires on the real use of digital green competences in vocational education (VET) in Europe, that were created by TSI. In particular, University of Ioannina, which is also lead partner to the project, and DIAVALKANIKO S.A. contributed in the implementation of IO1 by:

- Providing information and feedback for the creation of the questionnaires.
- Participating in project meetings and bilateral meetings, giving their opinion on the project's progress.
- Completing the assessment process successfully and gathering answers on two different questionnaires.

Greek partners, after examining the interests and needs in their areas, decide that they would focus on:

- Area 4: Energy Production And Management
- Area 5: Reducing Pollution And Negative Effects Of Climate Change

The two questionnaires were created in English by TSI and were translated by the UoI team. Then, they were distributed to VET educators to be filled in, according to their area of expertise and their interests. Area 4 questionnaire gathered 27 answers and Area 5 gathered 21 respectively. This national report includes the analysis of the survey from the questionnaires, the results and the conclusions.

1.2. Determining the boundaries of the test group

The test group that participated in the survey included VET educators of different levels and backgrounds, focusing on experts on Energy Production, Pollution and Environment. The participants answered the electronic questionnaires in Greek, which included questions on:

- Demographics/General knowledge
- Teaching digital competences
- General digital greening competences (GDGC) for sustainability
- Specific digital green competences (SDGC)

1.3. Definition and formation of criteria and instructions for conducting a survey

The criteria and instructions for conducting the survey were defined in the meetings that took place among partners regarding the progress of Intellectual Output 1, and are common for all partners.

1.4. Collecting and storing survey data

The answers were collected via Google Forms and the data were stored in an Excel file, where the first stage of processing and analysis took place, resulting in the produced charts. All information gathered was used for composing this report.

2. EVALUATION OF ASSESSMENT PROCEDURES' FEEDBACK

2.1. Calculation of quantitative data and analysis of the information received

For the calculation of the quantitative data and the analysis of the gathered answers, the program Microsoft Excel was used. In the appendices of this document the excel files and all the charts that came up from the process can be found.

2.2. Collation, comparison and systematization of information

The information gathered and processed provided a number of visualised results, data on specific characteristics and some comparative charts for groups of questions. The results of the analysis follow.

2.3. Generating a report with visual diagrams

In the following table, the results regarding common questions in both questionnaires are presented, so that we are able to visually compare them. The participants answers' (depending on the expertise each participant obtains) show relatively small differences regarding the work position, employment status and years of employment. It is important to note that in the first question related to the teaching digital competences, the results partially differentiate, with most responders of AREA 4 questionnaire estimating their digital competence level from A2 to C1, while the respective participants from AREA 5 questionnaire narrow down this range from B1 to C1.

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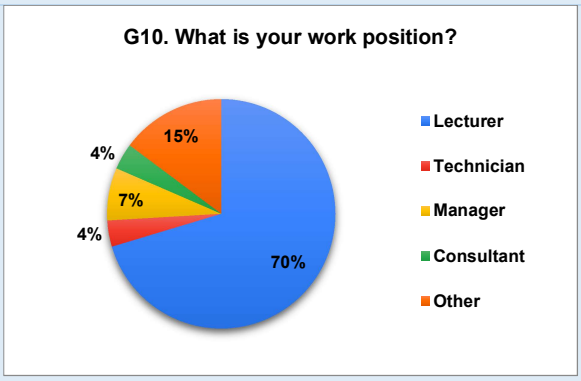
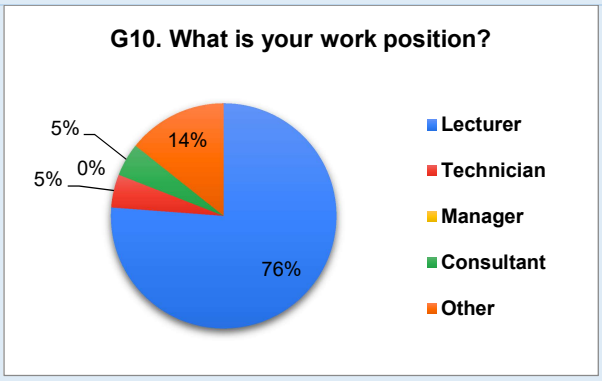
AREA 4	AREA 5
	

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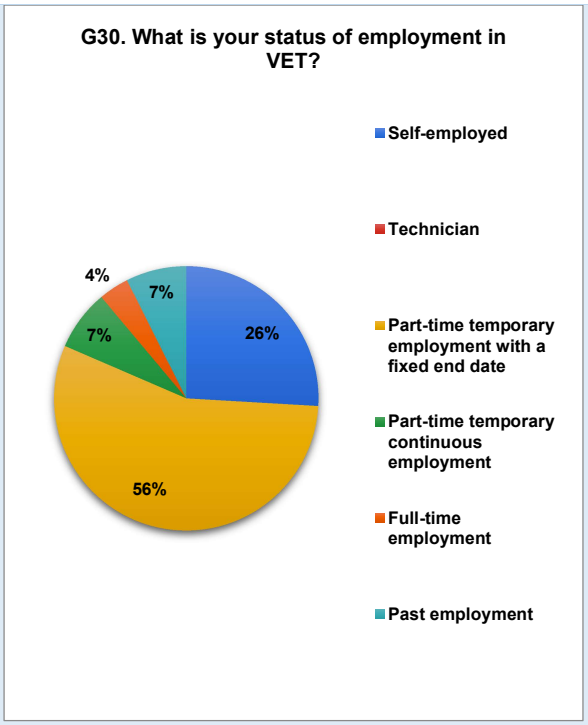

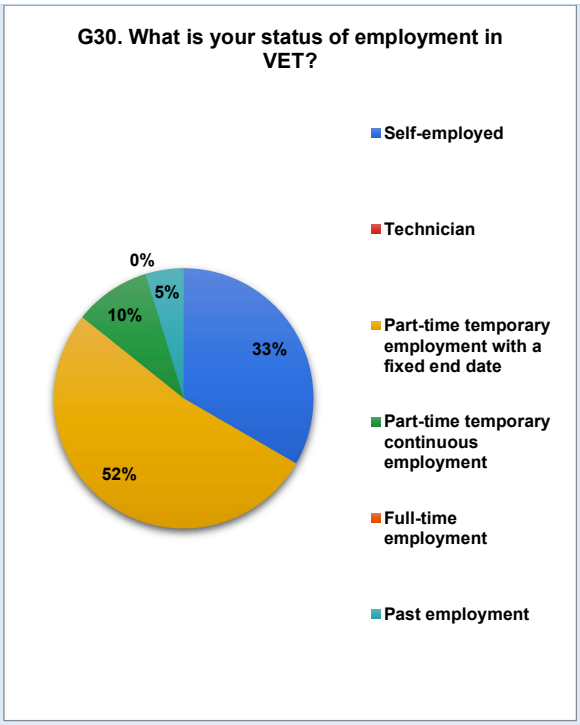

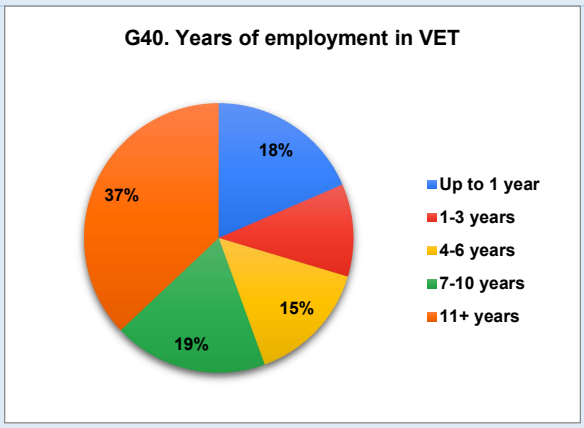

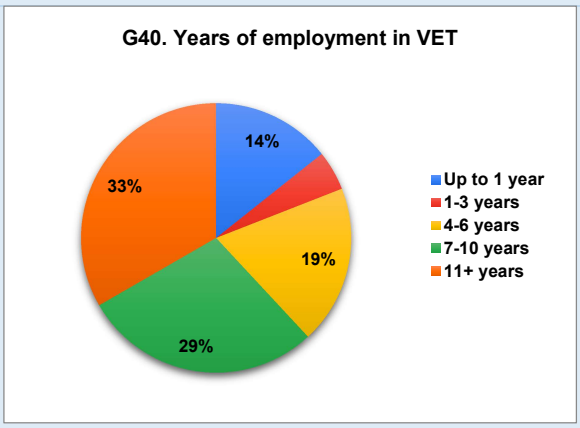

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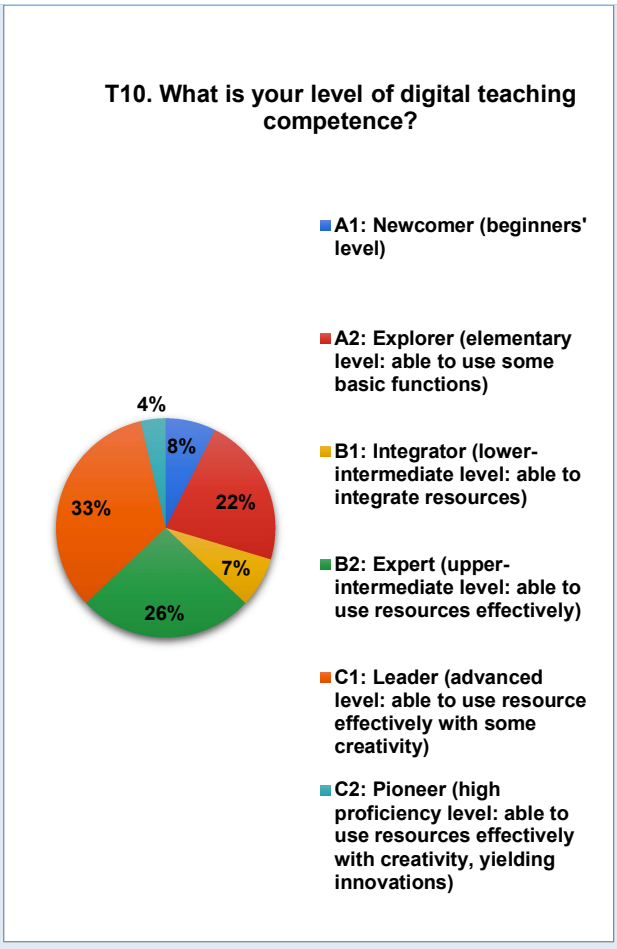

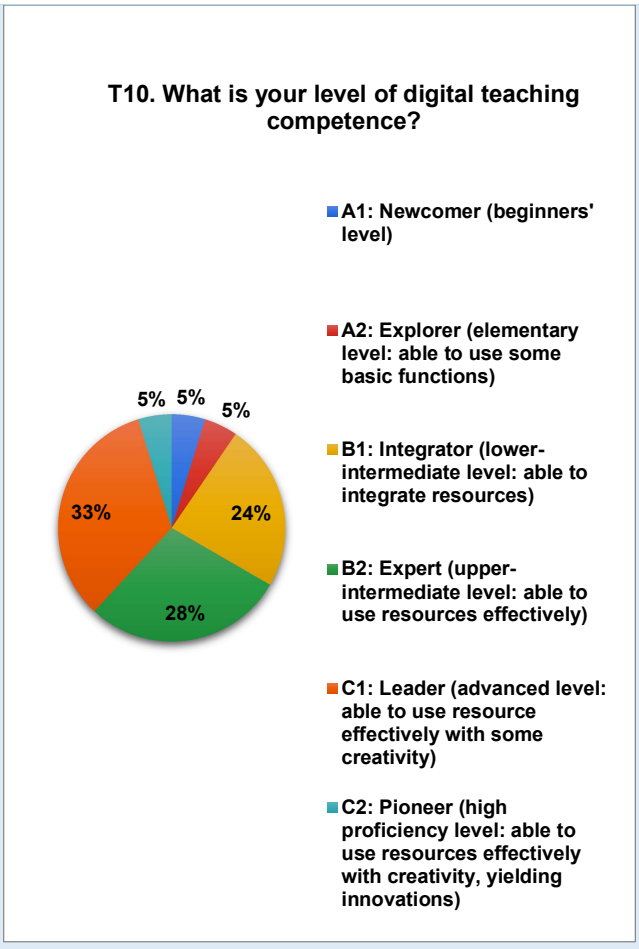

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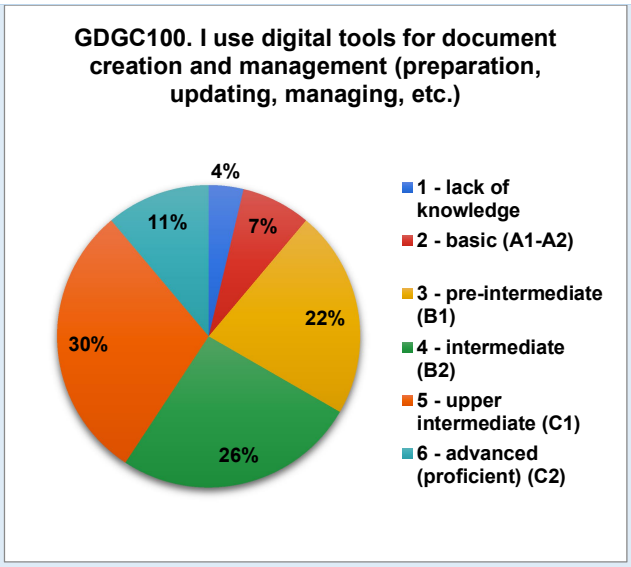

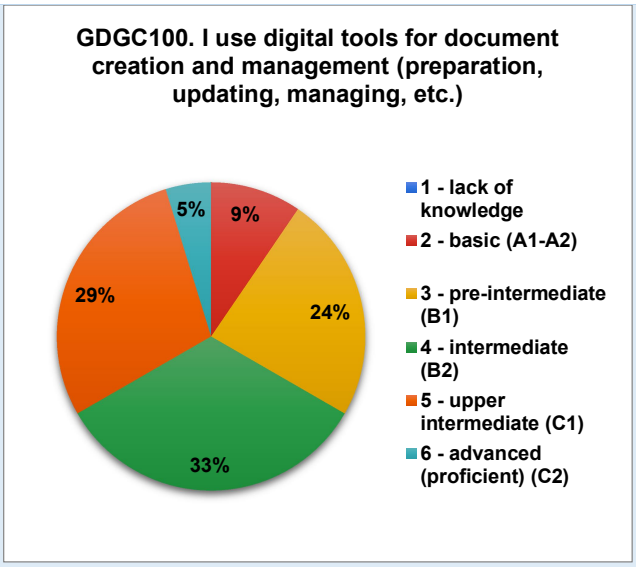

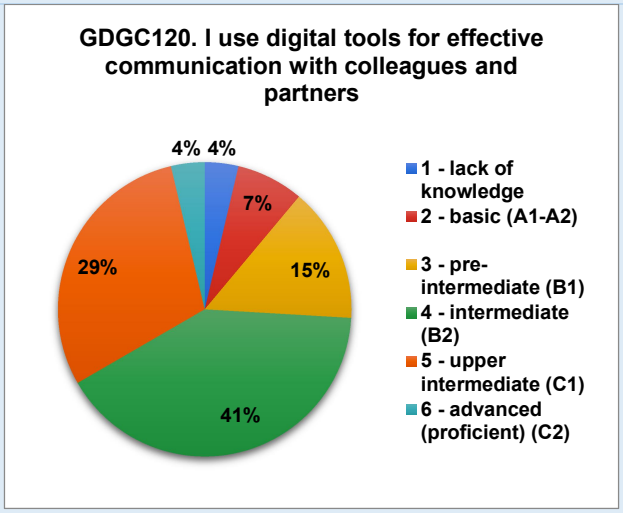

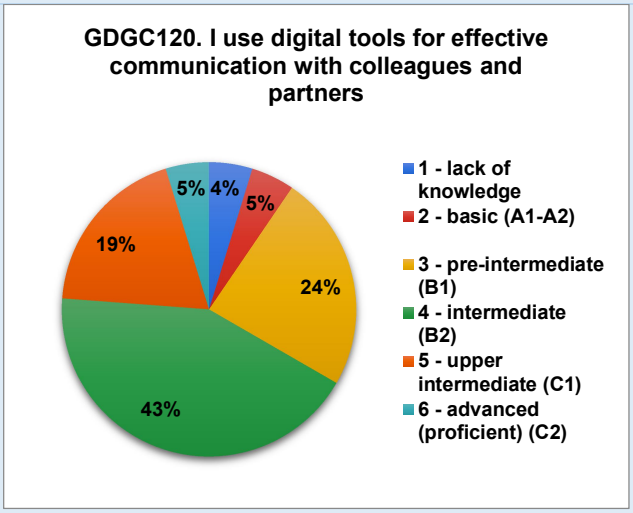

To delve deeper in the comparison process, two indicative questions were chosen, which were included in both questionnaires (AREA 4 and AREA 5). The questions GDGC100 and GDGC120 refer to General Digital Greening Competences (GDGC) for sustainability, and, as

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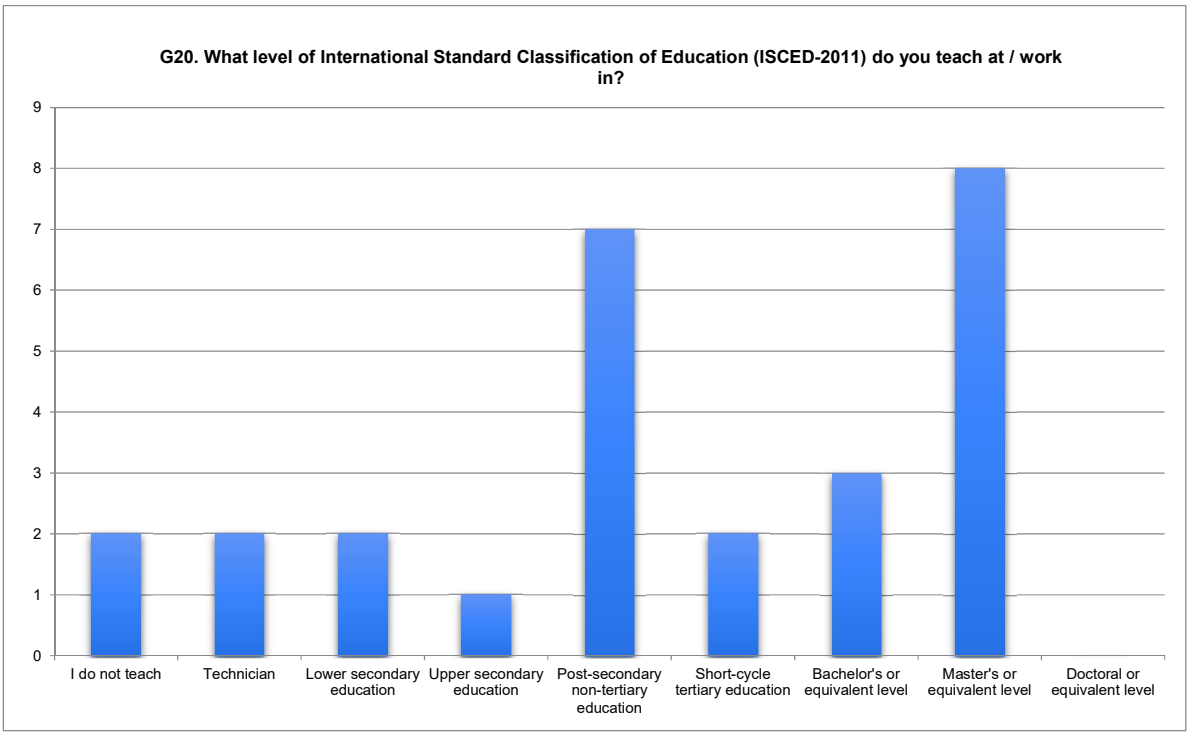
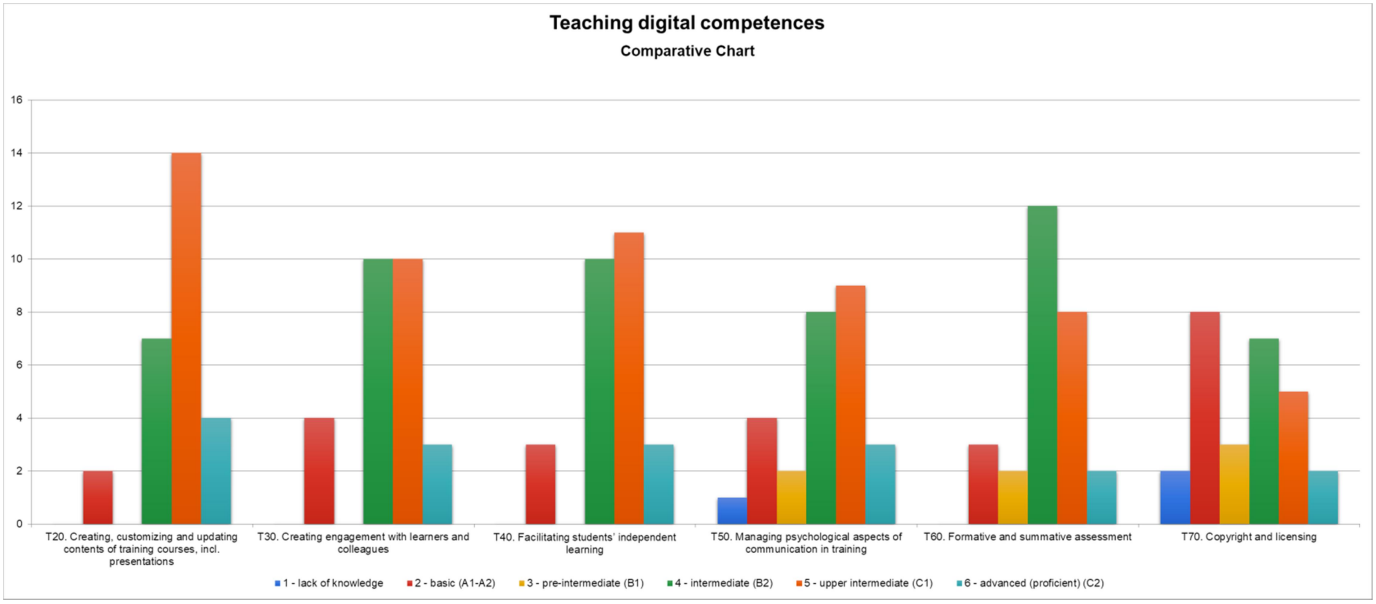
shown in the charts above, results are also similar. One important thing to notice is that the answer “lack of knowledge” is not present at all in the second chart regarding GDGC100. Also, in general, the people that answered the AREA 5 questionnaire seem to have a higher level of knowledge on GDGC matters. So, even though results look the same, the sample that answered the AREA 5 questionnaire seems better informed and accustomed in general. This is something to contemplate on, since there could be a connection of educational background and expertise to the green digital competences.

In the next stage of the chart presentation, some important charts from AREA 4 and AREA 5 questionnaires will be examined individually and will be explained briefly.

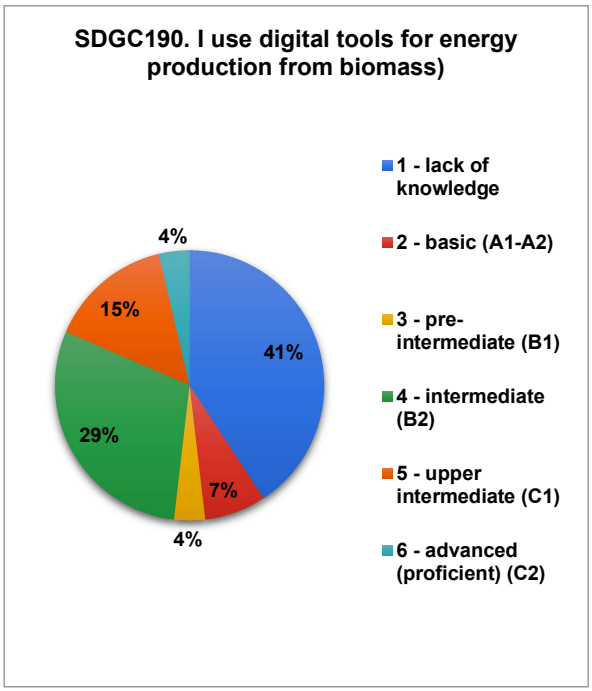
Focusing on AREA 4:

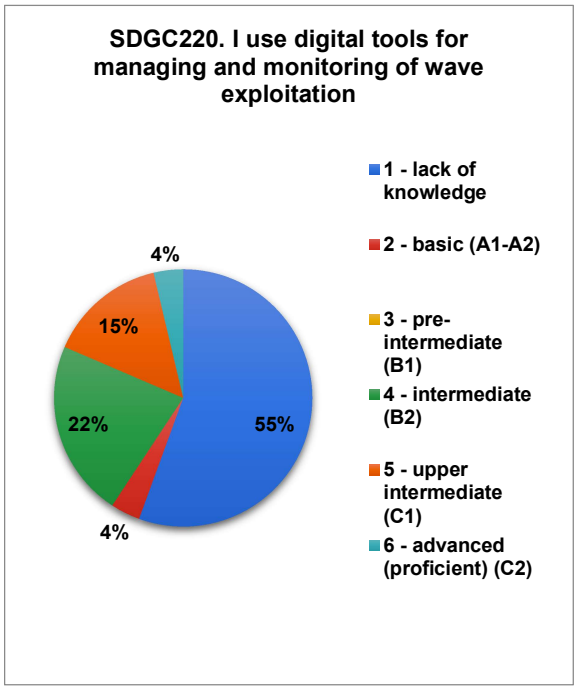


In this chart, the educational background of the participants is presented. Most VET educators come either from the academic sector, with high-level studies, equivalent to a Master's degree or from vocational education, because the level under the name "Post-secondary non-tertiary education" in Greece is almost in total represented by the VET sector.



The comparative chart presented above refers to a number of questions included about teaching digital competences. Results show the different levels of knowledge in each subject, while also being in accordance with the results of question T10 of the same section, which was presented earlier on in this report.





In this section, the results of two indicative SDGC questions are presented. Two innovative fields regarding energy production were chosen in order to indicate the level of awareness among VET educators in terms of latest developments and implemented processes in the energy sector. Lack of knowledge is the most popular answer in both cases, with some participants having quite some experience on the matters (level B2). Proficiency is very low in these sectors, which are currently promising alternative options for energy production.

Focusing on AREA 5:

Similar to the respective AREA 4 chart, in this case most answers regarding educational background also refer to a Master's degree level or VET centres graduates. Furthermore, most of the participants come from vocational training schools, with the option "Master's or equivalent level" coming second.

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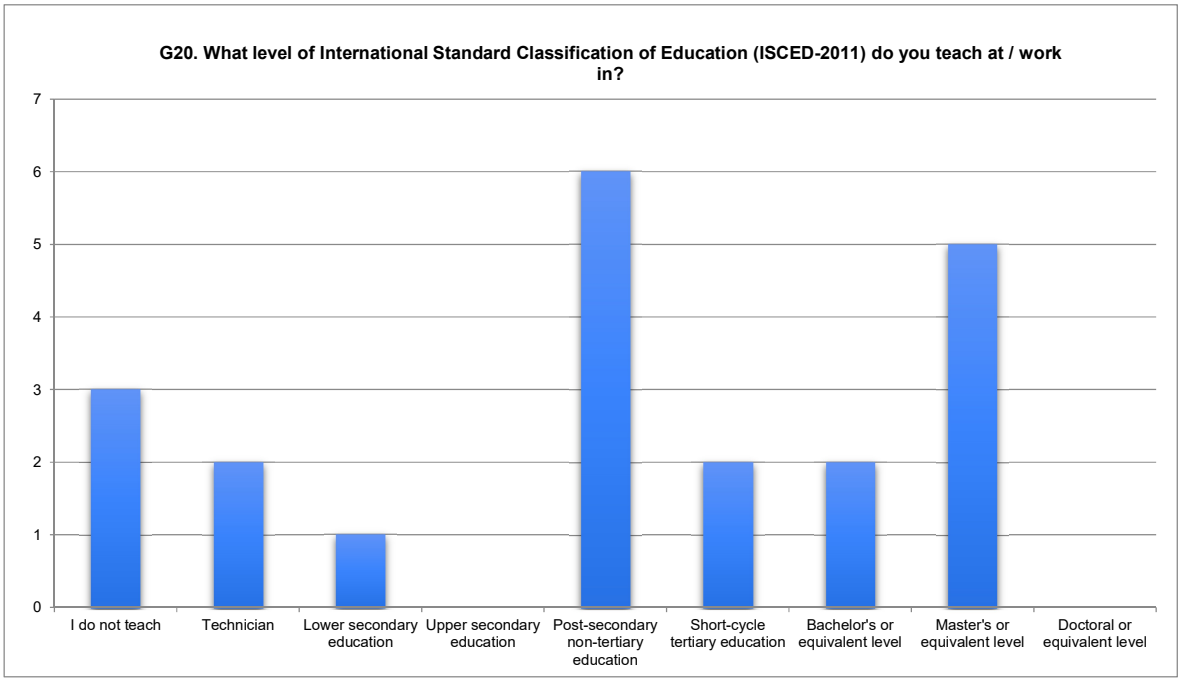
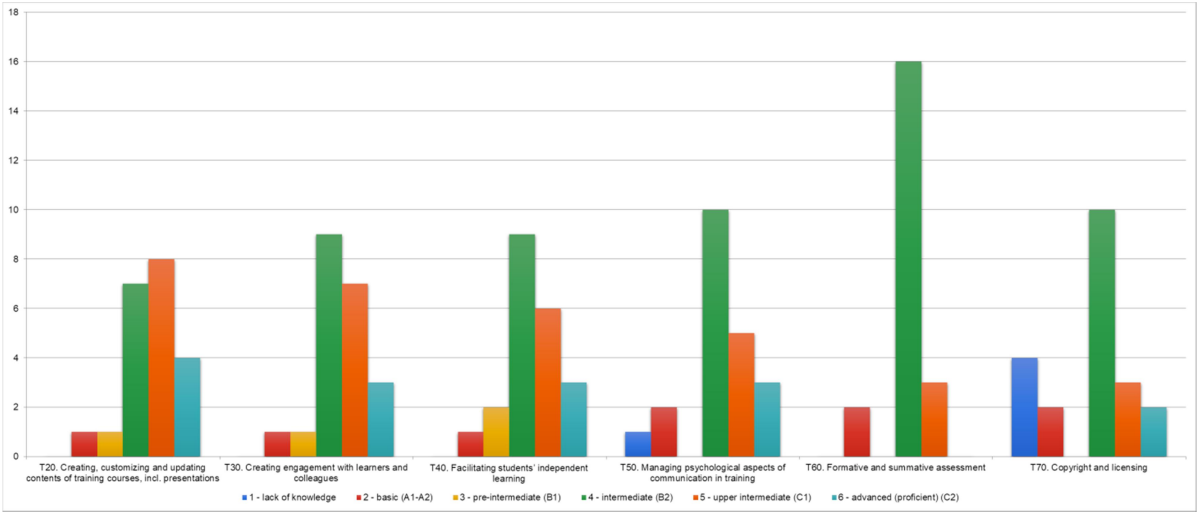


In the following comparative chart, the different levels regarding teaching digital competences are presented for the set of questions from T20 to T70.



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It is important to note that the two questionnaires (AREA 4 and AREA 5) included different questions in the topic of Specific Digital Green Competences (SDGC). In this section, the results of two indicative SDGC questions are presented, with regards to the most important topics on the sector for Greece, pollution by agricultural activities and weather forecasting. These questions are very important for the Greek partners since the main economic activities of the country include agriculture and coastal tourism. Particularly, forecasting and timely updates on weather conditions play a key role for smooth operations in both activities (crops gathering, sea and air traffic etc). The answers in SDGC show that there is a lot of room for improvement, since “lack of knowledge” is the prevailing answer. This is a norm in almost all SDGC questions included in the survey, that is the complete lack of knowledge or basic knowledge options gather many answers, indicating that the participants are specialized in very specific fields.

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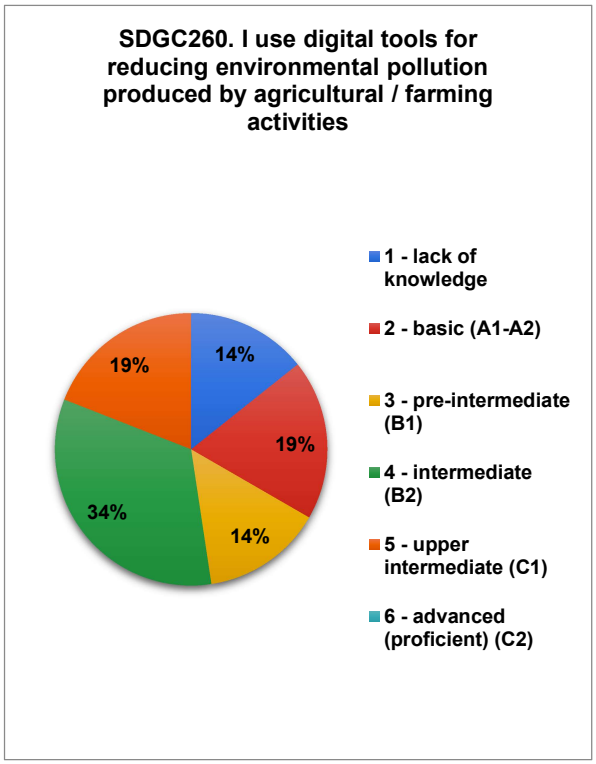

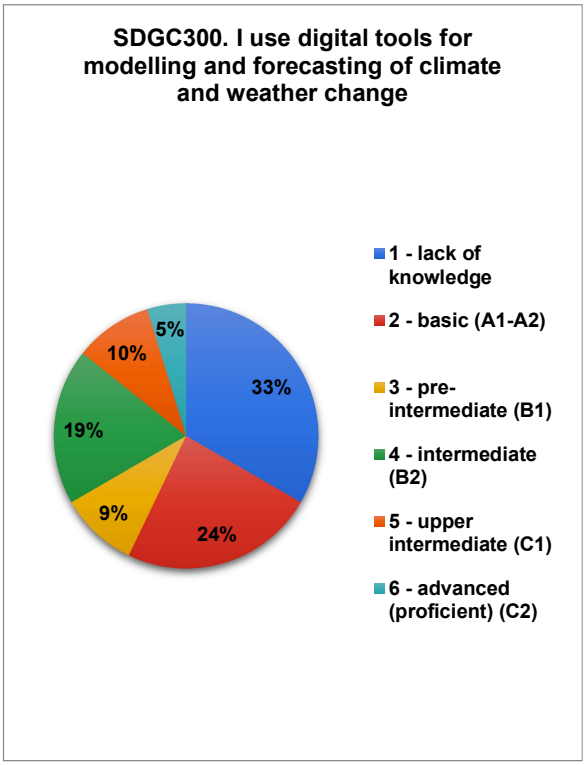

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APPENDIX I. General information on national reports

A. Survey aim and justification

The aim of the survey was to assess greening and green digital skills of VET instructors. The following reasons justified the aim: to determine the readiness of VET staff for teaching online, to identify gaps in VET skills for further professional development, to recruit properly qualified VET staff, to assess VET instructors' professional and teaching competences, to design new courses on circular economy and specific green courses developing general greening competences and specific green competences of students through the spreading activation processes from teaching-to-student, etc.

B. Survey design

The survey was designed on a set of courses administered by VET instructors in Greece, Italy, Bulgaria and Slovenia (table 1).

Table 1. Countries and course descriptions

Country	Institution	Courses
Italy	Higher Technical Institute "Territory Energy Building Foundation"	Energy Supply
	Higher Technical Institute "Territory Energy Building Foundation"	Waste Management
	High Technician Institute "Ignazio Calvi"	Agri Food Systems
Slovenia	University of Maribor	Ecology Problems of Vehicle and Internal Combustion Engines
		Sensible Use of Energy
		Technological and Waste Waters
	University of Nova Gorica	Environment and Agriculture

		Environmental Impact Assessment
		Land Ecosystems
		Environmentally Friendly Technologies
	Environment Protection College	Waste Management
		Rational Energy Use
		Development of Sustainable Products, Services and Processes
		Waste Water Treatment
Bulgaria	Cleantech Bulgaria	Waste Management in the Construction Industry
	Cleantech Bulgaria	Transition towards Circular Economy as a New Business Opportunity

Almost all course descriptions contained skills, knowledge and competences that could be applied to any course and any profession, on the one hand, and on the other hand, courses that were specific to the given course and profession. The former courses laid the foundation for competences labelled as *general greening digital competences*, whereas the latter courses provided the information on *specific green digital competences*. These different types of competences were introduced into two separate sections of the survey – Sections 4 and 5, respectively, bearing identical labels. Section 4 "General Greening Digital Competences" was partly consistent with the European framework "Digital Competences" (DigComp), which was designed for commercial applications.

The survey also contained other sections. Section 1 provided general information on the survey, such as the survey goal and data processing information. Section 2 collected general information on participants, such as their work experience and country of teaching. Section 3 focused on obtaining general information on teaching competences. This section was designed by integrating general provisions of the European framework "Digital Competences for Educators" (DigCompEdu) and the obtained course descriptions.

The summary of the survey blocks is provided in table 2.

Table 2. Survey blocks

Block #	Block title	Block areas	Number of questions
Section 1	General information about the survey	• Survey goal • Data privacy statement	0
Section 2	General questions about you	• Work experience	4
Section 3	Teaching digital competences	• Designing the teaching content • Creating engagement with students and colleagues • Facilitating students' independent learning • Communication • Assessment • Copyright and licensing	7
Section 4	General digital greening competences for sustainability	• Data collection and use • Work flow management for efficiency and transparency • Communication • Financial and legal aspects • Research and development	20
Section 5	Specific digital green competences	• Overall agriculture management • Supply chain and transport, including drones • Manufacturing • Energy production and management • Reducing pollution and negative effects of	49

		climate change • Use of resources (water management, waste management, management of integrated resources, management of recycled materials, land and soil management)	

The answers were collected via the multiple choice or Linkert scale questions. The Linkert scale questions ranged from 1 to 5 and 0 to 6 and were aligned with the level of competences (table 3).

Range of competence levels	
1 - 6	**0 - 6**
1 - lack of knowledge	0 – lack of knowledge
2 - basic (A1-A2)	1 – basic (A1)
3 - pre-intermediate (B1)	2 - elementary (A2)
4 - intermediate (B2)	3 - pre-intermediate (B1)
5 - upper intermediate (C1)	4 - intermediate (B2)
6 - advanced (proficient) (C2)	5 - upper intermediate (C1)
	6 - advanced (proficient) (C2)

C. Design of country-specific questionnaires

Since some questions of the survey were irrelevant to the needs of some countries, institutions and courses, each participant selected a set of questions for their unique course requirements. This resulted in shorter questionnaires. Each questionnaire contained all information and questions from Sections 1-3. These were Sections 4 and 5 that were not used in full. The resulted questionnaires were translated into local languages, whereas the master copy was translated into Latvian. More information on country-specific questionnaires and their results is available in country-specific appendices.

D. Roles of participating institutions in the survey

To represent the European scale of responses, a set of countries, represented by specific institutions, created and administered the survey (table 1).

Country	Institution	Responsibilities
Latvia	Transport and Telecommunication Institute	Creation of the surveys, translation of the surveys into Latvian
Greece	University of Ioannina	Reviewer of the surveys, translation of the surveys into Greek, administration of the selected surveys to VET instructors
Italy	Sistemi Formativi Confindustria	Reviewer of the surveys, translation of the surveys into Italian, administration of the selected surveys to VET instructors
Bulgaria	Cleantech Bulgaria	Reviewer of the surveys, translation of the surveys into Bulgarian, administration of the selected surveys to VET instructors
Slovenia	Styrian Technology Park	Reviewer of the surveys, translation of the surveys into Slovenian, administration of the selected surveys to VET instructors

APPENDIX II. Result data of surveys

i) Excel files of surveys

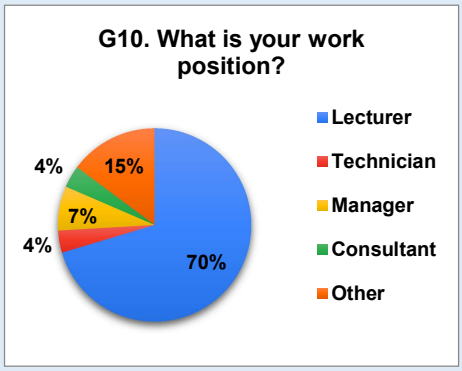
In the following links, you can find the excel files that include the analysis of the questionnaires:

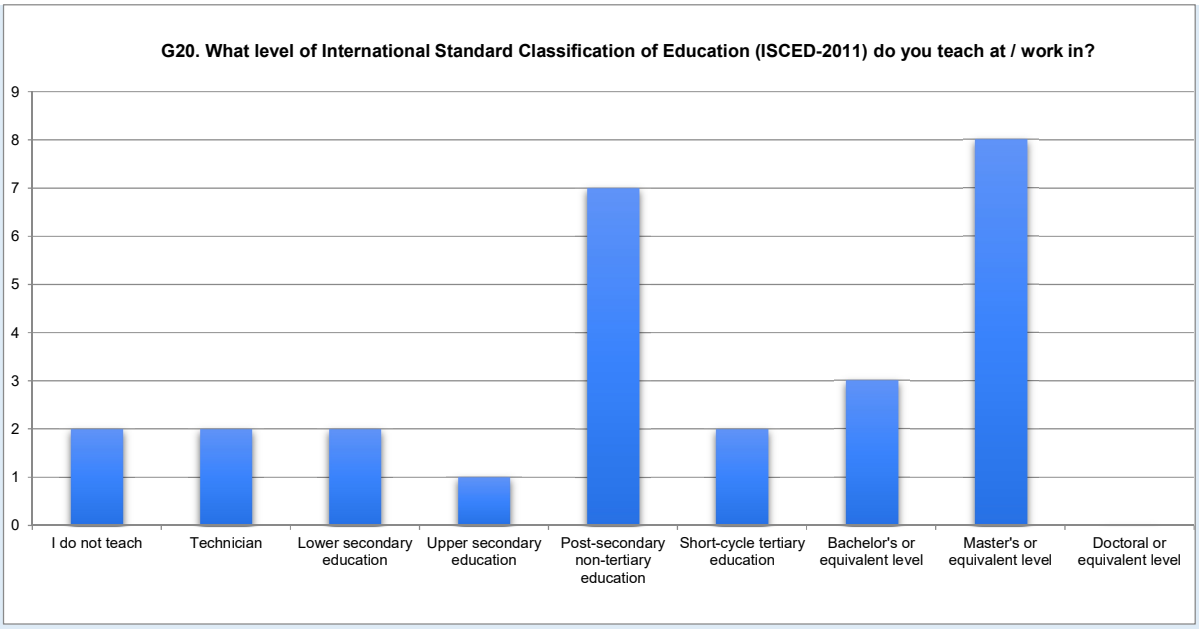
AREA 4 Questionnaire:
https://docs.google.com/spreadsheets/d/16Hmw8K1jEcvG58tnCLU9eSjJWuerQARA/edit?usp=sharing&ouid=108541167340454123241&rtpof=true&sd=true

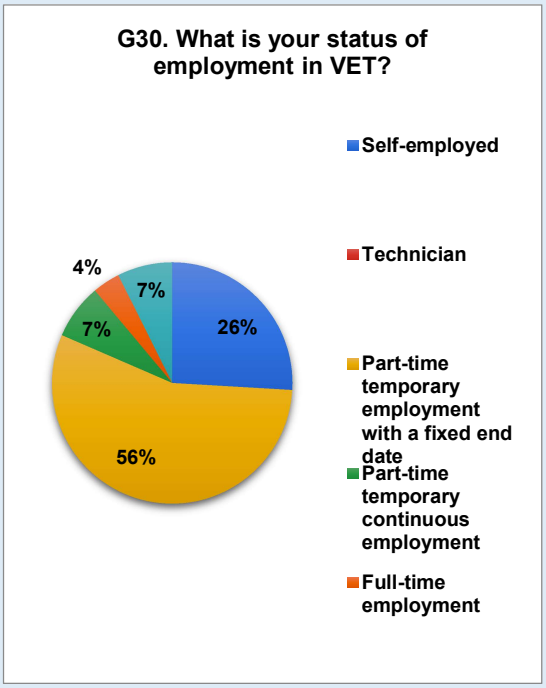
AREA 5 Questionnaire:
https://docs.google.com/spreadsheets/d/16Lc9LYCvyhqtm1RLubIpyTFZOogY3F0W/edit?usp=sharing&ouid=108541167340454123241&rtpof=true&sd=true

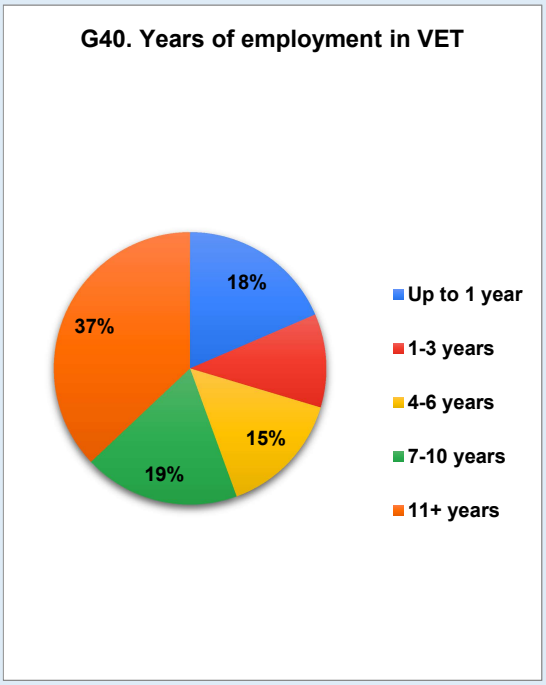
ii) Charts, diagrams, etc., displaying the analysis of results from section 2

AREA 4









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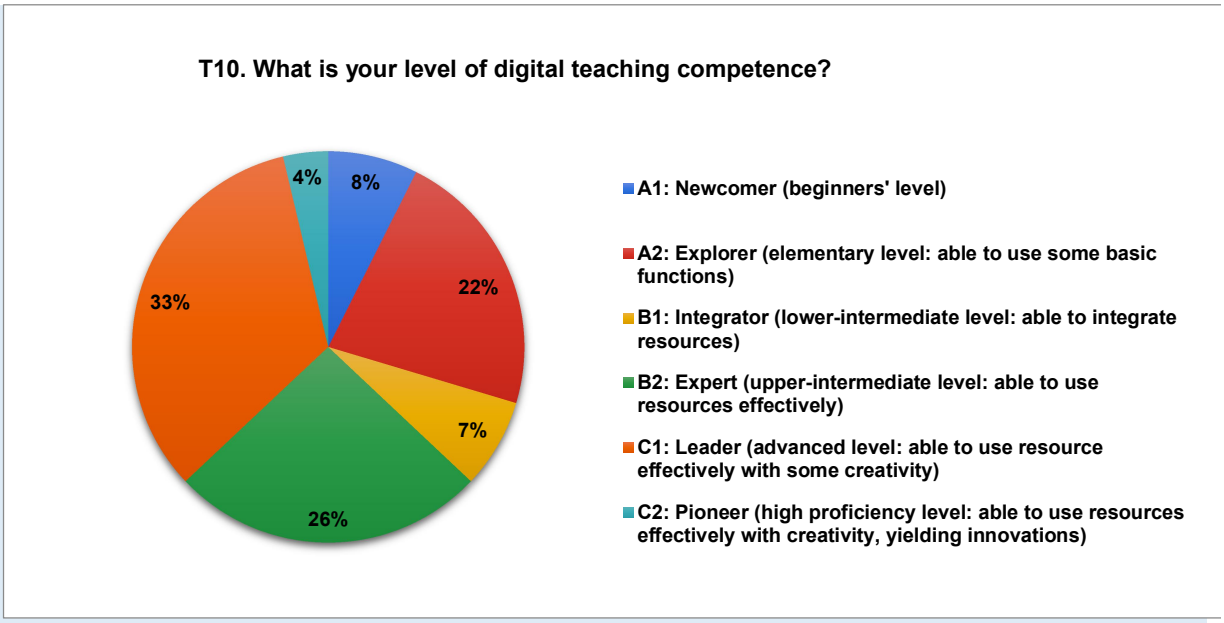

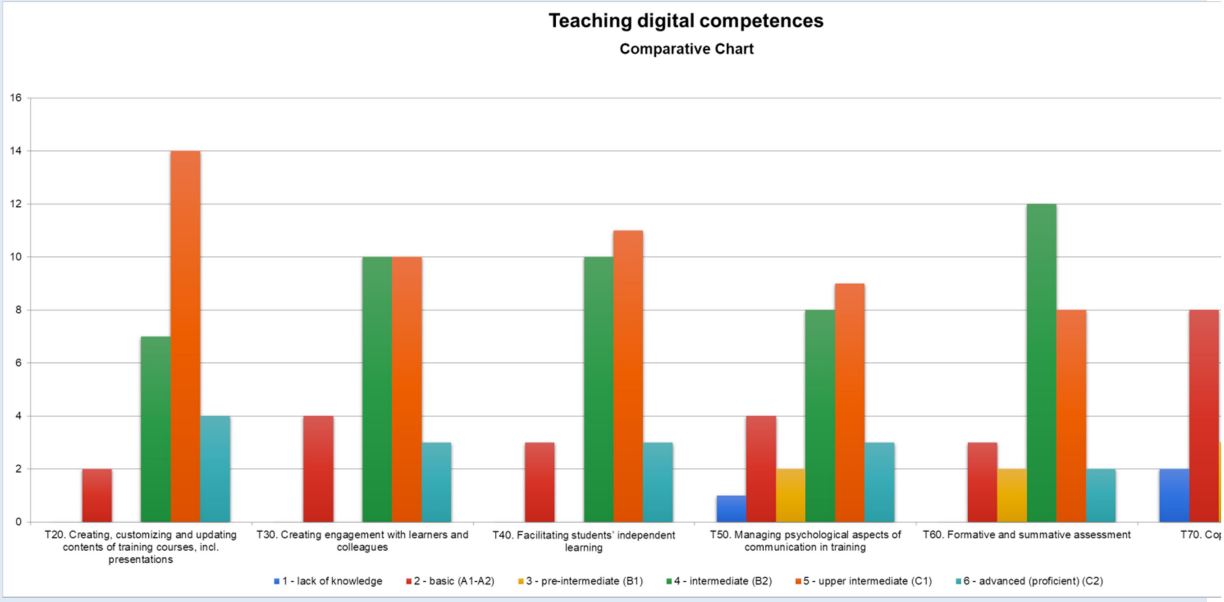

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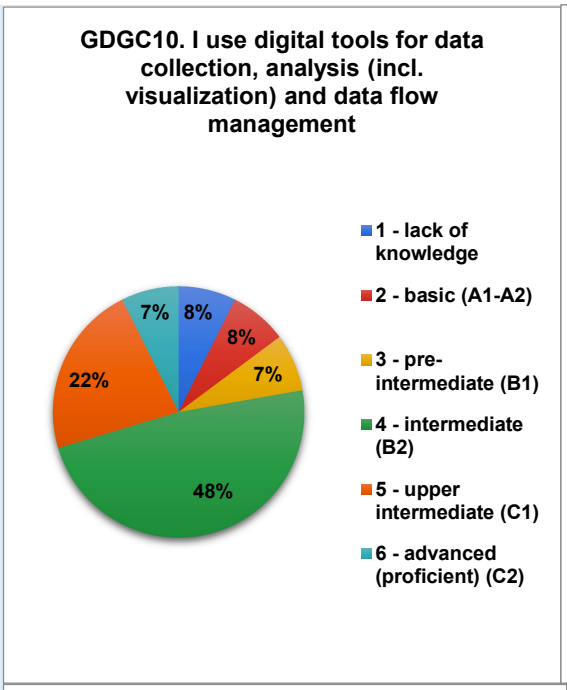

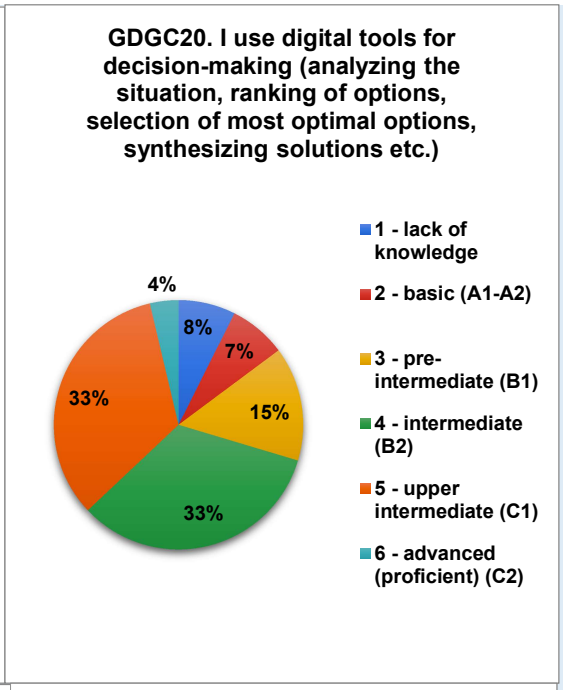

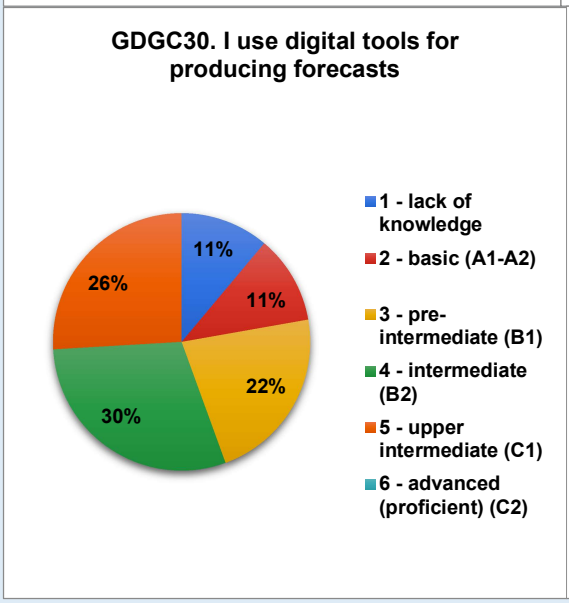

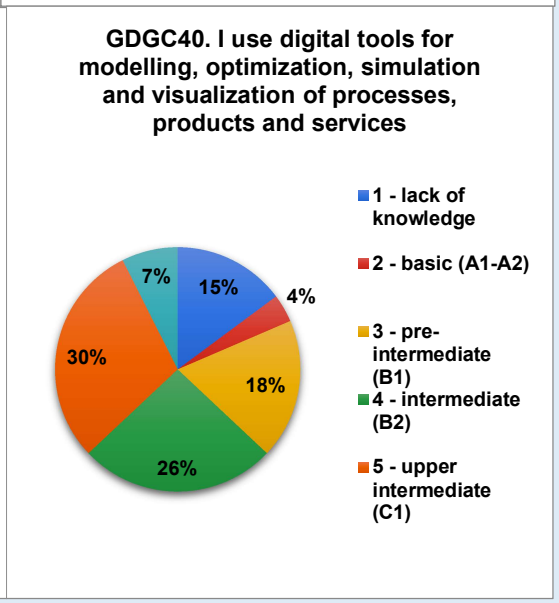

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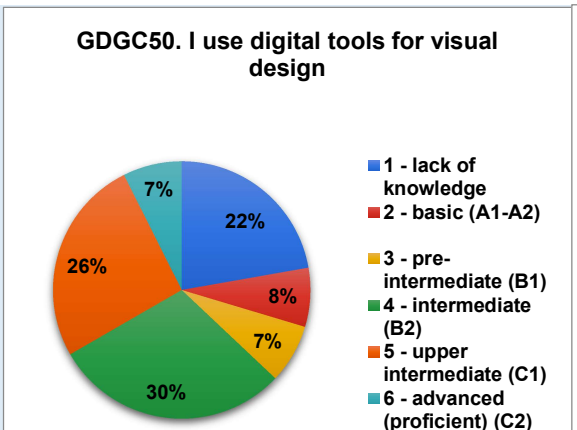

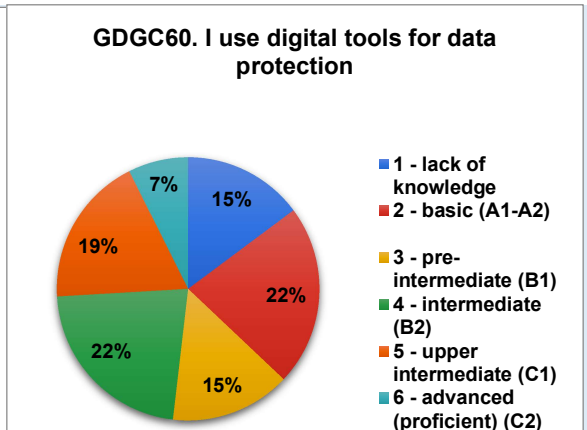

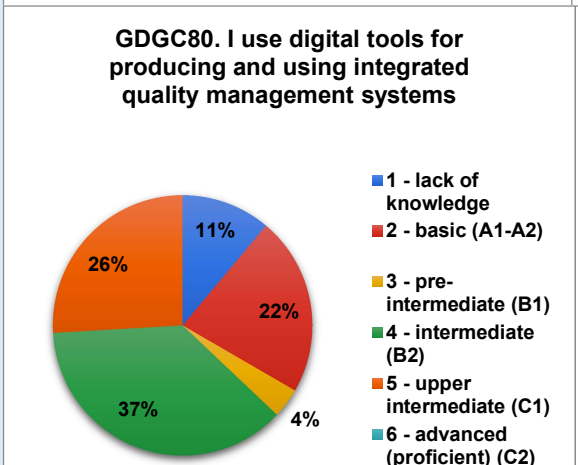

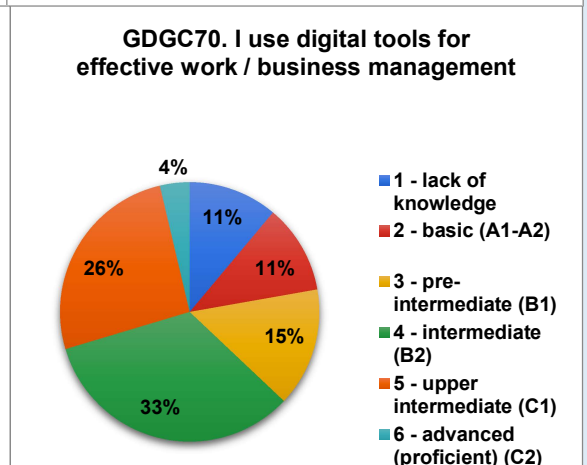

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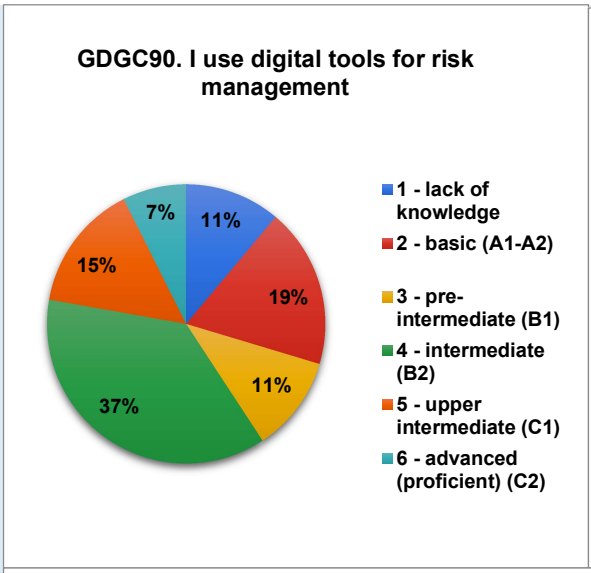

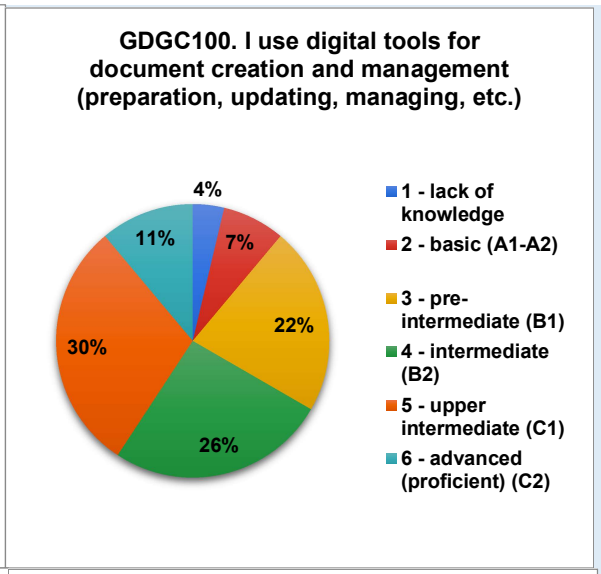

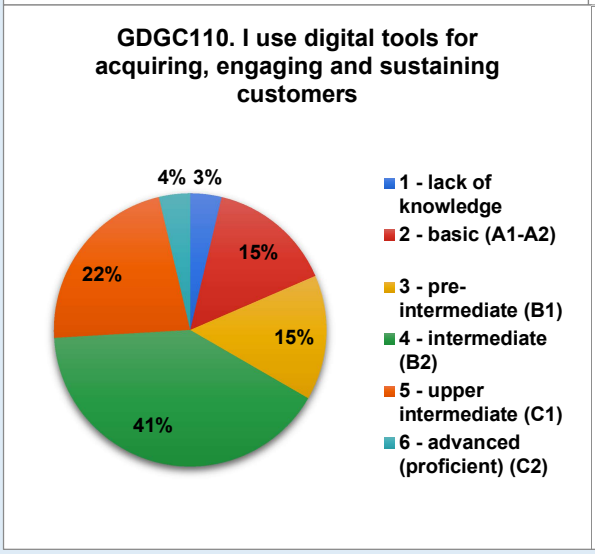

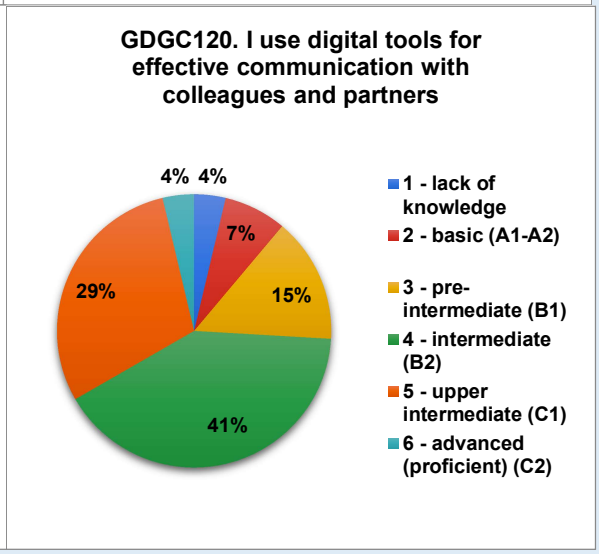

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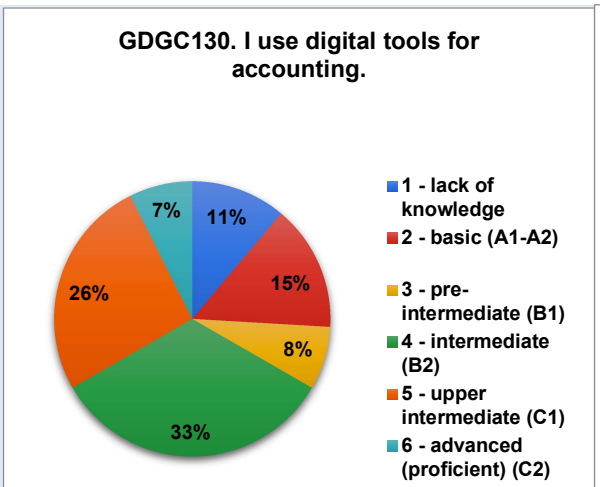

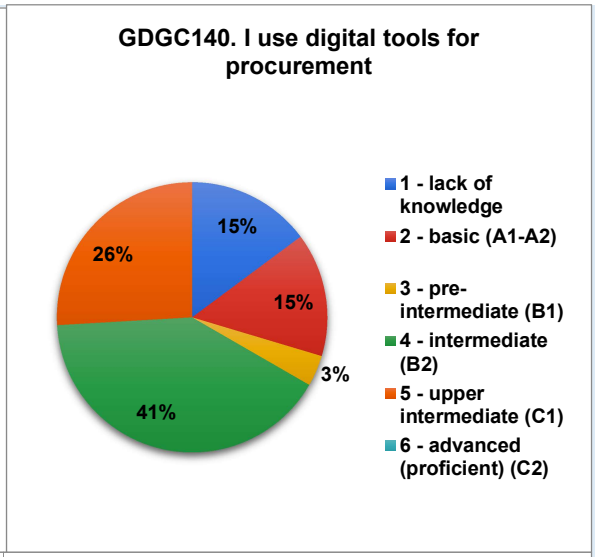

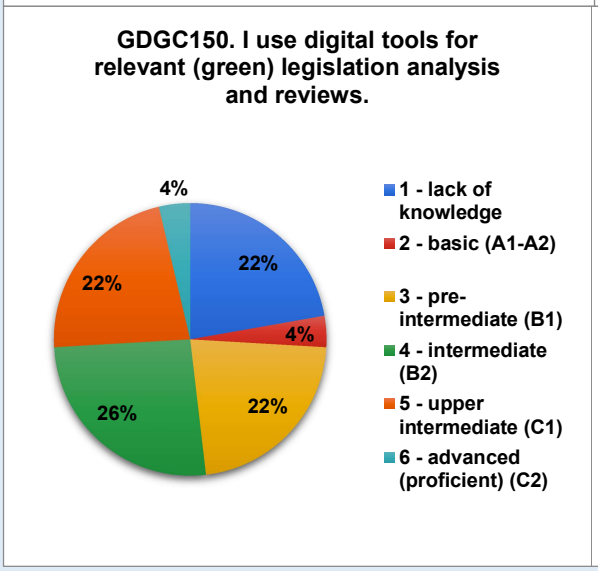

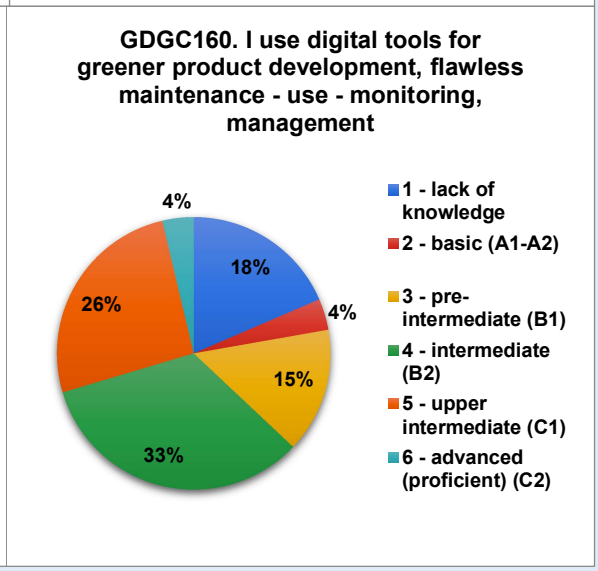

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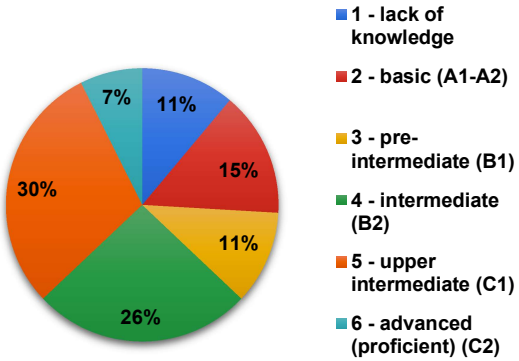
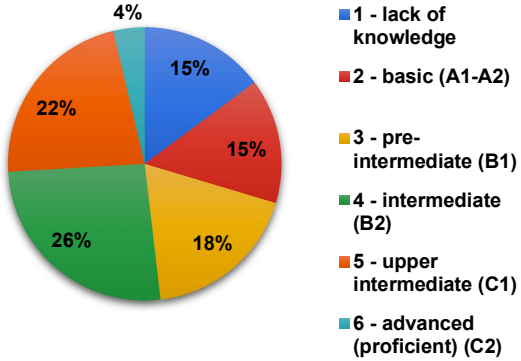
Project Duration: 01/03/2021 - 28/02/2023

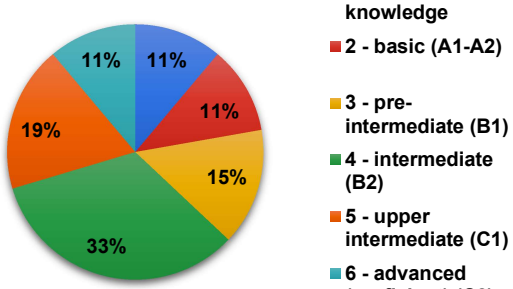
GDGC170. I use digital tools for greener service development, flawless maintenance - use - monitoring, management, branding, online marketing and positioning



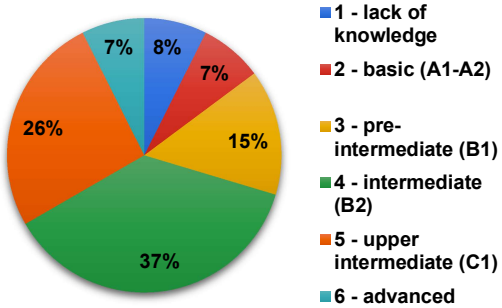
GDGC180. I use digital tool for (technical / green) problem-solving.



GDGC190. I use digital tools for research and self-development for different professional purposes, incl. production technologies, market research



GDGC200. I use digital tools for lab work



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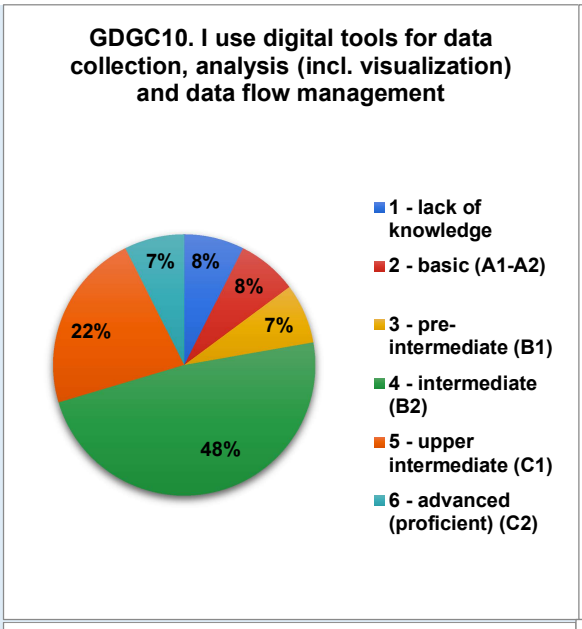

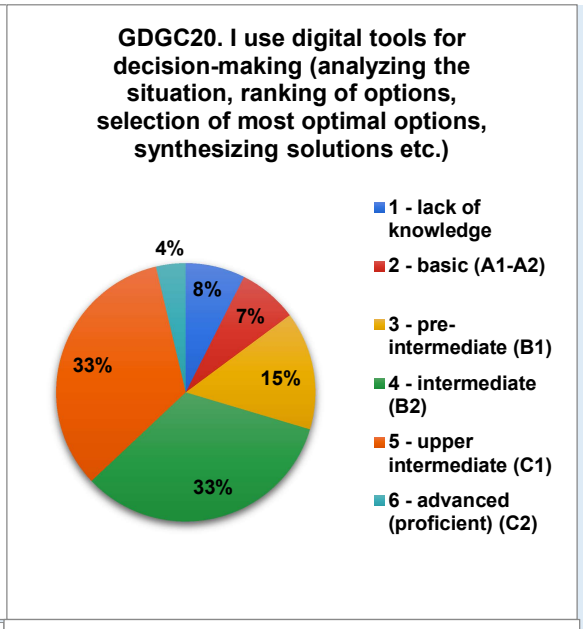

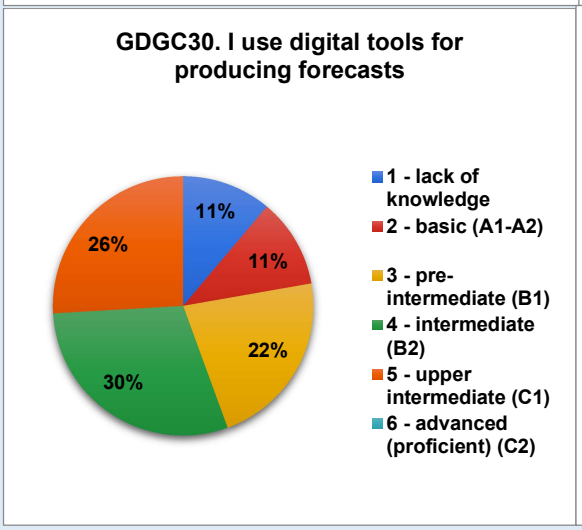

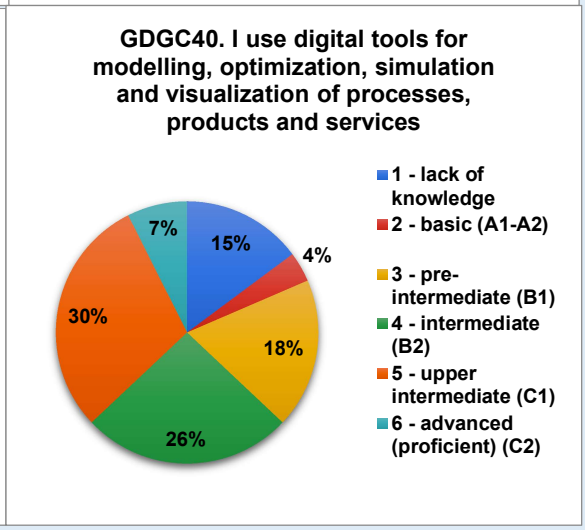

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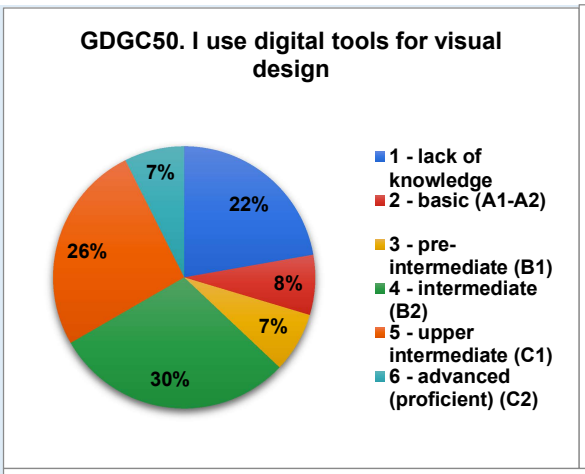

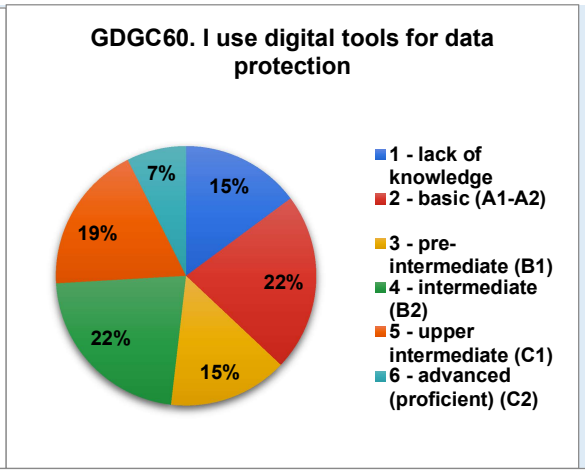

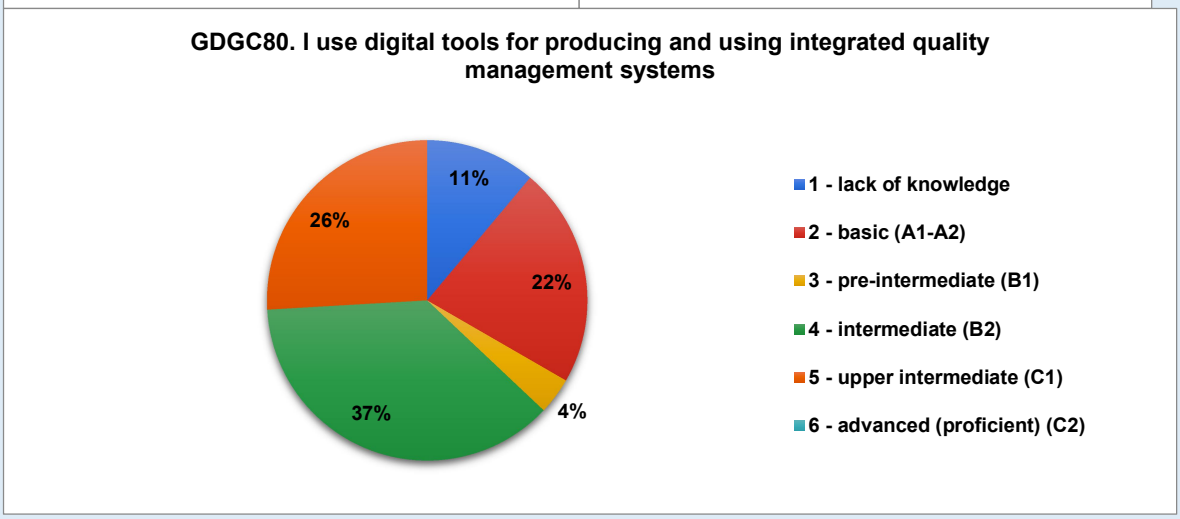

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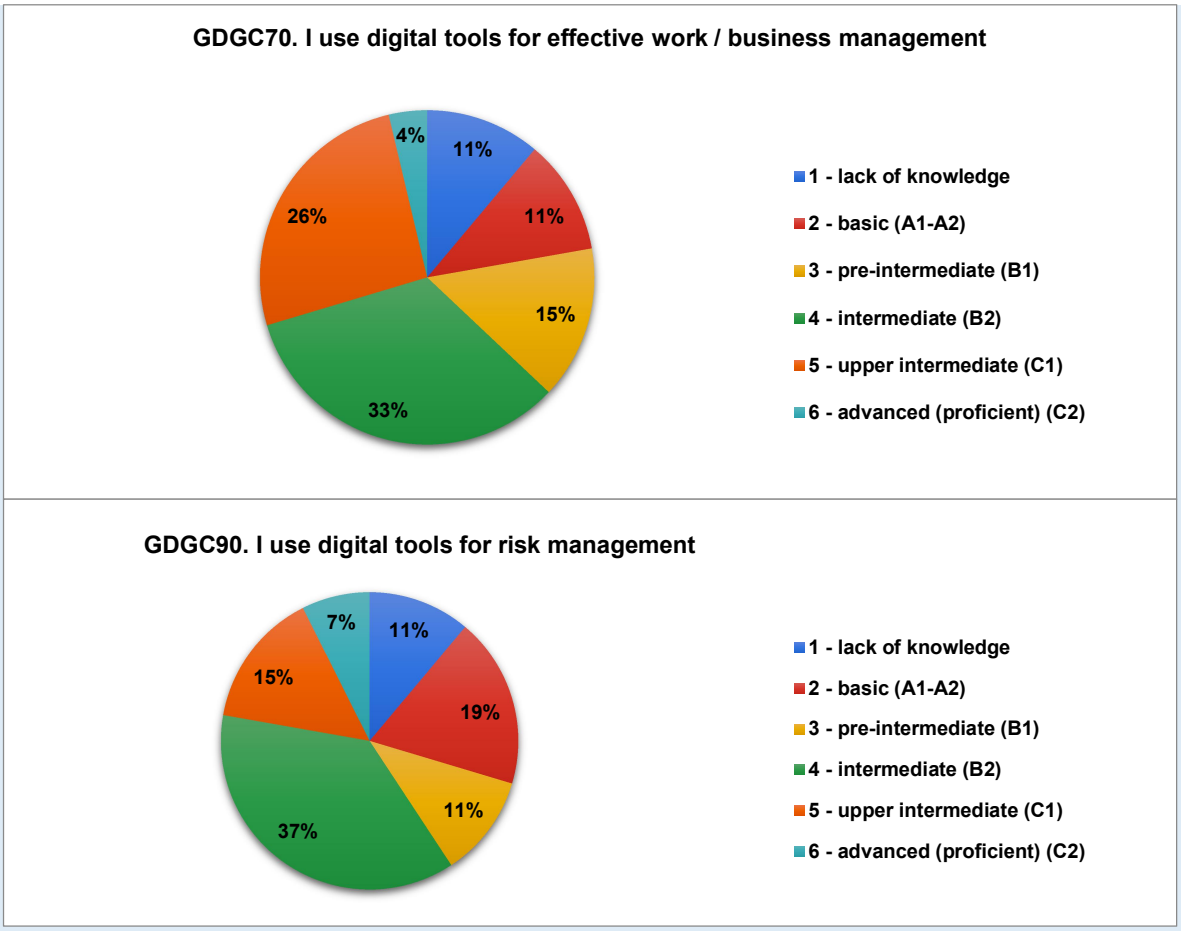

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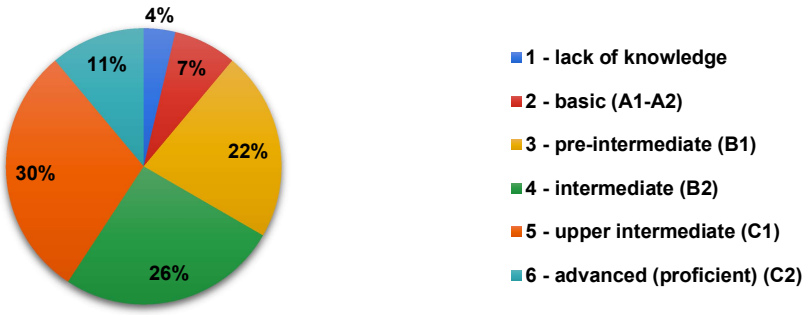
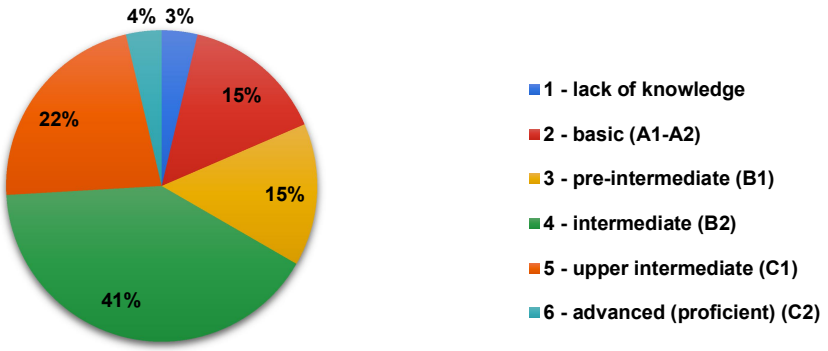
GDGC100. I use digital tools for document creation and management (preparation, updating, managing, etc.)



GDGC110. I use digital tools for acquiring, engaging and sustaining customers



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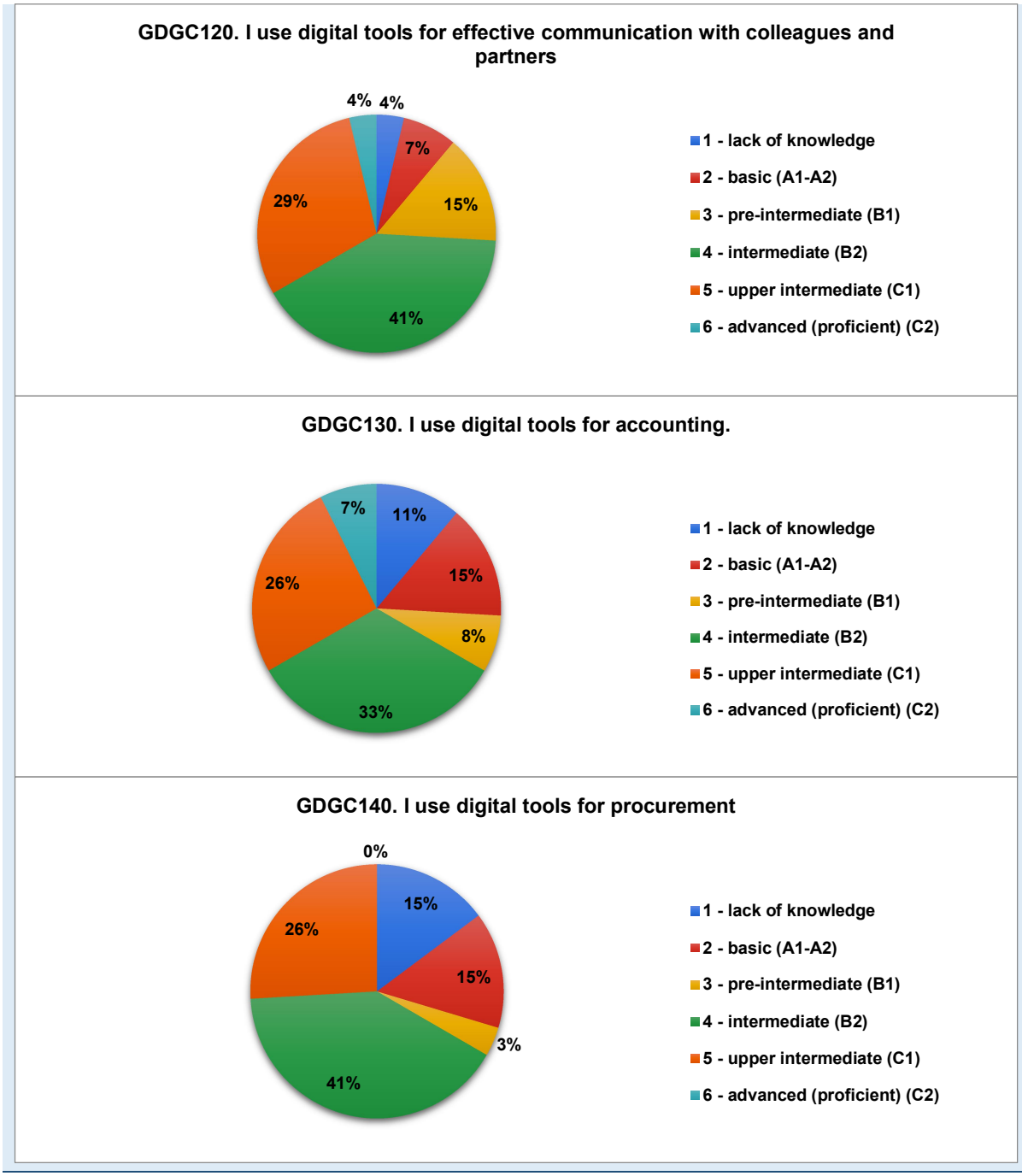

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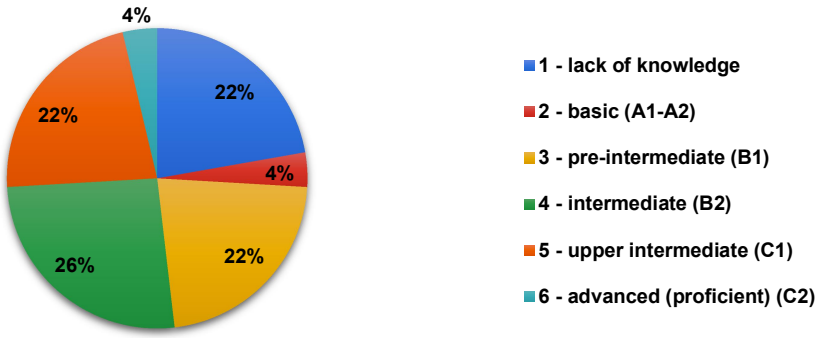
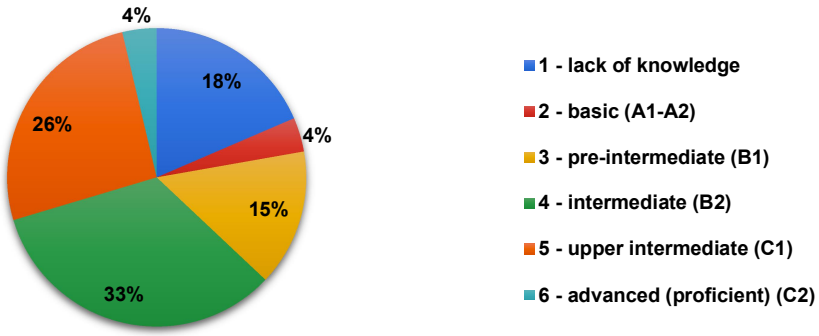
GDGC150. I use digital tools for relevant (green) legislation analysis and reviews.



GDGC160. I use digital tools for greener product development, flawless maintenance - use - monitoring, management



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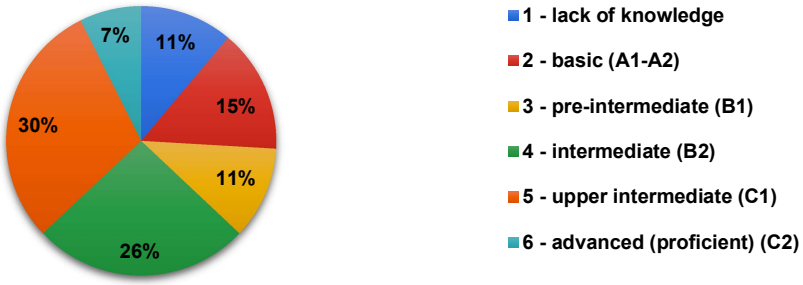
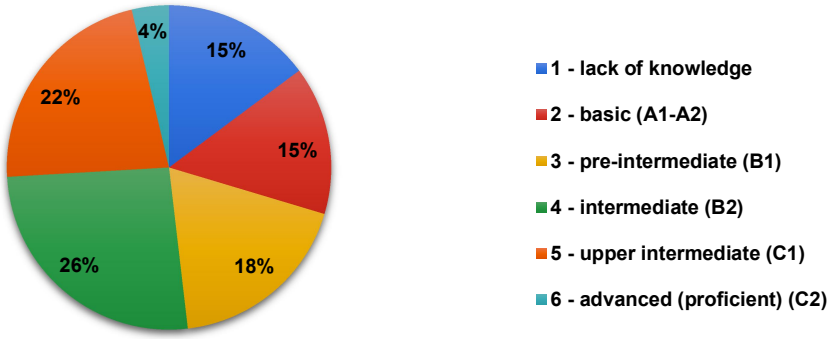
Project Duration: 01/03/2021 - 28/02/2023

GDGC170. I use digital tools for greener service development, flawless maintenance - use - monitoring, management, branding, online marketing and positioning



GDGC180. I use digital tool for (technical / green) problem-solving.



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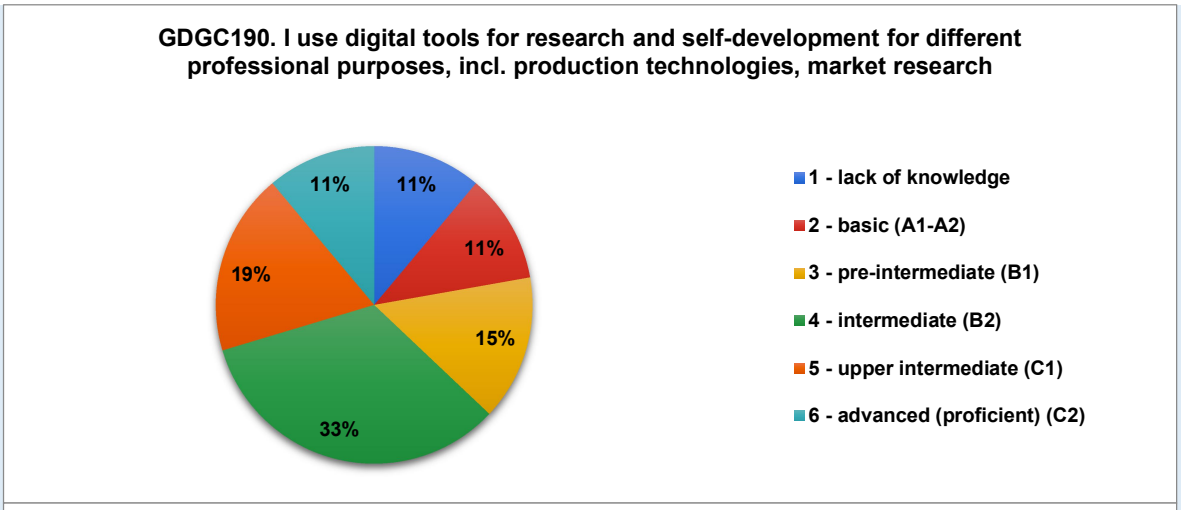

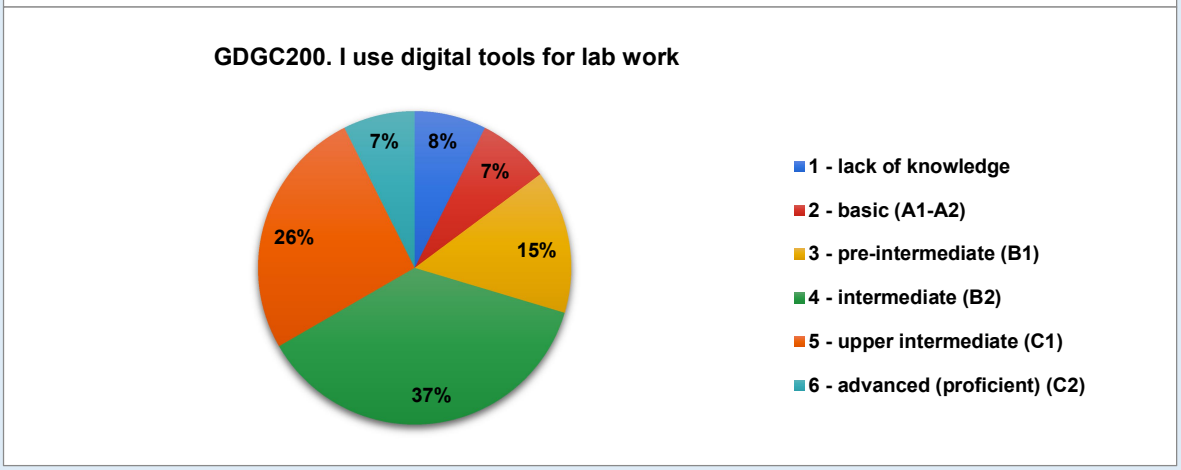

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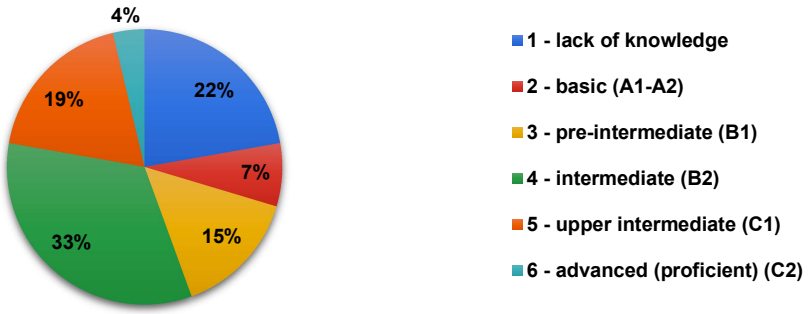
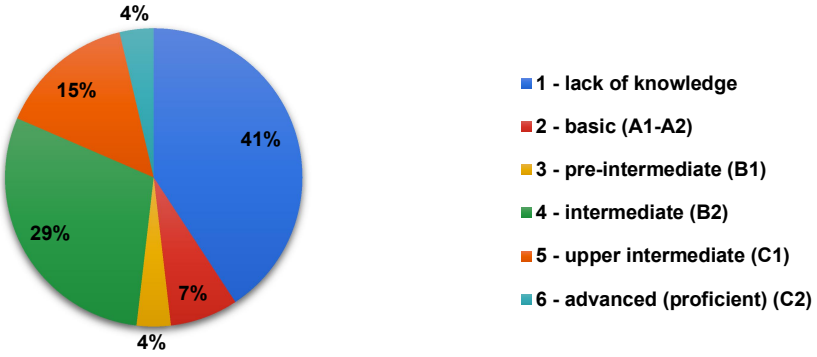
SDGC180. I use digital tools for the overall green (renewable) energy supply, production (incl. recovery from waste), use and management in agriculture / farming / infrastructure maintenance (circular economy)



SDGC190. I use digital tools for energy production from biomass)



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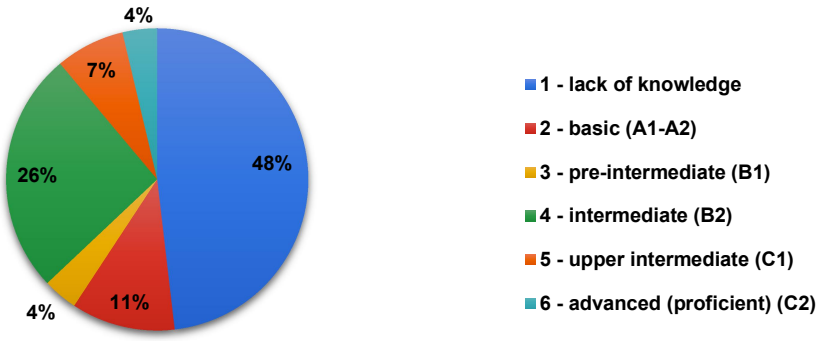
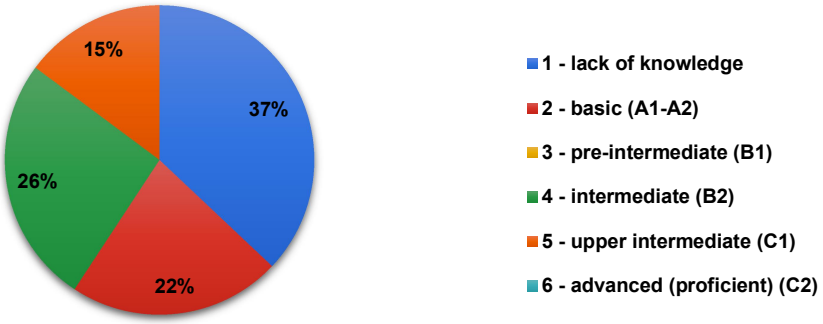
SDGC200. I use digital tools for managing and monitoring of wind turbines



SDGC210. I use digital tools for managing and monitoring of solar systems



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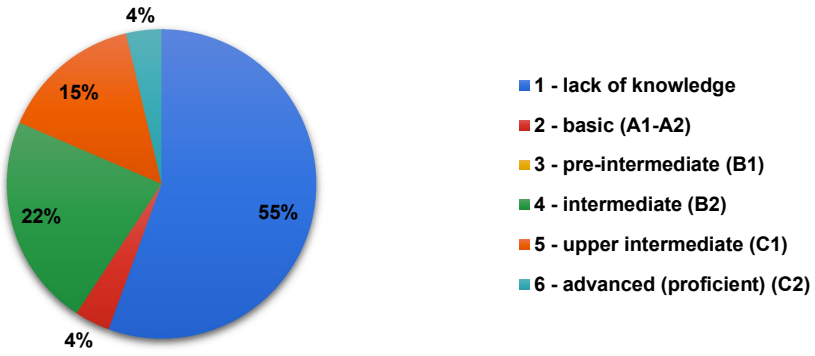
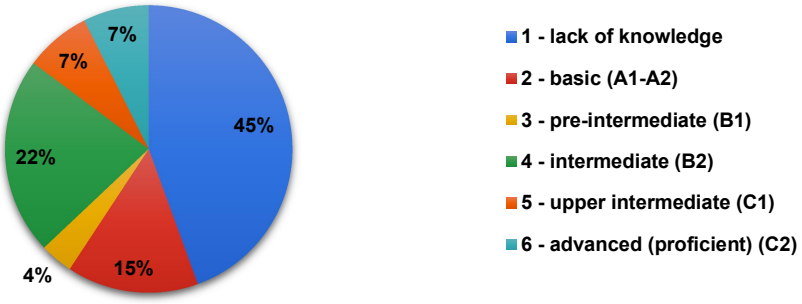
SDGC220. I use digital tools for managing and monitoring of wave exploitation



SDGC230. I use digital tools for managing and monitoring of any other specific type of renewable energy



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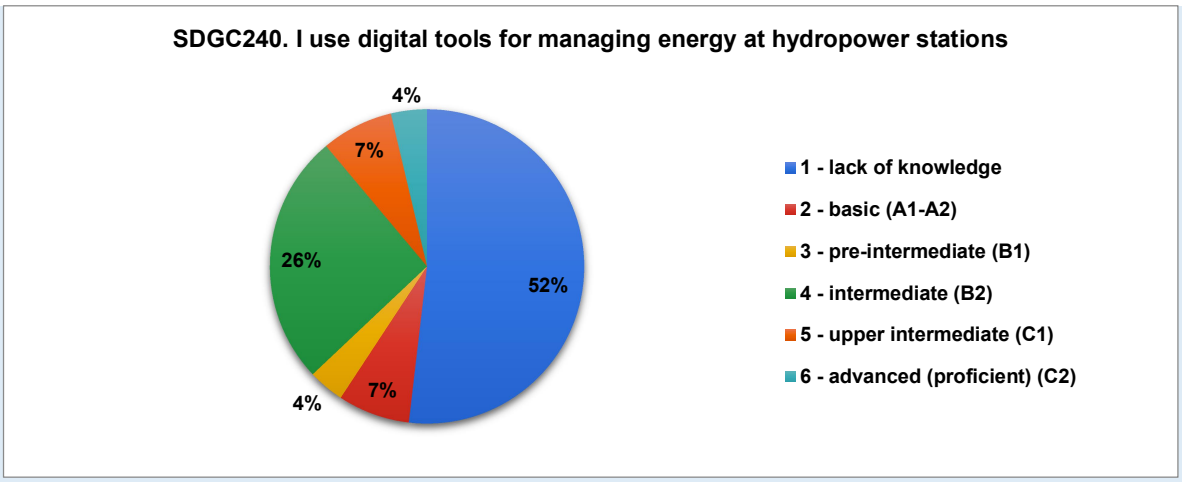
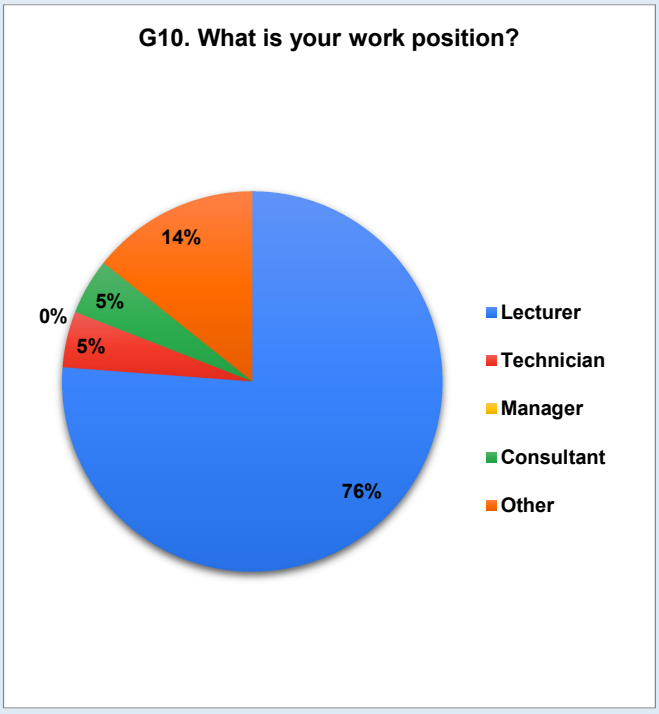


AREA 5



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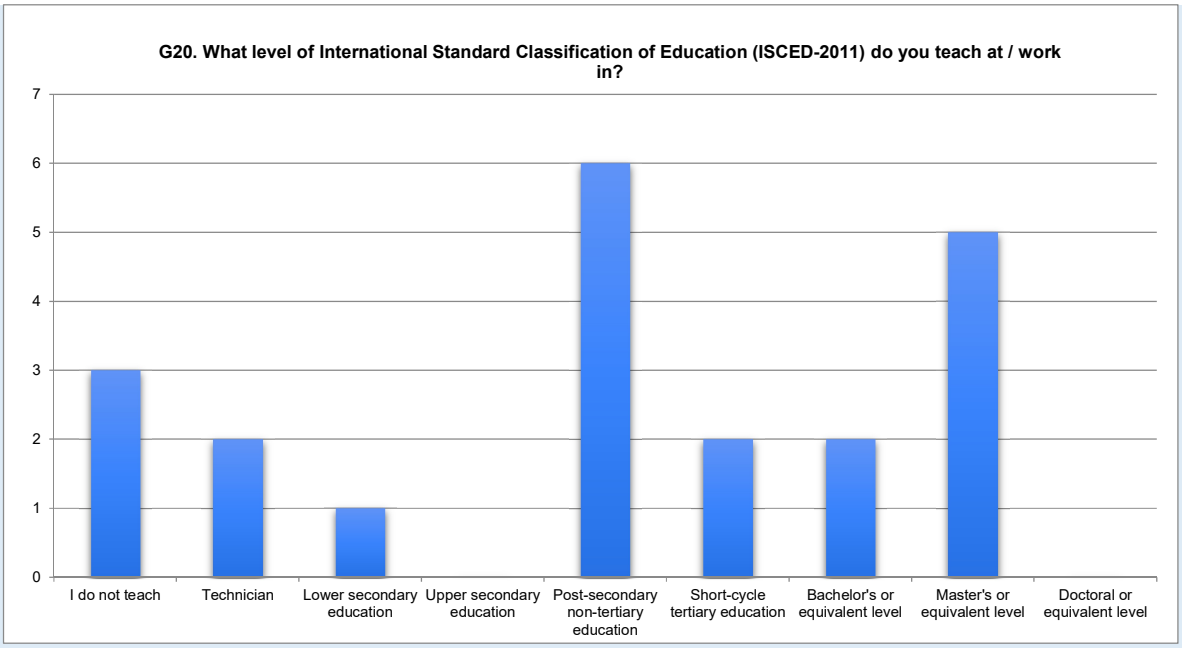

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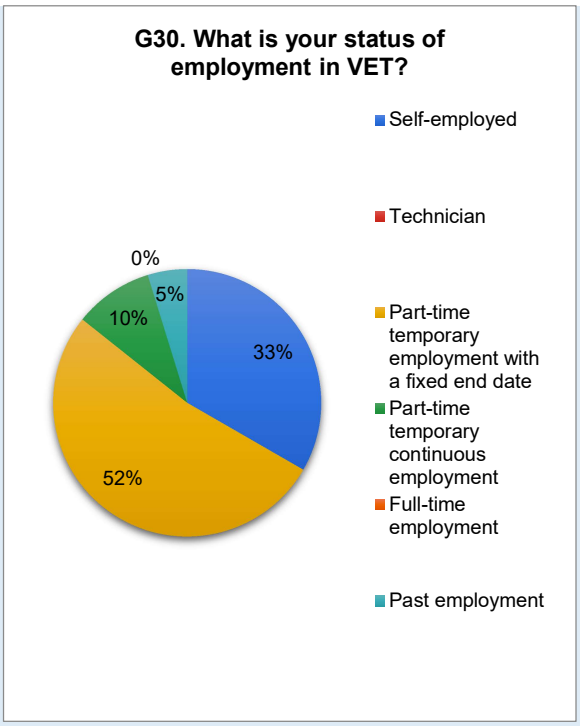

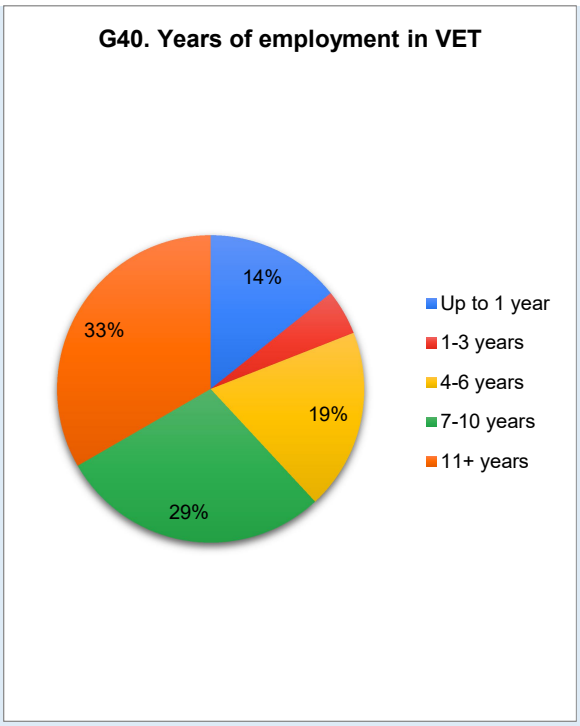

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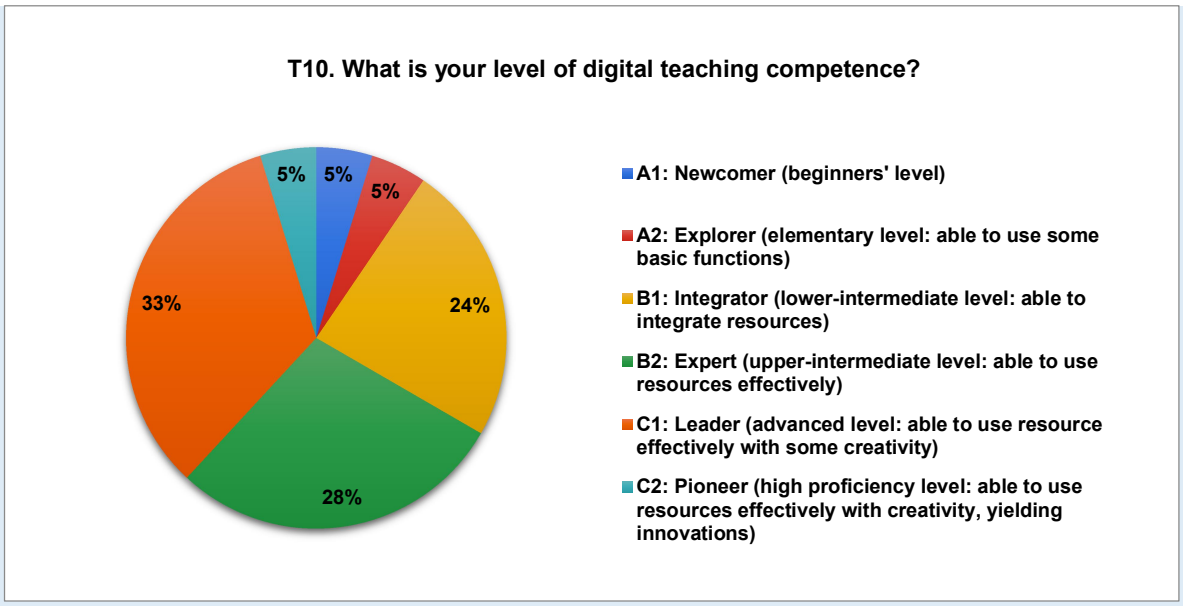

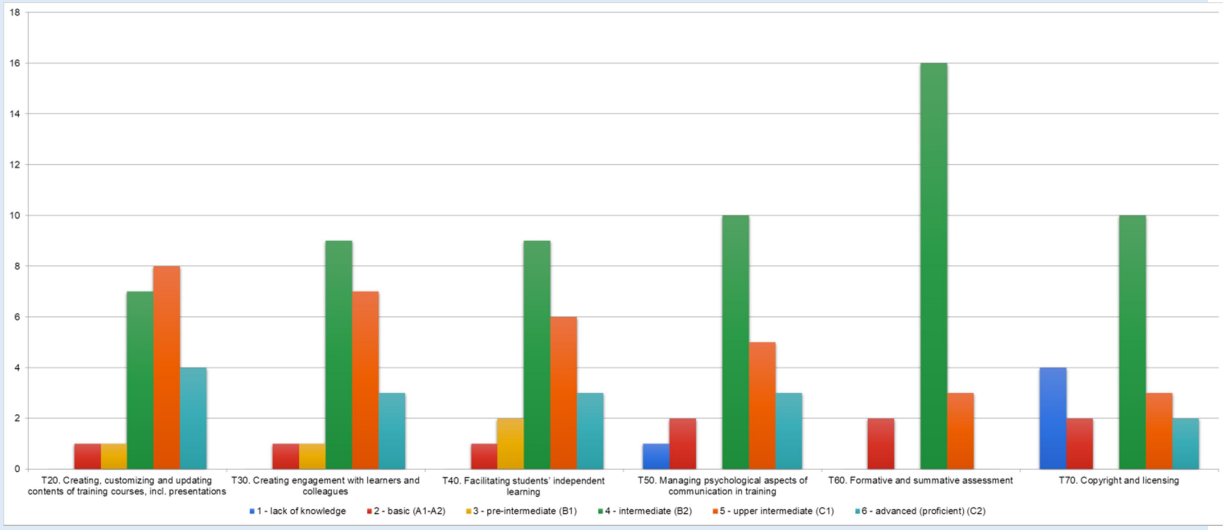

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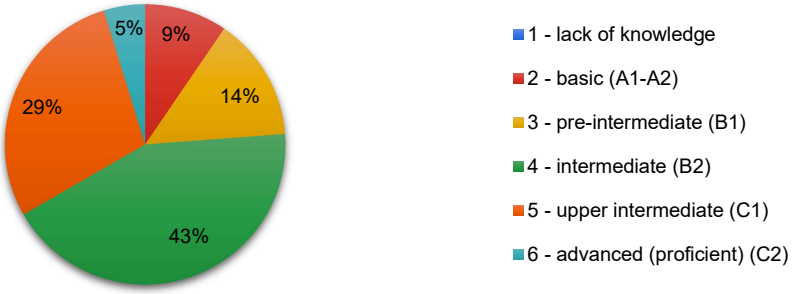
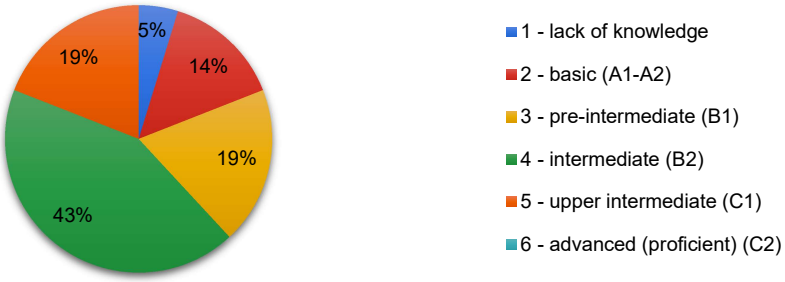
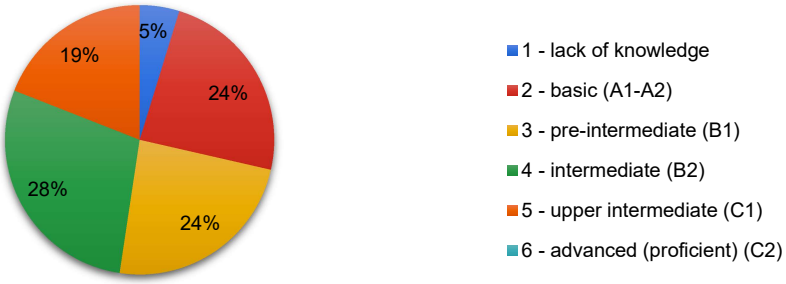
GDGC10. I use digital tools for data collection, analysis (incl. visualization) and data flow management



GDGC20. I use digital tools for decision-making (analyzing the situation, ranking of options, selection of most optimal options, synthesizing solutions etc.)



GDGC30. I use digital tools for producing forecasts



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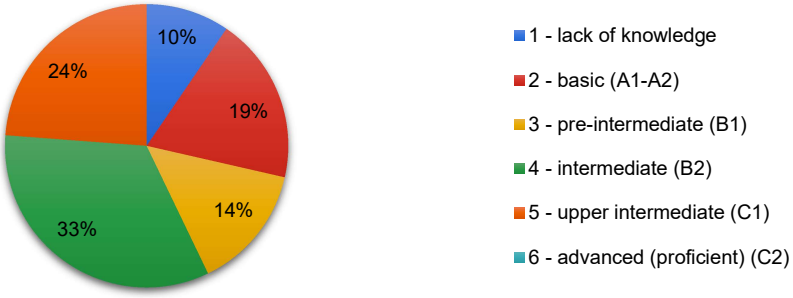
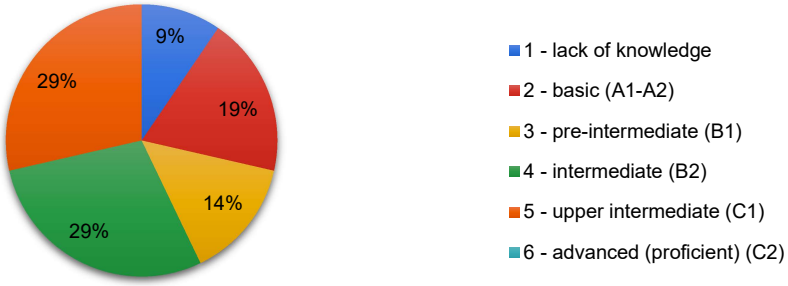
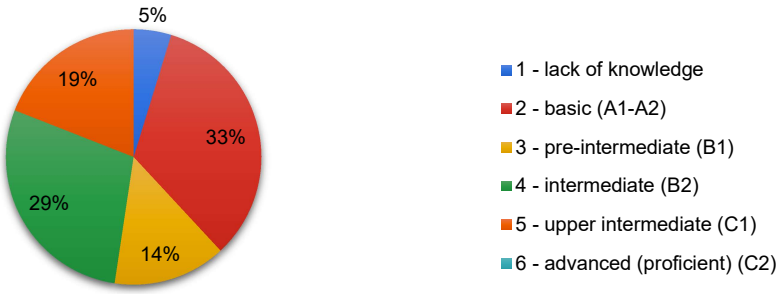
GDGC40. I use digital tools for modelling, optimization, simulation and visualization of processes, products and services



GDGC50. I use digital tools for visual design



GDGC60. I use digital tools for data protection



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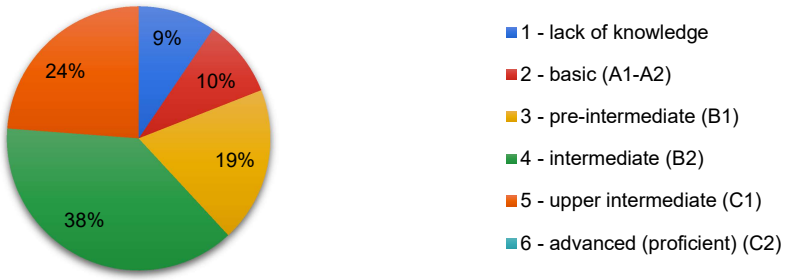
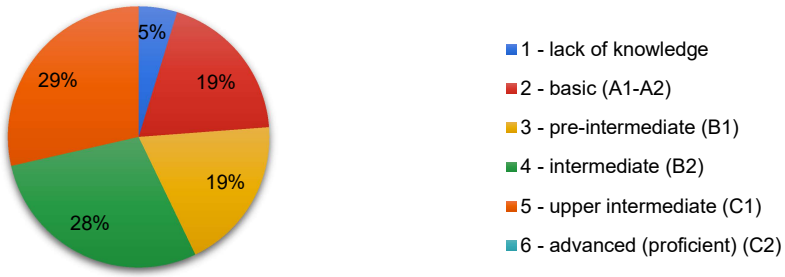
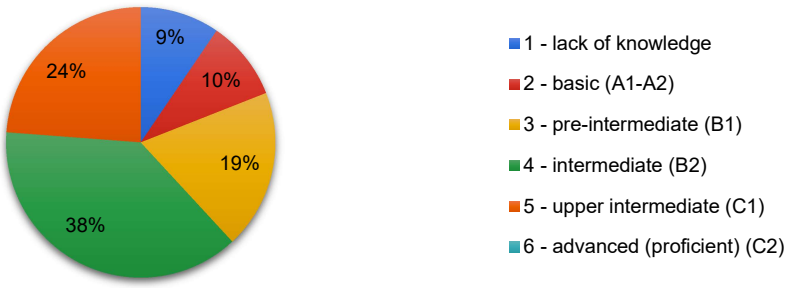
GDGC80. I use digital tools for producing and using integrated quality management systems



GDGC70. I use digital tools for effective work / business management



GDGC90. I use digital tools for risk management



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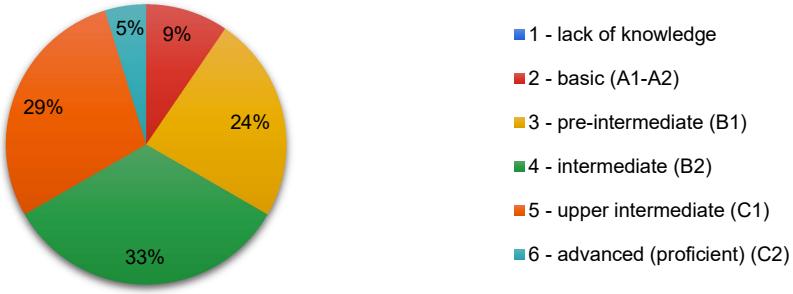
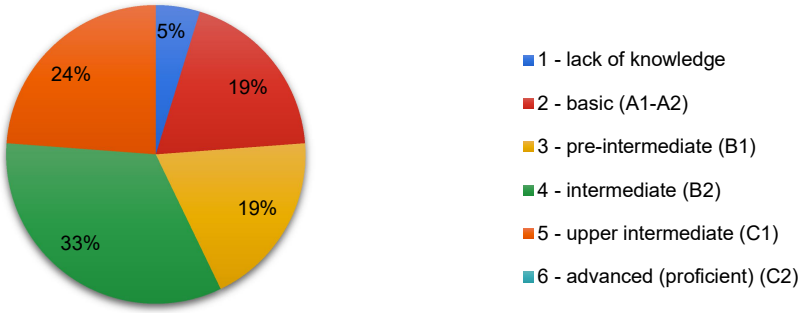
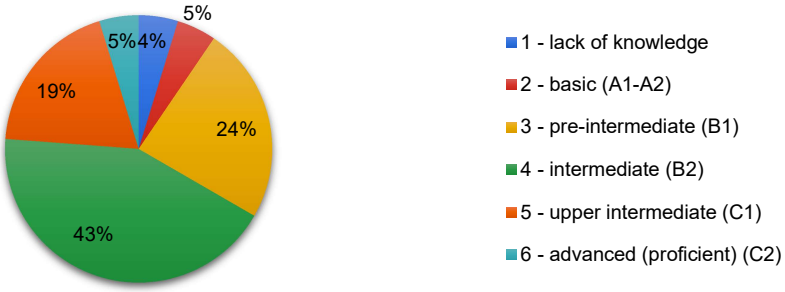
GDGC100. I use digital tools for document creation and management (preparation, updating, managing, etc.)



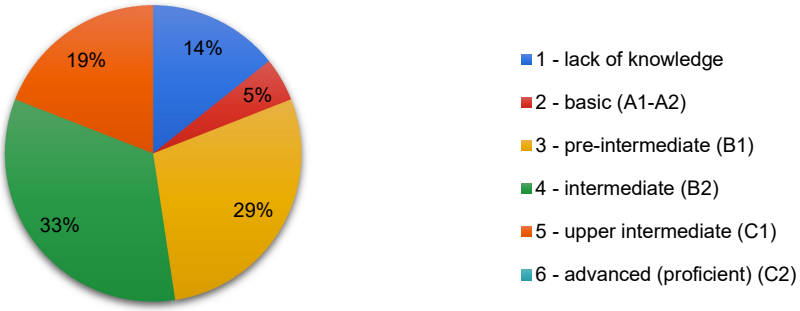
GDGC110. I use digital tools for acquiring, engaging and sustaining customers



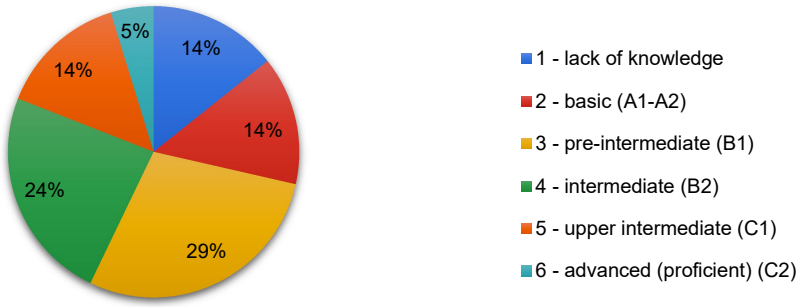
GDGC120. I use digital tools for effective communication with colleagues and partners



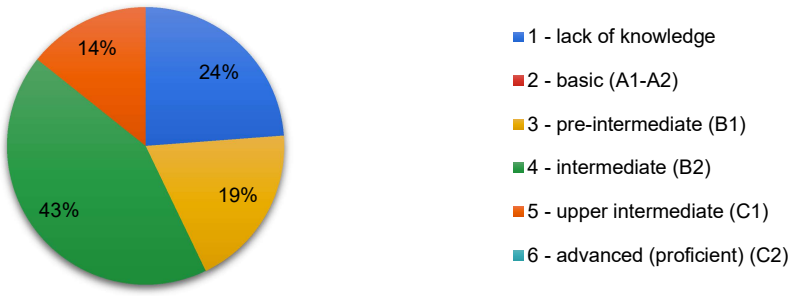
GDGC130. I use digital tools for accounting.



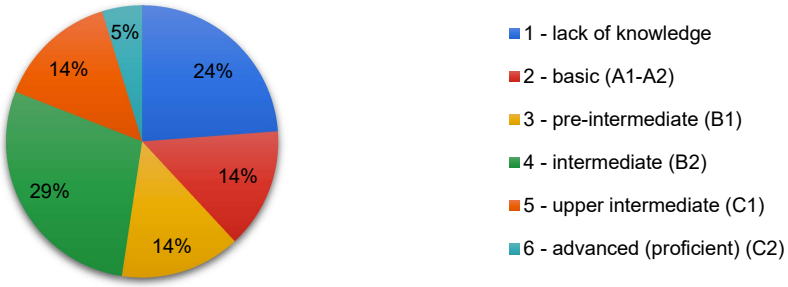
GDGC140. I use digital tools for procurement



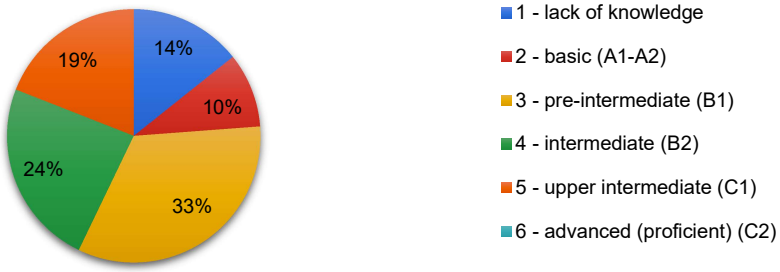
GDGC150. I use digital tools for relevant (green) legislation analysis and reviews.



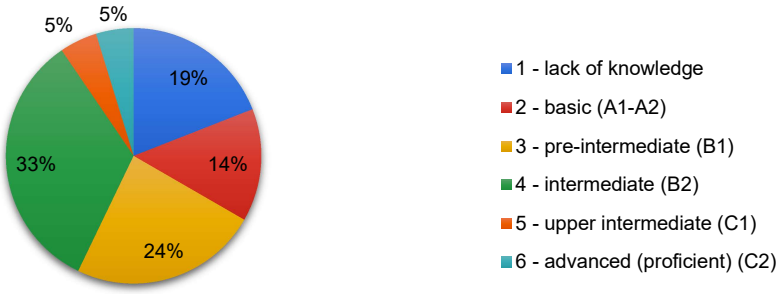
GDGC160. I use digital tools for greener product development, flawless maintenance - use - monitoring, management



GDGC170. I use digital tools for greener service development, flawless maintenance - use - monitoring, management, branding, online marketing and positioning



GDGC180. I use digital tool for (technical / green) problem-solving.



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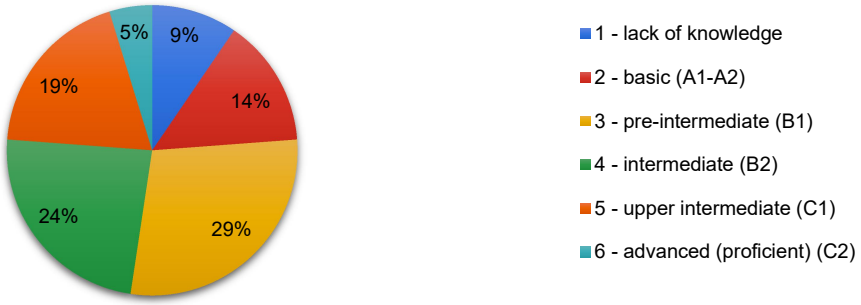
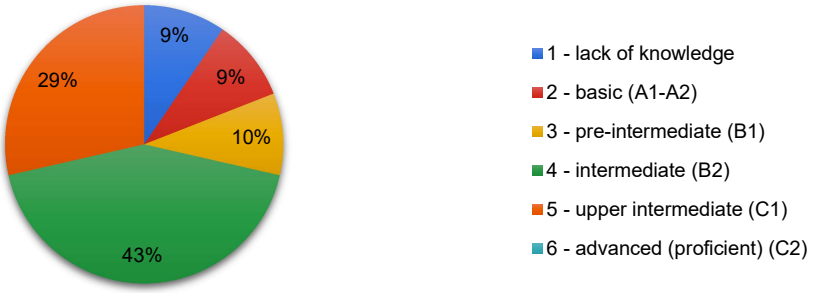
GDGC190. I use digital tools for research and self-development for different professional purposes, incl. production technologies, market research



GDGC200. I use digital tools for lab work



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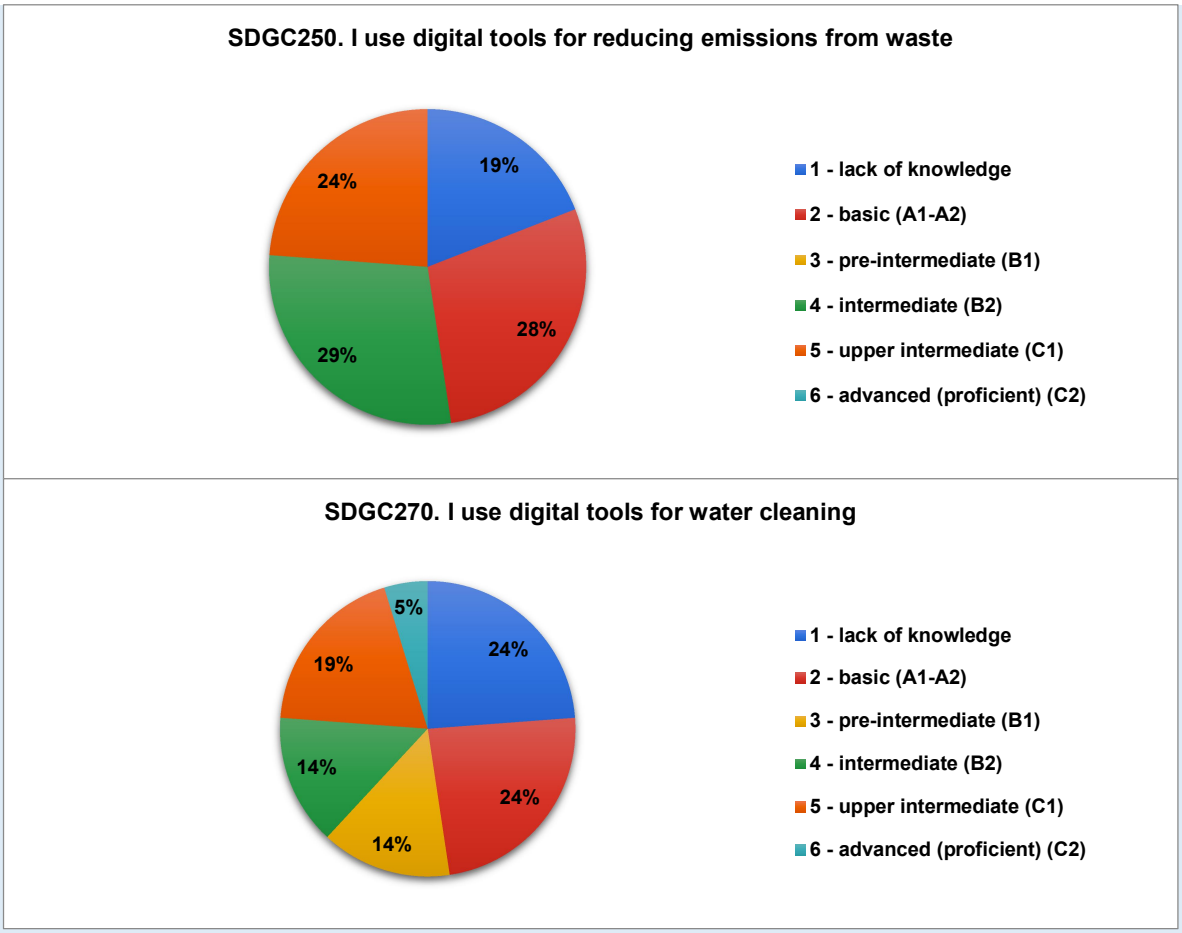
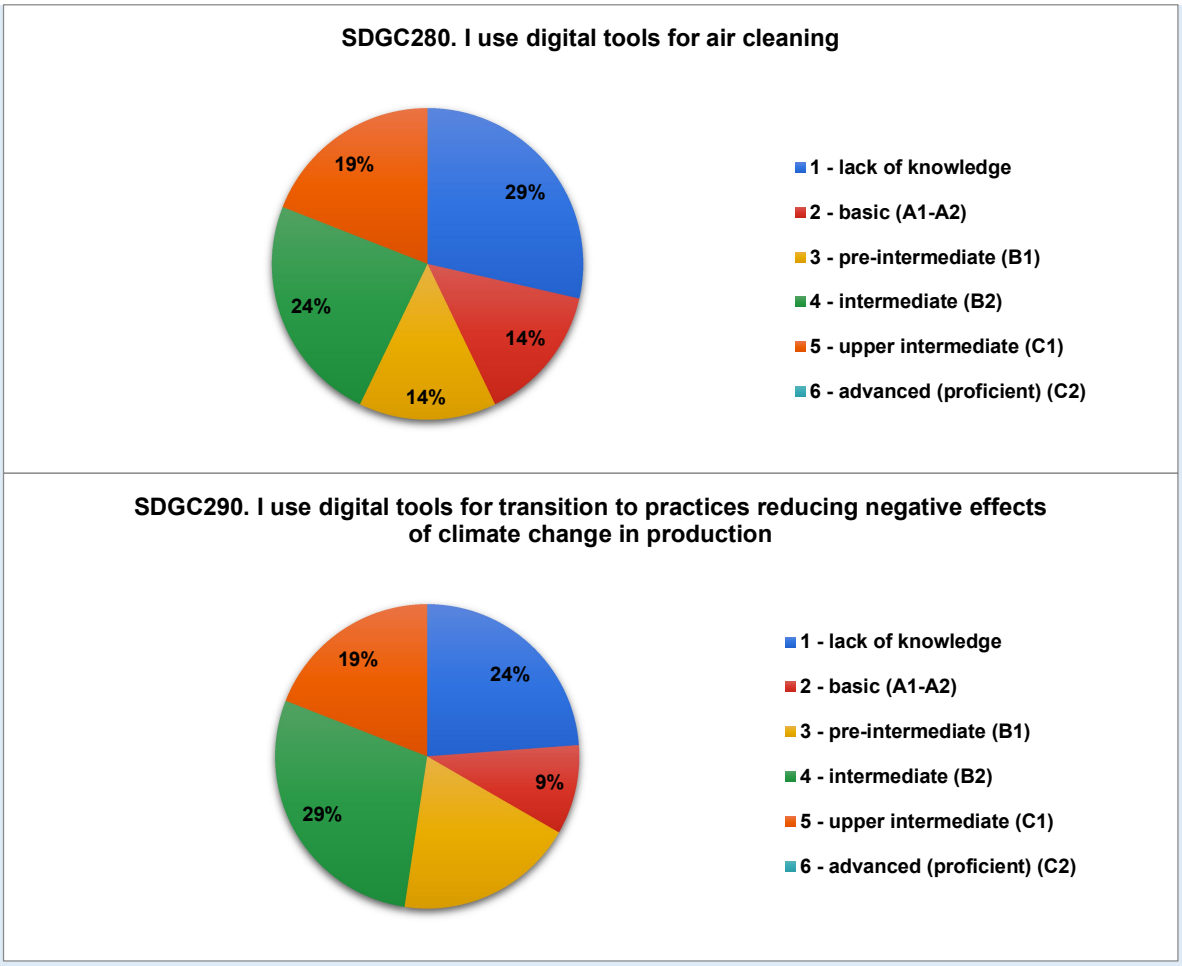

SDGC250. I use digital tools for reducing emissions from waste
19%
28%
29%
24%
1 - lack of knowledge
2 - basic (A1-A2)
3 - pre-intermediate (B1)
4 - intermediate (B2)
5 - upper intermediate (C1)
6 - advanced (proficient) (C2)
SDGC270. I use digital tools for water cleaning
24%
24%
14%
14%
19%
5%
1 - lack of knowledge
2 - basic (A1-A2)
3 - pre-intermediate (B1)
4 - intermediate (B2)
5 - upper intermediate (C1)
6 - advanced (proficient) (C2)



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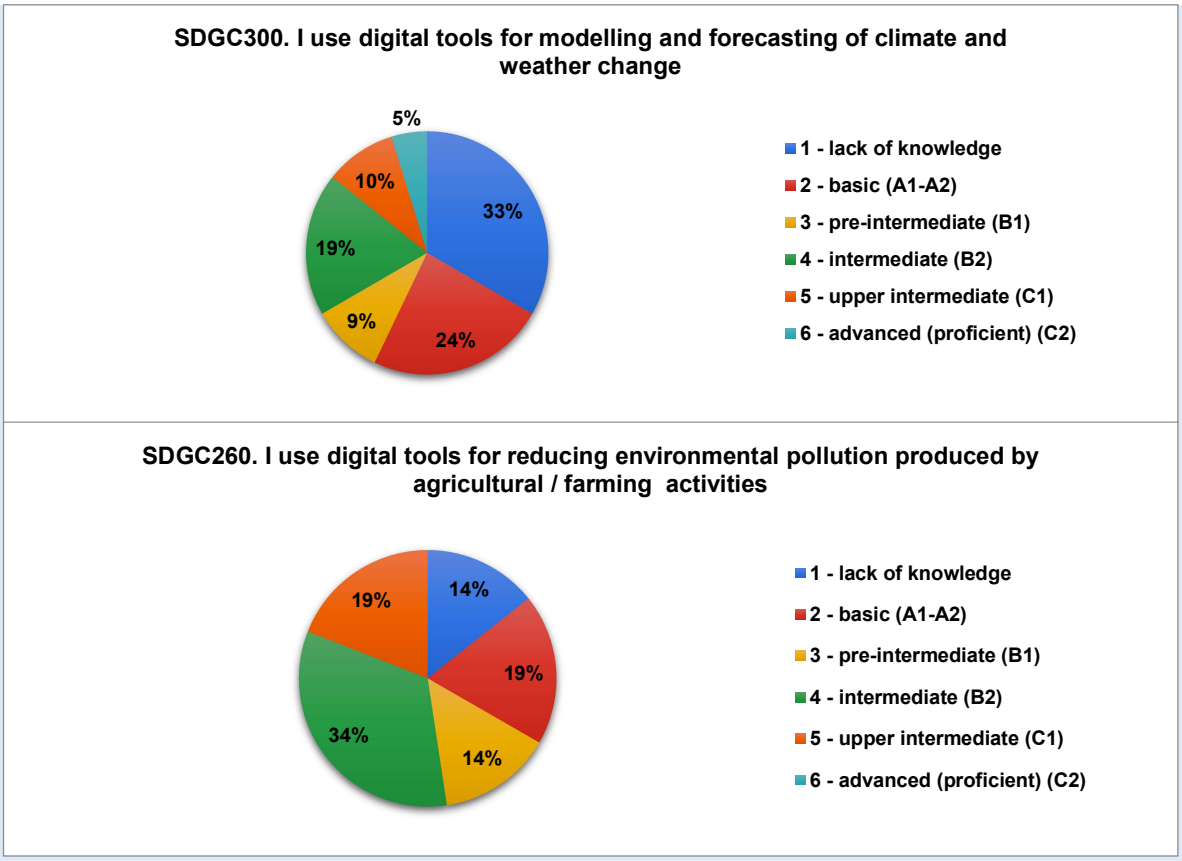

APPENDIX III. Requirements for the VOOC platform

- Requirements for the implementation of the surveys by the digital platform

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