Fields marked with * are mandatory.

TALLHEDA - Shaping the Future of Digital Agriculture Education: A Questionnaire for Higher Education Institutions

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Purpose of the Questionnaire

This questionnaire **is addressed to Faculty of Higher Education Institutions (HEIs)**. It is designed to gather comprehensive insights into the current state and future needs of Digital Agriculture (DA) education within HEIs. The aim is to identify key areas requiring reform, enhancement, or support to ensure that DA education aligns with the latest advancements and industry demands. The findings will inform strategic planning and initiatives to foster a culture of excellence in DA education, benefiting students, educators, and the broader agricultural sector. Your participation is crucial in shaping the future of DA education and ensuring its relevance and impact in addressing global agricultural challenges.

Project Overview

The TALLHEDA project aims to enhance Digital Agriculture (DA) education and research, especially in countries needing more support. This initiative plans to bring together Higer Education Institutions (HEIs) and various stakeholders to form a powerful alliance focused on DA.

The main goal is to support students, researchers, and faculty members by providing them with access to educational materials, good practices, mentoring, opportunities for collaboration, and activities that boost learning and research. TALLHEDA seeks to prepare a new generation of highly skilled professionals in digital agriculture, ensuring they're ready to

contribute to Europe's agricultural sector's digital transformation.

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* Confidentiality & Data Usage

- ☐ I wish to participate in the TALLHEDA Questionnaire: **"Shaping the Future of Digital Agriculture Education: A Questionnaire for Higher Education Institutions"**.
- ☐ I am aware of my rights; I have been given the contact details of the responsible persons and I consent to the processing of my personal data for the purpose and under the conditions explained in the attached file below.

Legal Information

[legal-disclaimer.pdf](#)

Estimated Completion Time

Thank you for taking the time to contribute to this important initiative. Completing this questionnaire is expected to take approximately **20** minutes. Your detailed responses are invaluable to us in understanding and shaping the future of Digital Agriculture education and research. We appreciate your willingness to share your insights and expertise.

II. Current Perceptions and Challenges

A. Perceptions about Digital Agriculture (DA)

Do you believe that DA has a potential impact on reinforcing or enhancing your courses? Please rate on a scale from 1 to 5.

1 = Very Low Impact
2 = Low Impact
3 = Moderate Impact
4 = High Impact
5 = Very High Impact

[   ]

B. Integration of Digital Agriculture (DA) Topics

Please select all that apply:

	1. Which of the following DA topics have you **already incorporated** into your teaching? (Please select all that apply)	2. Which of the following DA topics **would you like to incorporate** more into your teaching in the future? (Please select all that apply)	3. Have you directly **participated in any research projects** or initiatives related to the following DA topics? (Please select all that apply)	4. Which of the following DA topics do you believe are **most in need of** development or support at your HEI? (Please select **up to three**)
a) Data analytics, big data and Artificial Intelligence in agriculture	☐	☐	☐	☐
b) Use of drones and remote sensing for crop monitoring	☐	☐	☐	☐
c) Agricultural robotics and automation	☐	☐	☐	☐
d) Sustainable farming practices and technologies	☐	☐	☐	☐

e) Crop modeling and simulation, including Digital Twins	☐	☐	☐	☐
f) Blockchain for supply chain transparency and management	☐	☐	☐	☐
g) Internet of Things (IoT) applications in agriculture	☐	☐	☐	☐
h) Genomics and bioinformatics in crop improvement	☐	☐	☐	☐
i) Soil health and nutrient management (e.g. by means of soil sensors, Variable Rate Technology, etc.)	☐	☐	☐	☐

j) Water resource management in agriculture (e.g., by means of smart irrigation controllers, Variable Rate Irrigation, etc.)	☐	☐	☐	☐
k) Precision agriculture and smart farming technologies	☐	☐	☐	☐
l) Other (Please specify)	☐	☐	☐	☐

l) Other (Please specify):

l) Other (Please specify):

l) Other (Please specify):

l) Other (Please specify):

C. Course/Curriculum Update

How recently have you reformed or updated the content of your courses to introduce or modify existing topics (e.g., updated slides, discussion topics, case studies)?

	a) Within the last year	b) 2 years ago	c) 3 - 5 years ago	d) More than 5 years ago	e) I have not made any changes to my course content
1. New topics (not necessarily in relation to DA)	○	○	○	○	○
2. New DA topics	○	○	○	○	○

To what extent do you feel comfortable integrating DA topics into your courses? Please rate your comfort level on a scale from 1 to 5.

1 = Not at all comfortable
2 = Slightly comfortable
3 = Moderately comfortable
4 = Comfortable
5 = Very comfortable

☐

D. Programme Integration

On a scale from 1 to 5, how do you rate the integration of DA topics across your Bachelor or Master's programme?

1 = Poor
2 = Fair
3 = Good
4 = Very Good
5 = Excellent

☐

In your opinion, to what extent does your Bachelor or Master's programme align with the latest technological developments in the field of DA? Please rate on a scale from 1 to 5.

1 = Absolutely lagging behind
2 = Significantly lagging behind
3 = Moderately up-to-date
4 = Fairly up-to-date
5 = Perfectly up-to-date

E. Research Capacity in Digital Agriculture (DA)

To what extent do you agree with the following statement: 'My HEI has a sufficient number of research initiatives and projects related to DA.' Please rate your agreement on a scale from 1 to 5.

1 = Strongly Disagree
2 = Disagree
3 = Undecided
4 = Agree
5 = Strongly Agree

F. Resources for Digital Agriculture (DA)

Evaluate the adequacy of the following resources for DA at your HEI from 'Very Poor' to 'Excellent'.

	Very Poor	Poor	Fair	Good	Excellent
Educational Materials and Curriculum Resources: Textbooks, online courses, and other teaching materials specifically related to DA.	○	○	○	○	○
Technological Tools and Software: Access to DA-related software, platforms, and digital tools (e.g.,					

precision agriculture tools, blockchain platforms, simulation software for digital twins).	⊙	⊙	⊙	⊙	⊙
Laboratory and Field Equipment: Availability of modern laboratory equipment and field instruments for DA research and teaching.	⊙	⊙	⊙	⊙	⊙
Internet and Computing Infrastructure: Quality of internet access and availability of computing resources necessary for DA studies and research (e.g., high-performance computing for data analysis).	⊙	⊙	⊙	⊙	⊙
Faculty Expertise and Support Staff: Presence of faculty and staff with expertise in DA and their availability to support student learning and research.	⊙	⊙	⊙	⊙	⊙
Funding for DA Projects: Availability of financial resources and grants specifically allocated for DA research and development projects.	⊙	⊙	⊙	⊙	⊙
Collaboration Opportunities: Opportunities for students and faculty to engage in collaborative projects with industry, government, or other academic institutions in the field of DA.	⊙	⊙	⊙	⊙	⊙
Library and Research Databases: Access to specialized libraries and research databases relevant to DA.	⊙	⊙	⊙	⊙	⊙
Training and Professional Development Programs: Availability of workshops, seminars, and other professional development programs for students and faculty in DA.	⊙	⊙	⊙	⊙	⊙

Innovation and Entrepreneurship Support: Resources and support for innovation, including incubators, accelerators, and entrepreneurship programs focused on DA.	○	○	○	○	○

G. Quality

Based on your experiences and observations, how do you believe the quality of teaching and research in DA at your HEI compares to that of other well-recognized HEIs?

1 = Much lower quality
2 = Moderately lower quality
3 = Same quality
4 = Moderately higher quality
5 = Much higher quality

H. Collaboration

How would you rate the level of interdisciplinary approach and collaboration in DA education? Please rate from 'Not at all' to 'Very much'.

	Not at all	Little	Average	Much	Very much
You interact with teaching staff who focus more on digital technologies in the context of DA.	○	○	○	○	○
You interact with other research laboratories or departments within your HEI for DA-related research projects.	○	○	○	○	○
You invite or collaborate with external experts in your DA courses, such as industry professionals, researchers from other institutions, etc.	○	○	○	○	○

Your HEI engages in collaboration with other HEIs and international partners specifically in the context of DA.	◉	◉	◉	◉	◉
Your HEI interacts with industry in terms of DA education.	◉	◉	◉	◉	◉

I. Student Engagement

Do your students seem to have an interest in acquiring knowledge focusing on DA techniques and technologies? Please rate from 1 to 5.

1 = Not at all
2 = Only a little
3 = To some extent
4 = Rather much
5 = Very much

Do your students have opportunities to engage in real-world projects or internships with industry partners in relation to DA? Please rate from 1 to 5.

1 = Not at all
2 = Only a little
3 = To some extent
4 = Rather much
5 = Very much

J. Integration Challenges and Reform Needs

From an educational and pedagogical point of view, which of the following do you consider the most significant challenges in integrating DA into the curriculum?

	Please select **up to three challenges** that you find most impactful.
a) Developing relevant and up-to-date DA course content	☐

b) Incorporating practical DA experiences and labs	☐
c) Finding appropriate educational resources and materials	☐
d) Engaging students in DA topics	☐
e) Adapting to rapidly changing DA technologies and methods	☐
f) Integrating DA with existing curricular frameworks and standards	☐
g) Ensuring access to and familiarity with necessary technological tools among staff and students	☐
h) Developing case studies from our country and the international environment	☐
i) Other (Please specify)	☐

i) Other (Please specify):

From your viewpoint, what are the most pressing reform needs in DA education that your HEI should prioritize? Please consider aspects such as curriculum development, faculty training, technological infrastructure, student engagement, industry collaboration, research collaboration, and institutional endorsement.

III. Approaches for Addressing the Integration Challenges

Which capacity-building activities would most effectively address DA education and research needs at your HEI? Please select all that apply and feel free to elaborate or suggest additional activities in 'Other'.

☐ a) Specialized DA **workshops** focused on emerging technologies and practices

☐ b) Cross-disciplinary DA **seminars** for sharing knowledge across departments

☐ c) **Faculty development programs** in DA, including pedagogical strategies and research methods

☐

d) **Student-led** DA projects and competitions to encourage practical learning and innovation

☐ e) **Industry partnerships** for hands-on training and real-world DA experience

☐ f) International **collaborations** with other HEIs and research centers for DA

☐ g) Online DA **courses** and **webinars** for flexible learning options

☐ h) Access to DA **research grants** and **funding opportunities** for faculty and students

☐ i) Development of a DA **resource center** or **innovation hub** for faculty and students

☐ j) Other (Please specify)

j) Other (Please specify):

Considering the incorporation of DA into your courses, which types of support from your HEI would be most valuable to you in feeling confident and successful? Please select all the areas where enhanced support could significantly help overcome DA-related challenges.

☐ a) Mentoring for DA **course/curriculum development**

☐ b) Support for attracting **financial resources** and increased **funding** for DA projects

☐ c) Development of appropriate **institutional policies** and **administrative support** for DA initiatives

☐ d) Opportunities for **interdisciplinary** and **inter-departmental collaboration** in DA initiatives and projects

☐ e) Enhanced access to DA educational **resources**

☐ f) Enhanced access to DA **technologies**, **infrastructure**, **software** and **digital platforms**

☐ g) Enhanced **collaboration** with agri-food industry, business, and external organizations (e.g., access to practical insights, case studies, and cutting-edge technologies through partnerships)

☐ h) Allocated time for **professional development** and **training** in DA

☐ i) Development of an **institutional culture** for DA innovation and experimentation

☐ j) **Resources** and **support** for enhancing student engagement and hands-on experiences in DA (e.g., summer schools)

☐ k) Teaching **assistants** and technical **support**

☐ l) Other (Please specify)

l) Other (Please specify):

Which do you consider as the most important strategies for establishing a Culture of Excellence in DA within your HEI? Please select the key areas you believe are crucial and feel free to elaborate on your choices or suggest any additional strategies not listed.

- ☐ a) **Leadership and Vision**: Strong, visionary leadership that guides and inspires the entire institution.
- ☐ b) **Quality in Education**: High standards of teaching and learning that foster academic excellence.
- ☐ c) **Research and Innovation**: A robust commitment to cutting-edge research and innovative practices.
- ☐ d) **Student Engagement and Development**: Active efforts to engage students in their own learning and development processes.
- ☐ e) **Infrastructure and Resources**: Adequate physical and digital infrastructure to support educational and research activities.
- ☐ f) **Community and Institutional Culture**: A supportive and inclusive community that values collaboration and diversity.
- ☐ g) **Continuous Improvement**: An ongoing commitment to evaluating and enhancing institutional practices.
- ☐ h) **Global Engagement**: Engagement with global challenges and opportunities through international collaboration and understanding.
- ☐ i) Other (Please specify)

i) Other (Please specify):

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In which aspects could your HEI benefit the most from the know-how and expertise of other HEIs, especially more advanced HEIs, in DA? Please select all that apply and feel free to elaborate.

- ☐ a) Curriculum development and course design
- ☐ b) Research and innovation methodologies
- ☐ c) Technology transfer and commercialization
- ☐ d) Engagement and partnership models with the industry
- ☐ e) Digital agricultural practices with emphasis on sustainability
- ☐ f) Other (Please specify)

f) Other (Please specify):

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On a scale from 1 to 5, how impactful do you believe establishing a DA Innovation Hub or Community of Practice, involving HEIs, local farmers, agribusinesses, community organizations, and policy makers would be in overcoming DA barriers at your HEI?"

1 = Low Impact
2 = Somewhat Low Impact
3 = Moderate Impact
4 = High Impact
5 = Very High Impact

Considering technology adoption and infrastructure enhancement, please rate the importance of:

- **Infrastructure enhancements (laboratories, computing resources, field equipment), for advancing DA at your HEI from 1 to 5.**

1 = Not Important
2 = Slightly Important
3 = Important
4 = Fairly Important
5 = Crucial

- **Federating HEI infrastructures and facilitating open access, for advancing DA at your HEI from 1 to 5.**

1 = Not Important
2 = Slightly Important
3 = Important
4 = Fairly Important
5 = Crucial

IV. General Information of the Respondents

In which country is your Higher Education Institution (HEI) established? Please choose from the list:

○ Belgium

○ Greece

○ Serbia

○ Other (Please specify)

Other (Please specify):

[   ]

* What is the name of your HEI?

[   ]

* What is the name of your Faculty or Department?

[   ]

What is your current position at the HEI?

○ Professor

○ Associate Professor

○ Assistant Professor

○ Lecturer

○ Teaching Assistant

○ Other (Please specify)

Other (Please specify):

[   ]

How many years have you been teaching?

[   ]

Which specific subjects (courses) do you currently teach? Please list the titles of your courses.

[   ]

What types of courses do you teach? Please select all that apply.

☐ Theory

☐ Practice/Fieldwork/Laboratory

☐ Undergraduate

☐ Postgraduate

What is your age group?

○ less than 24 years old

○ 25 - 34 years old

○ 35 - 44 years old

○ 45 - 54 years old

○ 55 - 64 years old

○ 65 years or older

What is your gender?

○ Male

○ Female

○ Prefer not to answer

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