



# Virtual Lab Questionnaire

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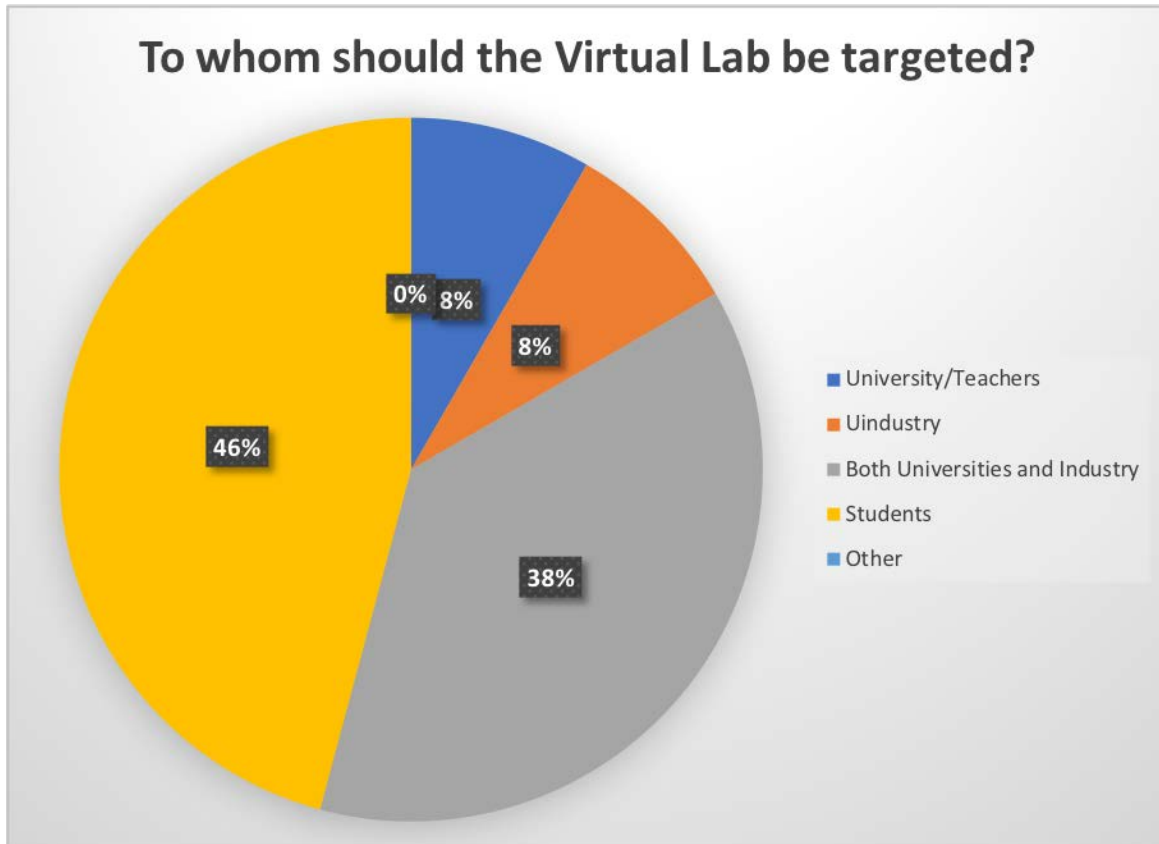
A questionnaire was given in electronic form to all participants involved in the creation of the Virtual Lab to acquire insights on the possible development strategies to be used.

The questionnaire was collected, and the responses were analysed and recorded in this document

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**Fig. 1** – Distribution of the responses (%) for Question 1 ‘To whom should the Virtual Lab be targeted’

### Question n. 1 - To whom should the Virtual Lab be Targeted?

Responses indicated through a multiple choice of different answers, that the majority of respondents would target the Virtual Lab in the SPAAT4Food project towards Students (46%) and University and Industry (38%).



## Question n.2 - What do you think a “Virtual Laboratory” has to provide to an academic/teacher?

### Summary

The VL should be a tool to:

- facilitate the communication and synergy between the teachers
- Provide support in teaching with training and teaching materials in various topics as well as virtual tools for students training.
- Facilitate the assessment of the students’ work

### Individual responses

- Facilitating communication and synergy between teachers,
- New features in teaching methodology and skills adjusted to each subject area,
- Improve the access to high technology performances.
- substitute or supplement to the traditional laboratories.
- that user can easily build up their knowledge and improve fundamental concepts with practical work.
- modelling manufacturing processes and their control through Programmable Logic Controllers (PLC). Teaching these subjects require intensive use of laboratories with dedicated equipment and software which is a big problem for the teacher when the course has more than one hundred students and the university policy is not to spend too many resources in teaching labs. For that a virtual laboratory can improve students learning.
- virtual lab could be the optimum learning context when the real-world contains dangerous learning experience that require training in the beginning
- it is an effective method to extend the time and the possibility of doing experiments beyond limited time learning sessions in university.
- students can download laboratory works and view video presentations in their home,
- long-term experiences can be easily tracked and understood in these laboratories in a few minutes;
- student homework is motivating, fun and insight building,
- opportunities for independent exploration for highly motivated students.
- Also, the teacher can perform instant assessments and the students could have score immediately.
- see how changing some parameters influence different process and operations.



- oriented on the forming of quantifiable skills important for the employers and using practical student-oriented learning methods - learning by doing, problem based learning, applied research.
- the assessment of student achievement for grading with focus on documenting the skills achieved and the building of a portfolio and CV - this should can be used by the Professional Insertion Unit(PIU)

### Question n. 3 What do you think a “Virtual Laboratory” has to provide to an industry/company/business organisation?

#### Summary

The VL should be a tool to:

- Empowering professionals to build knowledge and skills around research-based practices
- Exchange of information (e.g. availability of internships)
- Facilitate the interaction between university and industry and knowledge transfer
- Share their knowledge for students training

#### Individual responses

- Solving specific technological problems,
- Identification of university’s technological and human resources (expertise sans skills) by the industrials, which will allow effective collaboration.
- Empowering professionals to build knowledge and skills around research-based practices
- *Virtual Lab could be a new approach to professional development and learning incorporates practice-based coaching which can help Industry staff to improve products.*
- *the virtual lab could be a platform to exchange informations between food professionals and researchers and therefore facilitate collaboration.*
- Flexible and scalable, VL is designed to process and analyse data from food science and technology sector. It provides high-resolution, automated updating, and analytical tools.
- The outputs from VL analytical tools can be used in sustainability assessments, reports and publications.
- facilitate the contact with the students and with the academic process from the business point of view.
- Participants from industry could offer educational materials or tutorials and they can use courses. In this way, the business organisations can imply directly in the educational process.





- opportunity to make available practical demonstrations in video format for example.
- food industries could test different formulations and give responses to questions that customers frequently ask about topics
- easy and comprehensive access to the practical and quantifiable competencies/skills that are formed
- the possibilities to propose knowledge, competencies, skills that are of interest
- the possibility to propose practical themes that are of interest that can be used as starting point for the educational activities in the environment
- the possibility to propose themed internships and select candidates based on portfolios (to be integrated with PUI)
- the possibility to post job position and select candidates for interview based on portfolios (to be integrated with PUI)
- Collaborative remote supervision in manufacturing
- Announcement board for students, potential jobs and their expectation
- Skill level assessment of students

#### Question n. 4 What has to be made available? (e.g. educational materials, best practices, ppt, e-learning modules, ...) in the virtual lab?

##### Summary

The VL should contain:

- E-training tools (videos, ppt, etc..), self-evaluation tools, for students
- Training materials for teachers
- Database of projects opportunities (for all)
- Forums (for all)

##### Individual responses

- Practical exercises with introduction of the principle of the analytical technique applied
- *research based practices*
- *videos*
- *reflective questions and answers to some professional problems*
- *downloadable activities and resources*



- **it should be equipped with high-speed internet connection while using a huge variety of web-based learning applications, simulations and visualizations of various food processing operations.**
- The Interactive Library : This site is a list of links to interactive biology sites. Some Java applets are standalone and some come with lesson plans and notes
- educational materials, best practices, ppt, e-learning modules.
- e-lecture materials for typical courses taught at undergraduate and postgraduate levels. Animated graphics are provided to enhance learning of new concepts.
- Information on possibilities of getting funds for: students grants, research grants, grants specific for Industry...
- Forum: questions, discussions, opinions, photos
- Connection with the PIU
- self evaluation
- best practice guides as a starting point in problem based learning
- case studies as a starting point in problem based learning
- tutorials for specific techniques and procedures
- webinars and podcasts
- The lab sets & equipments
- Computer devices
- Communication network & the related hardware
- The Programs of the Virtual Lab
- Co-operation Programs & Management

**Question n. 5 The SPAAT4FOOD Virtual lab will be implemented starting from the materials that each partner university will made available. What you/your university can made available to be used for this purpose? Please specify the type (e.g. Presentations, documents, papers, guidelines, modules, ...) and the language (French, Arabic, English, ...)**

- Physico-chemical analysis equipments as gas chromatography and liquid chromatography supplied with different detectors for practical demonstration (Rim Chaouachi, University of Manouba).





- ppt presentations, documents online, video, reflective questions and answer (quiz) and downloadable activities and resources (Mohamed Trigui, Sfax Preparatory Engineering Institute)
- Some presentations of Food Science and Technology courses (French), Publications related to Food Science and Technology (English) (Rafik Balti, University Of Jendouba)
- I can make webinars of my expertise, or ask colleagues – Tunisian partners should send some suggestions. (Cristina Silva, University Of Porto)
- educational materials (Materials on different topics: edible films, development of new foods, starch hydrolysis, in English, with questions), and a library with different books and papers in English, as links or discharged (Monica Mironescu, University of Sibiu)
- Our university can made available presentations, documents, modules and free scientific applications in French or in English (Mohamed Ali Bouaziz, Univesity of Gabes)
- Courses and lab experiments related to food science in French, Documents and papers in French and/or English (Yosra Menchari, Univesity of Jendouba)
- Presentations, courses, scientific articles in English (Ecaterina Lengyel, University of Sibiu)
- Papers, documents, articles in English (Cecilia Georgescu, University of Sibiu)
- e-courses in the desired format in English and filmed tutorials for: (Ion Mironescu, University of Sibiu)
  - Computer Aided Design using Google Sketch-up – BSc, BE
  - enterprise information systems (Enterprise Resource Planning ) BSc, BE
  - modelling and simulation with Petri Nets MSc,ME

## Additional Comments

1. *Congratulation for the SPAAT4FOOD team for the organization of the training at the University of Teramo*
2. The virtual laboratory of SPAAT4FOOD project should offers a set of remote laboratories, virtual experiments, and data-sets (together referred to as “online labs”) and facilities teachers to embed these online labs in pedagogically structured learning spaces. This environment will:
  - a. Allow teachers to create specific learning spaces;
  - b. Provide access to resources supporting the development of realistic and engaging classroom activities;
  - c. Facilitate networking and exchanging these activities through an online community.





- 3.** Project resources come from large scientific organisations, universities and research institutions, as well as from dedicated companies. Project offers these lab-owners to easily plug their real experiments online and construct their virtual didactic counterparts.
- 4.** **It is very important that European partners help us on the implementation of this interface based in their experiences especially those ISEKI Food.**
- 5.** It is crucial that partners from Tunisia help us on identifying specific needs – in order that the right stakeholders are reached with the best information.
- 6.** In my opinion, the institutions must be engaged to have their own scientific simulation applications (free applications for example Labster/google ) or to have regular subscriptions (free or paid) or paid licenses giving them access to other virtual laboratories. Also teachers must be competent to use this new technology and must prove their commitment to convert their courses or practical works into virtual mode.
- 7.** By adding to much courses the lab will become a regular classroom. Material should be in an attractive form for the students and the targeted people. If are targeted to regular persons (workers in the plant) with no specific background will be very difficult for them to follow and use very elaborate materials. I think a questionnaire for the targeted persons will be very helpful in choosing the best fitted materials.
- 8.** We need the virtual laboratory as soon as possible
- 9.** I recommend a dialogue section between those interested and a blogger
- 10.** A virtual laboratory can include an enormous amount of possibilities. On my opinion Tunisian partners shall identify what can be of more interest for their needs – once the Virtual Laboratory can not include all. Some suggestions:
  - a. links to several sources of teaching information – e.g. <https://db.iseki-food.net/digital-library/output> (of interest to teachers, students and industry)
  - b. monthly newsletter with information about courses (in Tunisia and abroad), webinars, conferences, etc.
  - c. platform for a Tunisian and North Africa e-journal
  - d. mainly entrance to other sources of information
  - e. perhaps include a forum, that can be subscribed and where questions can be made and answered. People answering can be evaluated and participants get an award of contribution to the platform

