ERASMUS+ PROGRAMME

KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

KA220-HED - COOPERATION PARTNERSHIPS IN HIGHER EDUCATION

Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Results Usability Review

WP4 DigiOmica results piloting

Contents

1. Theoretical background

Results' usability can be defined as their capacity to allow users to perform certain tasks in an efficient, effective, and pleasant manner. It determines the degree to which these results can be used by users to assess the qualitative and quantitative impact of their use.

Regardless of the object of use or the performer of the usability study, the results of usability assessment include methods for measuring, which determine the easy-to-use product(s) and processes.

Commonly, usability of results is associated with their functionalities. Results functionality is measured by the properties:

- Effectiveness - fit to purpose;
- Efficiency - time needed to use;
- User satisfaction – the extent of pleasure in results use.

These properties are measured against predefined criteria, and the results are expressed in metrics, e.g., in percentages. They are measured indirectly through quantification of specific attributes, such as the number of problems identified during use or the number of advantages compared to other results' use.

Analysis and refining of the results are made based on the assessment of the usability of these results (products or processes).

The assessment of results' usability can be performed through various methods. In general, there are methods that exploit experts' opinions (usability inspection methods) and methods that gather feedback data on results from users during a testing process (usability testing methods).

- The inspection methods are performed by experts whose competence supports technical and content assessment of the result and generates an expert opinion on its usability.
- The testing methods evaluate a result through its use by pilot direct users. These users provide direct input on how real users use the results. The approach of usability testing

allows the assessment of a result that is fully functional (technically and content-dependent).

The choice of evaluation methods depends on various parameters, such as appropriateness, time, and cost. However, whatever method is chosen, it considers the design, technical, and content aspects of the results' usability, and finally, recommendations for refinement of the results. The most popular usability testing methods include:

- **Surveys/questionnaires**: This method explores questionnaires as an information-gathering tool for the performance of a targeted survey. It is very common for the assessment of the usability of results (products and processes). The main advantages of the method are that it does not require any sophisticated equipment, directly reflects the users' opinion, and is inexpensive. However, to be informative, questionnaires must be written, and respondents must be chosen carefully in compliance with the objectives for the usability assessment of a certain result. The survey method provides feedback on both the strong and weak points in the results, and these data can serve to directly refine and tune the final results.
- **Inquiry**: This method collects qualitative data from users and reflects users' perception (what they need and want from a product or process).
- **Analysis of tasks**. This method is grounded in the users' goals and way of working when using a certain product or process. This method also provides data for the spectrum of tasks needed to meet certain goals or accomplish those tasks.
- **Focused groups**. This is a performance of a focused discussion between a group of users and a moderator who leads a discussion on a particular topic within the area of interest of the developers of the results under assessment. This may be organized through a predefined questionnaire. The data gathered from such discussions is semi-quantitative and helps shape the target users' opinion.

2. Implementation of DigiOmica strategy for results piloting for their usability assessment

DigiOmica strategy for testing results' usability (https://digi-omica.eu/results-piloting/) outlined measures, resources, instruments, and targets to be influenced by the testing process. It also identified the Key Performance Indicators (KPIs) applied to measure the effectiveness, quality, and stage of completion of the activities for results' testing. The KPIs encompass the following main aspects:

- Training methodology acceptability by pilot trainees;
- Knowledge/learning assessment methodology effectiveness – perception by pilot trainees;
- Interactive training tools/activities perception by pilot trainees;
- Individual training performance – perception of customized and individual-tailored training approach by pilot trainees.

Among the activities planned to check and evaluate the project results rationality and use, the issue of Results Usability Review is crucial for project results finalization.

The Results Usability Review summarizes the:

- Progress of results production against predefined objectives;
- Satisfaction with the impact and outcomes of the:
    - Digital platform functionality and operation capacity;
    - Training content - Academic Course, Case Studies, Customized Learning Pathways (CLPs);
    - Higher Education Toolbox – HE Teachers' Catalogue and Students' Toolkit;
    - Guiding tools (OMICS Index).
- Identification of the steps needed for results refinement and finalization.

3. Inspection approach/methods for assessment of results usability

The DigiOmica partnership applied the inspection and testing approaches for assessment of results usability.

The inspection approach comprises performance of internal (country-specific) and external evaluation of results. The consortium, under the supervision of the PMS and QAS, produced a package of templates for internal/external evaluation of project results by experts with professional proficiency in the project area. The evaluation package, available in Annex 1 of this review includes exemplary templates for:

- Project management and administration: Management evaluation template, TPM evaluation template, and Project progress monitoring template;
- Project results usability: Internal evaluation template.

The **internal (nation-specific) evaluation** was organized as a permanent process and covered WP1 to WP5. It provided snapshots of the project advancement in terms of management and administration, TPMs organized and performed, project state of the art at its interim and finalization stages, and project results usability.

- Regarding **project management and administration**, the following conclusions were launched:
  - The management procedures of the project were clear, open, and transparent and the time management was scheduled in conformity with the project roadmap.
  - The management processes were graded as effective and efficient.
  - The instructions in the administrative and financial guidelines facilitated project financial and operational procedures.

    - The project manager respected all the clauses in the main agreement and the partner contracts, and provided support and advice about technical, subject-specific, and financial issues whenever asked. The moderation of the TPMs was also well done.
    - The manager monitored the procedures and activities developed within the project and provided information and documentation sufficient to facilitate the project reporting at its interim and final stages.
    - The project activities implementation is graded as very successful in terms of participants' involvement in the project advancement in respect to the KPIs, effective communication and cooperation, fruitful partners work together.
- Regarding **project results production and usability**, three internal evaluations of DigiOmica essential results were performed in Bulgaria, Spain and Türkiye. The documents are enclosed in Annex 2 of this review, and their main aspects can be summarized, as follows:
    - The project has achieved the planned midterm/final results in compliance with the stipulated quantitative and qualitative KPIs;
    - The project results can be structured into three main categories—educational resources (learning materials, user guides, toolkits) a model for organization of an e-learning process (the DBE Scheme), and the web platform where they are uploaded and structurally organized.
    - The WP2, R1-R4 and WP3, R1-R4 level of acceptance is graded as fully acceptable. Reviewer s' technical statement was that the educational resources in BG, ES, and TR are mirror images of their EN original. Some recommendations regarding technical improvement comprised the inclusion of more figures, diagrams, and flowcharts (especially in technically dense modules like transcriptomics, proteomics, and bioinformatics). No significant missing elements of the educational objects have been identified. Regarding contextual changes that might be implemented, the following recommendations were given:
        - Incorporating examples or case studies from DigiOmica partner countries to increase local applicability.

        - Adding a brief glossary or explanatory footnotes for highly technical terms to support interdisciplinary learners.
        - Add some links to information related to partner counties' specific issues to increase the product's added value at the national level.
        - Some of the terms are quite sophisticated and might be linked to Wikipedia explanations or other encyclopaedia resources. This will help trainees whose basic background is not molecular biology to better understand the learning content and support the idea of a cross-point between ecology and molecular life science in an educational context.
        - Highlighting how the presented omics approaches align with broader sustainability goals or EU environmental policies.
    - The evaluation of the technical and content-specific details was positive. The contextual liaison among the various parts of the curriculum was evaluated as meaningful and well presented.
    - The effect of the project on its direct targets and other beneficiaries can be graded as positive. The direct targets (students and young researchers) gained new skills in digital tools, life sciences, and interdisciplinary collaboration. Other beneficiaries, including academics and institutions, also benefited by accessing open educational resources, innovative training methods, and potential future collaborations.
    - Prospects for collaboration of project partners after DigiOmica project completion should be considered. Among the options are:
        - Development of new joint projects focused on digital learning in life sciences, such as integrating omics data into university curricula or creating virtual lab environments for biology education;
        - Co-organization of topic-specific webinars and short-term training courses on bioinformatics, systems biology, and data visualization;
        - Exploring opportunities for student exchange and internships between partner institutions.

The external evaluation of DigiOmica essential results, performed by the project associated partner from BG GIS - TransferCenter Foundationis provided in Annex 2 of this review. It covers assessment of the following main aspects of the project results:

- Satisfaction with the impact and outcomes of the digital platform functionality and operation capacity (WP2, R1 – R3);
- Training content - Academic Course, Case Studies, Customized Learning Pathways (CLPs) (WP3, R1 & R2);
- Higher Education Toolbox – HE Teachers' Catalogue and Students' Toolkit (WP3, R3 & R4);
- Guiding tools (OMICS Index, WP2, R4).
- Project results piloting, sharing, and promotion (WP4, R1-R4; WP5 (R1-R5)

The essential conclusions and recommendations of the external evaluation can be summarized as follows:

- DigiOmica digital platform - the technical characteristics and functionalities are well organized and operating, the choice of WordPress CMS is the right one, the OMICS e-Learning hosts all the elements that allow practical operation of the DBE Scheme.
- DigiOmica DBE scheme – the scheme is well-designed and allows flexibility of rearrangement of learning objects. It covers the HE routes from choosing learning content to certification of the gained competence.
- Curriculum 'Integrated Environmental Omics' - comprises essential elements, logically unified to match the project objective and satisfy the global needs of digital education readiness of academic professionals and students;
- Results usability testing activities allow refinement and improvement of the final results;
- Results sharing and promotion allow comprehensive project popularization and impact assurance;
- Recommendations for correcting minor typos and grammar mistakes, some texts in the national-language versions, which are in English should be substituted with national ones, a real educational process to be organized after project completion for implementation of the DBE scheme in partners' future HE initiatives.

4. Testing approach/methods for assessment of results usability

The testing approach counts for evaluation of the user's experience when interacting with DigiOmica e-educational resources (the OMICS e-learning hub). DigiOmica project organized this through results piloting at the national level. The testing objective was to check the results' usability in terms of content, target-groups' orientation, and user-friendliness of their exploitation. The focus was on DigiOmica's digital education tools and their practical operation. The approbation process aimed to assess how the project's main results support the higher education process at the Universities and research institutes, as well as how educational resources can contribute to strengthening the liaison of HE, R&D, and Business.

4.1. General information about the organization

The results-piloting events were organized according to the partnership consortium's approved timetable and took place during the period March - June, 2025. Each event was held at a partner institution's premises in alignment with the scheduled plan.

Partner No	Date	Place
P1 – IOCCP-BAS	09.07.2025	Acad. G. Bonchev str. Bl. 9, 1113 Sofia, Bulgaria
P2 - SU	30.05.2025	Faculty of Biology, 8 Dragan Tsankov Str., 1164 Sofia, Bulgaria
P3 - R&D Center Biointech Ltd.	16.06.2025	40 Ami Boue Str., 1606 Sofia, Bulgaria

P4 University of Granada	10-28.03 & 2-18.06.2025	Avenida Madrid, 13, 18012. Granada, Spain
P5 Gazi University	28.05.2025	Gazi Faculty of Education, Emniyet Mahallesi Bandırma Caddesi No:6/1, Ankara, Türkiye

4.2. Information campaign

The piloting events were preceded by an information campaign. This campaign involved distributing targeted information about the planned events. The channels used included emailing through project target group representatives' lists, academic Viber groups, and phone calls to individuals focused on digital education and life sciences.

DigiOmica project partners coordinated the announcement of their events for results testing to people possessing as diverse professional backgrounds as possible within the area of environmental omics technologies and e-education. The aim of this process was to ensure comprehensive and reliable feedback on the results' content and usability. Additionally, the inquiry form prepared by the project consortium for the recruitment of the events' participants allowed the organizers to select those who best fit the DigiOmica users' profile.

The set of announcement materials and the Inquiry forms for participants' selection can be found in the partners' reports on results usability in EN and their mother tongues at: https://digi-omica.eu/consortium-area/ .

4.3 Agenda

The testing events' programs (enclosed in the national reports at https://digi-omica.eu/results-piloting/) outline the organizers' idea to present all the key results of the DigiOmica project with emphasis on those achievements that best fit the scope of activity of the relevant partner.

- For P1 (IOCCP-BAS) the focus was on the DigiOmica facilities that offer user-centred personalised education;
- for P2 (SU) special attention was paid to the results related to the performance of a modern e-education process designed for both students and tutors as its main players
- For P3 (R&D Center Biointech) the emphasis was on the link between HE and labour market where the newly adopted and/or upgraded knowledge and skills are practiced *in situ*;
- For P4 (UGR) the accent was on the joint educational activities of the DigiOmica UGR team and the Mediterranean Centre of the University of Granada (CEMED), Vice-Rectorate for Postgraduate Studies and Continuing Education (UGR) for testing the DigiOmica project results use on topics related to sustainable agriculture, environmental protection, and the application of omics technologies for support and maintenance.
- For P5 (GU) the focal point of the event was the checking how DigiOmica's digital education tools work in practice.

The P1, P2, P3, and P5 decided that a one-day testing session is the optimal format, ensuring the event's participants receive the most value from DigiOmica results for a reasonable period of time. P4 used the experience of its Vice-Rectorate for Postgraduate Studies and Continuing Education and amalgamate DigiOmica results usability testing with related to the project specific background two short intensive courses.

In addition, the program topics and their structure were carefully designed to support active participation, Q&A sub-sessions, and open discussions among participants with the support of relevant moderators. This approach facilitated the gathering of participants' feedback in an easy way. This was essential for the final tuning of DigiOmica results in a way apprehensible by the users.

5. Target groups

The participants' profile is outlined in Table 1.

Table 1. Participants profile (data from the inquiry questions).

Index / Partner	P1	P2	P3	P4	P5
AGE					
< 25	2	17	2	0	7
26 - 35	4	4	4	63	4
36-45	9	0	5	30	6
≥45	7	4	8	7	6
GENDER					
Male	9	5	11	26	9
Female	13	20	8	44	14
Others	0	0	0	0	0
EDUCATION					
EQF 5	0	1	1	0	0
EQF 6	2	14	6	50	8
EQF 7	6	7	8	13	9
EQF 8	14	3	4	7	6
DEGREE/TITLE					
No	0	13	1	0	0
B.Sc.	2	2	6	2	8
M.Sc.	6	7	8	61	9
Ph.D.	14	3	4	7	6
OCCUPATION/JOB POSITION					

(Under/post)graduates	0	20	2	0	12
Researchers / research associates	5	1	5	0	5
Post-doctoral researchers	2	0	3	0	0
Academic professionals	14	3	1	0	6
Others (biotech CEOs / operation managers)	1	0	5	0	0
Others (economists, ICT specialists	0	0	3	0	
PROFESSIONAL ACTIVITIES / FIELD					
Education	0	1	0	7	7
Biochemistry	0	0	2	15	0
Biology			1	11	0
Biotechnology	2	3	6	20	0
Environmental sciences	0	0	1	17	7
Molecular biology / Genetics	2	19	0	0	1
Bioinformatics	0	2	0	0	5
Organic chemistry / Engineering	14	0	3	0	1
Biotech business management	0	0	2	0	0

Economics	3	0	3	0	0
ICT	1	0	1	0	0
Urban planning	0	0	0	0	2
PILOTING RESULTS CHOSEN					
WP2, R1 – R4	22	25	19	70	23
WP3, R1 – R4	22	25	19	70	23

The data in Table 1 above can be summarized as follows. A total of 159 test-trainees (60 males and 99 females) participated in the approbation of project results. Regarding academic qualifications, predominance of participants with EQF reference level 6 (50.3 %) can be pointed out, followed by those with MSc degree - EQF 7 (27.0 %) and PhD Degree EQF 8 (21.4 %). Only 2 participants with EQF 5 presented. The sessions covered test-trainees with various professional backgrounds. About ¼ of them (21.4 %) were (under/post)graduates, followed by the academic professionals (15.1%). Among the attendees, academic professionals, researchers, and research associates can be listed. The statistics according to the criterion field of professional activity comprised Education (15 participants), Biology (12), Biochemistry (17), Biotechnology (31), Molecular Biology/Genetics (22), Bioinformatics (7), Environmental sciences (25), and Organic Chemistry/Engineering (18). Several participants (12) came from areas not directly related to DigiOmica's specific field. However, their professional field tackled common environmental and HE problems: Biotech business management (2), Economics (6), Urbam planning (2), and ICT (2).

Regarding the Results tested, those assigned to WP 2 and WP3 were tested by all 159 test-trainees. This fact supports the strong and responsible engagement of the event attendees in the activities related to WP2 and WP3.

The lists of participants taking part in the testing sessions and selected photos of the events' performance are included in the national results usability reports at https://digi-omica.eu/results-piloting/ .

6. Performance of the event

Each of the testing sessions commenced with a concise presentation of the DigiOmica project, its objectives, overall goals, scope of anticipated results, and impact at the national level. P1, P2, and P3 elaborated a common presentation in BG language (see BG results usability reports at https://digi-omica.eu/results-piloting/) and used it for this brief intro to the events. P4 and P5 used their info materials to aquaint the event's attenddes with the project. Furthermore, in-depth presentations of the project results related to WP2 and WP3, accompanied by a demonstration of the presented items online through the DigiOmica website, were delivered. The events' attendees were also supplied with dissemination materials (brochures, leaflets, flyers, newsletters in the BG, EN, ES, and TR languages). The testing sessions' moderators emphasized various aspects of DigiOmica results that best fit their target audience:

- For P1 – the options for following LTPs, tailored to fit individual training needs for updating/upgrading knowledge and skills in advanced omics technologies for environmental applications.
- For P2 – the e-training process equipped with purposefully designed guidance manuals for graduates and their tutors.
- For P3 – the options for online education within a working background and the versatile way of organization and implementation of an education process that can contribute to employees' professional portfolio enrichment.
- For P4 – the option to learn about omics technologies application in sustainable agriculture and environmental protection.
- For P5 – the use of e-educational resources for knowledge updating/upgrading on environmental issues and their facing through high throughput technologies like the omics ones.

The DigiOmica e-resources access was arranged to facilitate active participation and open dialogues among the events' participants.

The feedback of events' participants was gathered through a pre-structured survey by the project partners. This questionnaire tool allowed attendees to share their general impressions and specific comments on the DigiOmica results testing. All attendees but one (from P3) were kind to complete the survey and thus, contributed to the final tuning of DigiOmica results.

7. Feed-back gathering questionnaire data (summary and discussion)

The response distribution data and the processing of the summarized feedback results are grouped within the three evaluation categories, in compliance with the feedback questionnaire structuring (see Piloting results package_EN at https://digi-omica.eu/consortium-area/) and partners' event.

CUMULATIVE RESULTS

No	Questions	Evaluation grade				
		A	**B**	**C**	**D**	**E**
1	The premises, where the event took place are adequate of its goals.	139	19	1	0	0
2	The handouts and information material provided at the event were sufficient and well arranged.	142	14	3	0	0
3	The general organisation of the event has been adequate (facilities, moderation, agenda, etc.).	142	15	2	0	0
4	The event objectives were clear to the participants.	149	8	2	0	0

5	The participants were informed in advance about their role in the event.	148	10	1	0	0
6	The information campaign of the event was well organized.	134	20	5	0	0
7	All participants have actively participated in the event.	141	14	4	0	0
8	The event moderator was helpful and its assistance adequate.	148	7	4	0	0
9	Aims, methodology, and technical issues regarding results piloting were explained in a detailed way.	138	14	7	0	0
10	The event timetable and duration were efficient.	144	13	2	0	0
11	Presentations and discussions were relevant to event objectives.	146	9	4	0	0
12	The milestones of the project results were emphasized.	138	17	4	0	0
13	I am satisfied with the quality of my own participation.	133	16	10	0	0
14	I am satisfied with the outcome of the event.	140	17	2	0	0
15	I am interested in HE opportunities enforcement.	132	23	3	0	0

16	I found the aims and objective of DigiOmica project of current interest / importance for my country	142	14	3	0	0
17	I am interested in knowledge/skills in omics technologies for environmental sustainability updating/upgrading.	138	17	4	0	0
18	I am interested in e-learning opportunities enforcement.	137	20	2	0	0
19	The practical instructions for implementation of ICT in training offered by the project will be helpful for my professional carrier.	144	12	3	0	0
20	The digital-based education process (Modules, LOs, Ulos, CLPs) in terms of design, content, and functionality is well organized.	148	10	1	0	0
21	The curriculum specific topics are of professional interest for you.	142	15	3	0	0
22	The HE Toolbox – Students' Toolkit is a helpful supporting tool enhancing the learning process.	140	12	7	0	0
23	The HE Toolbox – HE teachers' catalogue is a comprehensive tool enriching tutors' teaching activities with innovative teaching methods.	146	9	4	0	0
	Average (No attendees)	**141**	**14**	**4**	**0**	**0**
	Average (%)	**88.68**	**8.81**	**2.51**	**0**	**0**

On the basis of the data presented, the following tendencies can be outlined:

- Re: Technical organization
  - A hundred and forty two of 159 test-trainees (89.3 %) were fully satisfied with the technical organization and preparation of the event, e.g., information campaign, event planning, information and materials supplied, adequate premises, and e-devices arranged. They declared a high level of satisfaction and perceived usefulness of the DigiOmica testing session. The professional structure and clarity of the event were also mentioned;
- Re: Event efficiency
  - The majority of attendees (nearly 89%) expressed a positive opinion (agreement) about the event's efficiency and declared active and satisfactory participation. They pointed out moderators' support, well-planned and scheduled activities, and relevant presentations and discussions.
- Re: Event outcomes adequacy
  - This series of questions provides a clear vision of the events' goal achievement – to meet attendees' expectations and reach meaningful outcomes. Namely, this set of data supported the evaluation of event effectiveness and helped to reach useful conclusions and recommendations on results' finalization. The participants' answers were within the average 80-88% positive range. Less than 1.0% were those who were neutral in their assessment, a score that supports the relevance and alignment of the events' scopes with the participants' expectations and professional interests.

8. SWOT analysis

The feedback data gathered were subjected to SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. SWOT framework was used to assess and appreciate the internal (Strengths and Weaknesses) factors that influence the project advancement and the external environment (Opportunities, and Threats) that influence the project competitive advantages.

SWOT ANALYSIS

STRENGTHS	• Good general organisation of the events (facilities, running, agenda, etc.). • Well established leadership and coordination of the event. • Adequate communication with the event moderators. • Adequate assistance from the moderators during the event. • Adequacy of the event program to its aims.
WEAKNESSES	• Lack of knowledge about the participants' role in advance. • Need for better communication with participants. • Need to improve the efficiency of the event timetable/duration. • Need for better relevance and usefulness of the presentations and discussions.
OPPORTUNITIES	• Keeping the well-established thorough discussions and provision with all the needed documentation • Keeping the established practice, the moderator to give space to all the participants to express their opinion and request more specified information when needed. • Better timing of the even subsessions for better comprehension and more efficient discussions • The moderator to ensure that the partnership has an effective communication and information flow, and all available helpful tools are used for this scope

THREATS	• Putative difficulties of intra-participants' work • Too long schedule and concern for overloading of the participants with information.

9. General comments, suggestions and recommendations for results refinement

- **The project idea and mission**: The DigiOmica project brings together molecular life science and ICT to answer the HE needs in using molecular technologies to better understand how living systems work at the molecular level through an inter-/multidisciplinarity omics approach.
- **The specific subject of the educational offers**: The DigiOmica project is focused on the subfield of environmental omics. It provides up-to-date fundamental & practical information on the application of omics technologies to understand environmental and genetic factors, toxicity mechanisms, and modes of response of living creatures to natural disturbances. Environment-related problems, approached through the study of biomolecules at various levels, can be faced through the omics approach, which helps understand biological processes in an environmental context.
- **Educational approach and tools**: The DigiOmica project has developed a model for digital-based HE that operates within an e-learning hub encompassing innovative educational resources and collaborative learning tools for the arrangement of a modern HE process. This process is structured on the principles of European descriptors EQF and ECTS. It targets gaining competencies and their assessment.
- **Target groups**: The piloting events were focused on DigiOmica's direct target groups. Among the three segments, the Undergraduate one was predominant, and the positive students' response was very encouraging for the results' applicability and usefulness towards a professional career. Furthermore, the project results possess the potential to be

expanded to new countries and new subject areas that seek to combine IC technology and digitalization with other advanced technologies.

- **The personalized approach**. The DigiOmica DBE scheme revealed how learning can be personalized and individual-oriented, thus leading to better results. Equipped with the relevant guidelines for tutors and students, the e-learning approach of DigiOmica can be explored by other interested groups due to its user-oriented options for individual education in an easy and comprehensive way.

10. Conclusions

The participants' feedback gathered and processed indicated that the activities of the testing sessions were well perceived and performed towards their objectives. The attendees highly appreciated the organization, content, and discussions during the events. The high levels of satisfaction and strong commitment to testing of DigiOmica results supported the final tuning of project results, in particular, the digital education tools and knowledge/skills resources. The diversity of the sessions' audience in a professional context contributed to the adequate and critical evaluation of both the educational resources and tools for their use. Useful recommendations outlined the prospects for mastering the current results and shaping ideas and prospects for new projects. Among the most valuable were the following:

- The multilingual presentation of the academic curriculum, modules, and CLPs facilitates their comprehension at the national level.
- More real-life case studies would be better for the practical orientation of the studies.
- The toolbox with guidelines foreseen for tutors and students strongly enhances the teaching, learning, and assessment processes in HE.
- The multilingual OMIX Index is a versatile auxiliary tool that promotes easier and faster exploitation of e-learning resources.

11. Annexes

11.1 Annex 1 Internal evaluation package and reports

INTERNAL EVALUATION

AIM

This package of documents includes templates foreseen to enhance the internal evaluation of project activities and results, as follows: Management evaluation template, TPM evaluation template, Project progress monitoring template, and Project results internal evaluation template.

Project coordinator

IOCCP-BAS, BG

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Management evaluation template

Please fille in the following questionnaire minding the grading scale:

- A: Yes
- B: Doubt
- C: Mostly doubt
- D: No

	Question	A	B	C	D
1	Are the management procedures clear, open, and transparent?				
2	Is the time management scheduled in conformity with the project roadmap?				
3	Are the management processes effective and efficient?				
4	Does the manager provide support and advice when asked?				
5	Does the manager mind the financial regulations as stated in the main agreement and the partner contracts?				
6	Does the manager provide information and documentation sufficient to facilitate the project reporting?				
7	Does the manager monitor the procedures and activities developed within the project?				
8	Does the manager monitor the deadlines and is ready to cooperate on the subject?				
9	Do the instructions in the administrative and financial guidelines facilitate financial and operational procedures				
10	Have you experienced any kind of management barriers to the project development?				

ЦЕНТЪР ЗА РАЗВИТИЕ НА ЧОВЕШКИТЕ РЕСУРСИ

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TPM evaluation template

AIM: gathering the TPM participants' opinion on the organisation and performance of the event.

INSTRUCTIONS:

Dear TPM participant,

Please dedicate a few minutes to fill in this feedback questionnaire. Each of the boxes needs a mandatory answer. Use the following grading scale:

A = Poor

B = Fair

C = Neither

D = Good

E = Excellent

1	My general impression of this meeting was	☐
	In case your answer is A, please share your concerns: …………………………………………………………………………………… …………………………………………………………………………………… ……………………………………………………………………………………	

2	The information materials you have received before the TPM were	☐
	In case your answer is A, please share your concerns: …………………………………………………………………………………… …………………………………………………………………………………… ……………………………………………………………………………………	

3	The moderation of the event was	☐
	In case your answer is A, please share your concerns: …… …… ……	

4	The methods applied for the information presenting (ppts, Q&A sessions, group working, brain storming, etc.) were	☐
	In case your answer is A, please share your concerns: …… …… ……	

5	The TPM facilities provided by the hosting partner were	☐
	In case your answer is A, please share your concerns: …… …… ……	

6	The TPM agenda was consistent with the project objectives and roadmap	☐
	In case your answer is A, please share your concerns: …… …… ……	

7	The TPM objectives were clearly defined and easy to understand	☐
	In case your answer is A, please share your concerns: …… …… ……	

8	The TPM objectives were clearly defined and easy to understand	☐
	In case your answer is A, please share your concerns: …… …… ……	

9	The partners' opinions were taken into account during the decision-making process, work planning and deadline setting	☐
	In case your answer is A, please share your concerns: …… …… ……	

10	The most important aspects of the TPM were (more than one answer is possible)	☐
	Improved communication	☐
	Better knowing the team	☐
	Exchange of ideas	☐
	Clarification of activities and forthcoming tasks	☐
	European cultural approach	☐

ERASMUS+ PROGRAMME

KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

KA220-HED - COOPERATION PARTNERSHIPS IN HIGHER EDUCATION

Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Project progress monitoring template

Partner No and name: ……	Period: **From: 01.09.2023** **To: 30.11.2024**

I. Project activities implementation

1. Rate your involvement in the project advancement in respect to the following KPIs:

Grading range: A – not involved, D - very much involved

	A	B	C	D
– Local management of project activities	☐	☐	☐	☐
– Overall management of the project	☐	☐	☐	☐
– Internal monitoring of the activities	☐	☐	☐	☐
– Sharing and promoting project results	☐	☐	☐	
☐ Implementation of project activities	☐	☐	☐	☐

Grading range: A – bad, D – excellent

2. Rate the project communication and cooperation:

	A	B	C	D
– Between the project manager and each partner	☐	☐	☐	☐
– Among the partners	☐	☐	☐	☐
– Between the project coordinator and project manager	☐	☐	☐	☐
– Between the project coordinator and BG National Agency	☐	☐	☐	☐

– Please add comments if you consider important

……

3. **Rate the project communication and cooperation by time frame specifying the average time it takes to get answers to your questions within the partnership.**

   - Within the same day ☐
   - After a day . ☐
   - After few days ☐
   - Over 1 week ☐

4. **Rate the overall project communication and cooperation as per Project Communication Plan**

Rating range: A – bad, B – satisfactory, C – good, D – excellent

A	B	C	D
☐	☐	☐	☐

Please list any other communication standards you consider important to be adopted by the partners and make communication better

……
……
……

5. **Rate the partners work together**

Rating range: A – bad, B – satisfactory, C – good, D – excellent

A	B	C	D
☐	☐	☐	☐

If you have chosen answer A or B, comment the main cooperation problems

……
……
……

II. Project achievements

6. Is the project going to achieve the planned final results or midterm results (for ongoing activities).

- Yes, fully ☐
- Yes, but partly ☐
- I doubt ☐
- Not at all ☐

If you have chosen answer 'I doubt' or 'Not at all', indicate how the project management/specific activities might improve to reach the envisaged results.

……
……
……

7. Rate the quality of the achieved results

- Excellent ☐
- Good ☐
- Satisfactory ☐
- Bad ☐

Please explain your rating and indicate recommendations for quality improvement (if needed).

……
……
……

8. **What is the project main result at this stage of its development?**

……
……..
……..

9. **What is the project most useful result at this stage of its development?**

……
……..

10. **Do you foresee any effect of the project on its direct targets and other beneficiaries?**

……
……..
……

III. <u>The project prospects</u>

11. **Do you think project results or good practices will be supported by your organization after its completion? If YES, which elements and how?**

……
……...
……..

12. **Do you plan to continue your collaboration with the other project partners after its completion? If YES, what type of joint activities you envisage?**

……
……..
……..

IV. Conclusion

13. List the strongest elements of the project at that stage of development (at least two points).

………

………

14. List the weakest elements of the project at that stage of development (at least two points).

………

………

15. Rate the following project aspects at its current stage of development:

Grading range: A – bad, D – excellent

	A	B	C	D
– Project objectives clearness	☐	☐	☐	☐
– Quality of the consortium	☐	☐	☐	☐
– Partners' roles distribution	☐	☐	☐	☐
– Partners' performance	☐	☐	☐	☐
– Project roadmap respecting	☐	☐	☐	☐
– Deadlines and timing respecting	☐	☐	☐	☐
– Goals achievement	☐	☐	☐	☐
– Results quality	☐	☐	☐	☐
– Results applicability to target groups	☐	☐	☐	☐
– Results applicability to partner organization	☐	☐	☐	☐
– Results sustainability	☐	☐	☐	☐

ЦЕНТЪР ЗА РАЗВИТИЕ НА ЧОВЕШКИТЕ РЕСУРСИ

DIGI OMICA

Co-funded by the European Union

ERASMUS+ PROGRAMME

KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

KA220-HED - COOPERATION PARTNERSHIPS IN HIGHER EDUCATION

Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Project results internal evaluation template

To be completed by an expert within partners' institutions, a non-member of the project staff.

Results No and name: ………………………………………………………………………………	Partner No and name ………………………………………………………………………………

1. **Level of acceptance**

- Entirely accepted ☐
- Accepted with minor revision ☐
- Accepted with major revision ☐
- Rejected unless modified 9according to the reviewer recommendations ☐

2. **Reviewer recommendations**

- Technical changes to be implemented:
  1. ……
  2. ……
  3. ……

- Missing elements to be included:
  1. ……
  2. ……
  3. ……

- Contextual changes to be implemented:
  1. ……
  2. ……
  3. ……

– Additional improvements required:
  1. ………
  2. ………
  3. ………

3. Comments on technical details

Item	Reviewer comments
General layout in compliance with the 'Instructions to authors'	
Language proficiency (grammar, spelling, etc.)	
Quality of presentation (text, illustrative materials, references section, etc.)	
Individual technical remarks (formatting, general layout etc.)	
Provision of full set of basic data about the individual learning objects (Modules)	

4. Comments on subject-specific details

Item	Reviewer comments
Relevance to the predefined title	
Adequacy to project/program objectives	
Adequacy to the curriculum content concept	
Methodological framework accuracy	
Quality of scientific content	

Date & place

Reviewer: *signature*

ERASMUS+ PROGRAMME

KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

KA220-HED - COOPERATION PARTNERSHIPS IN HIGHER EDUCATION

Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Project results internal evaluation

To be completed by an expert within partners' institutions, a non-member of the project staff.

Results No and name: WP 3, R3 A Catalog of New Forms of Teaching, Learning and Assessment for HE Teachers and R4 Student Toolkit	Partner No and name P2 SOFIA UNIVERSITY

1. Level of acceptance

- Entirely accepted X
- Accepted with minor revision ☐
- Accepted with major revision ☐
- Rejected unless modified according to the reviewer recommendations ☐

2. Reviewer recommendations

- *Technical changes to be implemented:*

  The format in which the guidelines' content is presented (PowerPoint presentations) is appropriate and easy to understand. The design of each result is uniform and facilitates the perceptual experience. The illustrative materials – photos, graphs, and schemes are well-selected and relevant to the content.

- *Missing elements to be included*:

  No essential elements that compromised the content have been identified.

- *Contextual changes to be implemented*:

  The content contextualization is well-handled. The connections between the three PPTs of R3 and the three parts of R4 are smooth and clear.

3. Comments on technical details

Item	Reviewer comments
General layout in compliance with the 'Instructions to authors'	There are no peculiar instructions for the Results' layout. However, as mentioned above, a uniform design is selected to facilitate content comprehension while fitting the general design outline (graphics and colors) accepted by the partners
Language proficiency (grammar, spelling, etc.)	The language (EN and BG) is proficient and clear. Along the fluent language and correct grammar, the subject-specific lexicon is properly used.
Quality of presentation (text, illustrative materials, etc.)	The PPTs are easy to follow, equipped with visuals, schemes, and photos that support comprehension.
Individual technical remarks (formatting, general layout etc.)	The PPTs format is consistent. Titles, subtitles, and sections are uniform in their technical arrangement and design. Overall, the results are technically very well-prepared.
Provision of full set of basic data about the individual learning objects (Modules)	Not applicable

4. Comments on subject-specific details

Item	Reviewer comments
Relevance to the predefined title	R3 and R4 fully fit their titles and intended core elements to be presented.
Adequacy to project/program objectives	Both results support the Digi Omica project goals: – R3 presents a collection of the best pedagogical and ICT-based practices to conduct higher education - modern forms of teaching, learning, and assessment. – R4 comprises a toolkit for students designed to enhance their learning and exam-taking skills.
Adequacy to the results' content concept	The R3 and R4 overall content is in compliance with the project idea to produce instructional guidelines in aid of the HE main players: university teachers and their students.
Methodological framework accuracy	The methodological approaches used in the presentations are appropriate and effective in conveying the relevant content. Although presented in bullet style, the content remains clear and comprehensible.
Quality of scientific content	The scientific content is of high quality. It reflects the state of the art in HE didactics, ICT application, and subject-specific context. The content targets the direct users for whom it is intended.

12.08.2025
Sofia

Evaluator:

Assoc. Prof. Dr. Anna Tomova
Faculty of Biology – SU "St. Kliment Ohridski"

ERASMUS+ PROGRAMME

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Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Project results internal evaluation

To be completed by an expert within partners' institutions, a non-member of the project staff.

Results No and name: WP2, WP3	Partner No and name University of Granada – P4

1. Level of acceptance

– Entirely accepted ☒
– Accepted with minor revision ☐
– Accepted with major revision ☐
– Rejected unless modified according to the reviewer recommendations ☐

2. Reviewer recommendations

– Technical changes to be implemented:

All the technical requirements implemented in the Assignment for web-platform development are met. Thus, the technical background of the e-learning resources is reliable and fully supports the performance of the educational process.

– Missing elements to be included:

No missing elements are encountered. The educational resources in BG, ES, and TR are mirror images of their EN original.

– Contextual changes to be implemented:

The contextual liaison among the various parts of the curriculum is meaningful and well presented. Both the 'omics' and 'environmental' benchmarks are highlighted. Some minor tuning might be possible to further increase the educational content value and ease its perception:

1. Add some links to information related to partner counties' specific issues. This will increase the product's added value at the national level.

2. Some of the terms are quite sophisticated and might be linked to Wikipedia explanations or other encyclopaedia resources. This will help trainees whose basic background is not molecular biology to better understand the learning content and support the idea of a cross-point between ecology and molecular life science in an educational context.

3. Comments on technical details

Item	Reviewer comments
General layout in compliance with the 'Instructions to authors'	The layout fully respects the predefined template for the learning content presentation in an academic style. The sections and subsections organization of the content, equipped with an interactive table of contents, allows for easy navigation and browsing of the educational content.
Language proficiency (grammar, spelling, etc.)	The EN and ES versions of the curriculum are of a high level in terms of fluency, clearness, academic style, and biological lexicon usage. The grammar, spelling, and other technical aspects of the language are also respected. All these suggest a strong editorial quality.
Quality of presentation (text, illustrative materials, references section, etc.)	The main text is well written. It is user-friendly and easily followed. The supportive illustrative materials – flowcharts, diagrams, photos, etc. are well selected and designed. The section

	'References' is representative, well-organized, uniform in presentation, and includes up-to-date knowledge on the subjects discussed in the text.
Individual technical remarks (formatting, general layout etc.)	The content formatting strictly complies with the predefined template. Some minor details, e.g., fonts and spacing in some parts of the text, can be unified. Generally, no serious technical corrections are needed.
Provision of full set of basic data about the individual learning objects (Modules)	The full sets of basic data are provided in the PPT files, assigned to each Module. It is a good author's decision to give information about the educational goals and anticipated learning outcomes. In addition, each learning object in the customized learning pathways is assigned to a defined target group, which makes the students' and tutors' choice of learning material more focused and easier.

4. Comments on subject-specific details

Item	Reviewer comments
Relevance to the predefined title	The learning content is in full compliance with the predetermined title and objective of the relevant Modules. The cross-point of omics technologies and environmental issues is clearly seen.
Adequacy to project/program objectives	The learning content fully complies with the DigiOmica project's general and specific objectives, delivery of knowledge and skills in a defined scientific field through e-educational tools and descriptors.
Adequacy to the curriculum content concept	The learning content complies with the curriculum idea. The academic courses that provide fundamental concepts on advanced omics technologies as a tool to solve environmental issues are further supported by practically oriented approaches and examples for fundamental background application in practical situations.
Methodological framework accuracy	All techniques and methodological approaches, as well as the detailed practical procedures, are explained in a concise manner that enables reproduction.
Quality of scientific content	The scientific content is of high quality. It covers up-to-date knowledge and useful practical implementations. Considering the intensive development of omics technologies and increasing global environmental issues that urge modern problem-solving approaches, the scientific content fully reflects the state of the art on the subject. Furthermore, complex processes are adapted

	throughout their description to be easily comprehended by the target groups.

12.08.2025, Granada

Assist. Prof. Dr.

ЦЕНТЪР ЗА РАЗВИТИЕ НА ЧОВЕШКИТЕ РЕСУРСИ

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KEY ACTION 2: COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES

KA220-HED - COOPERATION PARTNERSHIPS IN HIGHER EDUCATION

Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability

DigiOmica

Project results internal evaluation

To be completed by an expert within partners' institutions, a non-member of the project staff.

Results No and name: WP 3, RESULT 2 DigiOmica curriculum 'Integrated Environmental Omics'	Partner No and name GAZI UNIVERSITY – P5

1. Level of acceptance

- Entirely accepted ☒
- Accepted with minor revision ☐
- Accepted with major revision ☐
- Rejected unless modified according to the reviewer recommendations ☐

2. Reviewer recommendations

- Technical changes to be implemented:
  1. More figures, diagrams, and flowcharts (especially in technically dense modules like transcriptomics, proteomics, and bioinformatics) might be added.

- Missing elements to be included:

All essential components such as measurable learning objectives, evaluation quizzes and guidelines for how to integrate this curriculum to any program are included; no significant missing elements have been identified."

- Contextual changes to be implemented:

The contextualization of the modules is generally well-handled, with clear connections to ecological and environmental challenges. To further enhance relevance and accessibility, a few minor adjustments could be considered:

1. Incorporating examples or case studies from Digi Omica partner countries to increase local applicability.
2. Adding a brief glossary or explanatory footnotes for highly technical terms to support interdisciplinary learners.
3. Highlighting how the presented omics approaches align with broader sustainability goals or EU environmental policies.

3. Comments on technical details

Item	Reviewer comments
General layout in compliance with the 'Instructions to authors'	The layout adheres closely to standard academic guidelines: modules are clearly numbered, include titles such as "Module 1: Genomics," and follow a consistent presentation style across the series. The structure appears aligned with the 'Instructions to Authors' template.
Language proficiency (grammar, spelling, etc.)	The language throughout is proficient and clear, with proper academic tone, fluent English phrasing, and correct spelling. There are no noticeable grammatical errors, suggesting strong editorial quality.
Quality of presentation (text, illustrative materials, references section, etc.)	The text is clear and easy to follow. Some modules have useful visuals and diagrams, but more figures could be added to support understanding. The reference sections are complete and well-organized.
Individual technical remarks (formatting, general layout etc.)	The format is mostly consistent. Titles, subtitles, and sections look similar in each module. Only a few small things can be improved, like the spacing or font size in some parts. But overall, it is well-prepared.
Provision of full set of basic data about the individual learning objects (Modules)	Each module has a title, number, and content. Some also include who prepared it. It would be better if all modules had clear information about learning goals, duration, and target group. This would help teachers use them more easily.

4. Comments on subject-specific details

Item	Reviewer comments
Relevance to the predefined title	The content fits well with the title. Each module clearly shows a connection to environmental omics and related topics.
Adequacy to project/program objectives	The modules support the Digi Omica project goals, like promoting digital education and improving knowledge in environmental science using omics tools.
Adequacy to the curriculum content concept	The overall content matches the curriculum idea. The modules are well-structured and give a good mix of theory and real-world examples.
Methodological framework accuracy	The methods used in the modules are explained in a clear and correct way. Scientific techniques like DNA sequencing, transcriptomics, and data analysis are well described.
Quality of scientific content	The scientific content is high quality. It includes up-to-date knowledge and useful case studies. Some complex parts are well simplified for target groups.

29.07.2025, ANKARA

Assist. Prof. Dr. Pelin FİDANOĞLU YILDIRIM

11.2 Annex 2 External evaluation- expert opinion

GIS - TransferCenter Foundation

in cooperation with

Steinbeis Stiftung-Stuttgart

Competitive technology transfer *of Research Products, Know-how, Consultancy, Expertise*

EXTERNAL EVALUATION

Expert opinion on the results of
ERASMUS+ project 'Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability – DigiOmica'

1. **Objective**

   The objective of this expert opinion is to evaluate the DigiOmica project's achievements from the viewpoint of technical, design, and content consistency, as well as compliance with the qualitative and quantitative KPIs stipulated in the project. It also intends to evaluate the project's impact on HE practices and the internationalization of e-educational approaches.

2. **General overview**

   The project Cooperation Partnership for Digital Higher Education in Integrated Omics for Environmental Sustainability - DigiOmica is developed within the program ERASMUS+, KA220-HED - Cooperation partnerships in higher education. It addresses the program priority for digital transformation through digital readiness, resilience, and capacity development. The project aims at creating an innovative HE curriculum, dedicated to approaching environmental issues with advanced omics technologies, and exploiting the Information and communication technologies (ICT) tools. The educational resources are developed in compliance with the

European EQF/NQF strategic system for the performance of the education process. Hence, the project leads to improvements and new approaches of HE at the individual, organizational, and sectoral levels.

The DigiOmica project not only addresses its partners' mutual needs and priorities of HE. It facilitates connections to job opportunities through the provision of a user-oriented e-educational process and resources in educational and work contexts.

3. DigiOmica results

The project has developed its essential results and related deliverables during its Implementation phase (months 4-18; WPs 2 & 3). The usability of these results has been tested and approved during the project follow-up phase (months 19-24; WP 4). The results, the object of this expert opinion, are the DigiOmica digital platform (WP2 R1-R4) and DigiOmica collaborative learning (WP3 R1-R4). Additionally, the results related to WP4 and WP5 are briefly commented on from the viewpoint of their importance for closing the loop of results usability and popularization.

3.1 DigiOmica digital platform (WP2, R1-R4)

The digital platform is accessible from https://digi-omica.eu/. It is designed, established, and operated in four languages (Bulgarian, English, Spanish, and Turkish) in compliance with the project consortium instructions. The monitoring of platform functioning and its maintenance is performed by the website developers.

Technical aspects

The layout and structuring (basic view, colour palette, and design) comprise all the obligatory elements required by the project partners (logos, disclaimer text, etc.). The technical characteristics and functionalities – navigation, shifting among different menus, submenus, and languages, information downloading, and searching by keyword/phrase options are well organized and operating.

CMS

The Content Management System (CMS) is WordPress. WordPress offers design and editing tools, extensibility, and performance that guarantee the security and reliability of the website information. It is well known for its flexibility and fits the specific educational requirements of the project. Hence, the choice of this CMS is the right one.

The general presentation panel

This panel provides basic information about the project and allows access (through the main menus/submenus) to all its results.

The digital hub ‘OMICS e-Learning’

The hub comprises four interrelated in content and methodology panels (Guided knowledge, Virtual workbench, Learning assessment, and OMICS index). They are structured in accordance with WP3, R1 (DigiOmica DBE Scheme), as collaborative learning tools for communication, presentation, and assessment of the DigiOmica learning process and its results. The OMICS e-Learning hosts all the elements that allow practical operation of the DBE Scheme.

3.2. DigiOmica DBE scheme (WP3, R1)

A model offering exemplary collaborative learning arrangements in a digital environment, structured on the European descriptors of HE – Learning Outcomes and Units of Learning Outcome, Customized Learning Pathways, EQF Reference levels, and ECTS credit points. The model is well-designed. It allows flexibility of rearrangement of learning objects and covers the HE routes from choosing learning content to certification of the gained competence.

3.3 Curriculum ‘Integrated Environmental Omics’ (WP3, R2-R4)

This is the core result of the project. It comprises several essential elements, logically unified to match the project objective and satisfy the global needs of digital education readiness of academic professionals and students. These elements are:

1. <u>A set of 11 educational objects (Modules)</u> distributed in two parts (Academic Courses - Guided knowledge and Case Studies - Virtual workbench). They are offered as i) individual e-learning courses, ii) as a book ‘Integrated Environmental Omics’, or iii) in purposefully assembled Customized Learning Pathways (CLPs). The CLPs offer predefined chains of learning objects assigned to different target groups. They are also equipped with the relevant learning objectives, educational goals, anticipated learning outcomes, and PowerPoint presentations on their core content. This approach not only puts the DBE Scheme in practical operation. It emphasizes flexibility, multilingualism, and end-users’ orientation of the educational resources.
2. <u>A toolbox for HE practitioners: tutors and students</u>. These are well-designed guidelines (HE Teachers’ Catalogue and Students’ Toolkit) comprising modern approaches and practices of HE in teaching, learning, and assessment assigned to the two parties of the HE processes, the university teachers and their students. These guidelines are written in a user-friendly PowerPoint format and comprise essential didactic tips on modern approaches for teaching and assessing new knowledge in a

comprehensive and concise form. They also instruct how to learn and demonstrate new knowledge through exam-taking.

3. Guidance methods and components for the arrangement of the DigiOmica education process and instructions for using the OMICS e-Learning hub (the OMICS Index). This element of the curriculum package is essential for the proper implementation of the DBE Scheme and exploitation of e-educational resources. The OMICS index is a handbook that facilitates OMICS e-Learning operations. It is written in a user-friendly manner and serves both tutors and students. The multilingual presentation of the guidelines contributes to their usability.

3.4 Piloting of project results – testing their usability.

A series of testing events has been performed by the partners aiming at checking results' usability. The events were organized and coordinated following the results' piloting strategy and its relevant tools (WP4, R1 & R2). Upon events' completion, the consortium has elaborated partner-specific reports with all details regarding results' usability checking (WP4, R3). The coordinator has produced the Results Usability Review, which discusses the testing events' performance, the production in due time and quality of the anticipated results, and the satisfaction with the impact and outcomes of the digital platform, educational content, and guiding tools (WP4, R4). All these activities allow refinement and improvement of the results.

3.5 Results sharing and promotion

The results' communication, dissemination, and sharing with their end-users are considered by the partners to be an essential part of the project advancement. Similar to the follow-up WP4, the results envisaged in WP5 comprise production of a Sharing and promoting results strategy and selection of the appropriate tools for its implementation (WP5 R1 & R2). A comprehensive set of promotional tools – both electronic and as hand-outs has been produced (brochures, flyers, leaflets, placards, a QR Code, promotional bookmark, bags, calendars). All of the tools are multilingual. These tools were distributed throughout the project duration and used for promotional purposes. Upon project completion, sharing and promoting results analysis at the country level was arranged, and a Sharing and promoting results review was issued by the coordinator that summarizes the project idea to share and promote the tangible and

3.5 Results sharing and promotion

The results' communication, dissemination, and sharing with their end-users are considered by the partners to be an essential part of the project advancement. Similar to the follow-up WP4, the results envisaged in WP5 comprise production of a Sharing and promoting results strategy and selection of the appropriate tools for its implementation (WP5 R1 & R2). A comprehensive set of promotional tools – both electronic and as hand-outs has been produced (brochures, flyers, leaflets, placards, a QR Code, promotional bookmark, bags, calendars). All of the tools are multilingual. These tools were distributed throughout the project duration and used for promotional purposes. Upon project completion, sharing and promoting results analysis at the country level was arranged, and a Sharing and promoting results review was issued by the coordinator that summarizes the project idea to share and promote the tangible and intangible results, relevant to the different project phases, through the performance of dedicated activities (WP5, R4 &R5).

The results associated with WP4 and WP5 are multifaceted and comprise an exemplary procedure whose stages and materials must be followed for a comprehensive project popularization and approbation of its achievement.

4. Recommendations

- Some minor typos and grammar mistakes should be corrected.
- Although the information in the Bulgarian, Spanish, and Turkish languages is a mirror of the English original, some texts in the national-language versions are still in English.
- It would be nice to have a real educational process, organized after project completion. The partners have to think about implementing the DBE scheme in their future HE initiatives.

5. Conclusions

Being a researcher and tutor working on the amalgamation of science, education, and their application aspects, I estimate the DigiOmica project idea as fascinating and its implementation as a successful step towards making HE more attractive, modern, and useful for university teachers and their students. The generated educational resources are especially valuable in the context of the current digital times and the advancement of molecular life science.

30.07.2025
Sofia

Prof. Dr.-Eng. Kostadin Kostadinov
Chairman of the Managing Board of
GIS-Transfer Center Foundation, Bulgaria

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.