**"Advanced Digital Skills on Blockchain for Trusted Food Supply Chains"**

*Project: 101100804 — TRUSTFOOD*
*DIGITAL-2022-TRAINING-02-SHORT-COURSES*

# Deliverable: 3.1
# Probing Trainees

## Work Package 3
## Responsible Partner: INSME

## D3.1: Probing Trainees

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| Dissemination Level | | |
|---|---|---|
| **PU** | **Public** | **X** |
| **PP** | **Restricted to other programme participants (including the EC Services)** | |
| **RE** | **Restricted to a group specified by the consortium (including the EC Services)** | |
| **CO** | **Confidential, only for members of the consortium (including the EC)** | |

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# Table of Contents

# Abbreviations

| | |
|---|---|
| IoT | Internet of Things |
| NFT | Non-fungible token |
| C++ | C Object-Oriented Programming Language |
| DIAM | Decentralized identity and access management |
| MRV | Measurement, report, and verification |
| BEP | Building energy performance |
| LCA | Life cycle assessment |
| CIO | Chief information officer |
| DTO | Digital transformation officer |

# List of tables

# List of figures

# Executive Summary

This report is one of the Deliverables of TRUSTFOOD, an EU-funded project aiming to promote Blockchain technology in the food supply chain sector. The main objective is the trainee's engagement in the design and production of the TRUSTFOOD projects' Learning Ecosystem through the creation of 140 courses in 7 languages (20 courses in English to be translated into 5 languages) to support the development of advanced digital skills of people in the labour force, with a focus on SMEs, and students in the agricultural industry. Deliverable 3.1 is the first outcome of WP3: "TRUSTFOOD Learning Ecosystem", as part of Task 3.1: "Probing Trainees", which focuses on engaging the trainees in the design and production of the TRUSTFOOD learning ecosystem. To do so, TRUSTFOOD partners proposed to the attendants an online survey to define the level of familiarisation and interest in Blockchain technologies. The survey will serve as a tool to develop courses based on the preferences and expectations provided by the questionnaire.

The methods used to assess the deliverable have been employed by assessing the needs of agrifood SMEs employed. The questionnaires have been created through a deep analysis of existing course requirements, content, skills and topics of Blockchain, which have been inserted in the survey to check the level of interest and familiarization with the attendant. Consultations with Blockchain experts and analysis of professionals and non-professional levels of education have been made through online research.

The key findings revealed that respondents primarily understood the basic definitions of Blockchain technology, smart contracts, food processes, and its integration with IoT technology. However, they lacked knowledge about the efficiency of Blockchain in providing access to information. Despite this, when it comes to specific skill demands, respondents rated these skills as crucial. Their selection of specific skills, however, appeared to be driven by their interests, namely in traceability, the environmental impact of Blockchain, IoT telemetry, and legal framework. Regarding the specific demands on Blockchain courses, the survey finds that less than 15% of respondents attended a course; however, there is great interest in pursuing this experience. On one side, there is the need to acquire knowledge due to the requirements of their job, on the other side they are somewhat satisfied with the existing courses. This suggests a potential demand for courses tailored to meet specific respondent expectations. The demographic most keen on Blockchain courses hails from Italy, Ukraine, and Lithuania. They are predominantly male, under the age of 44, and work in micro or small enterprises within the information and communication technology sector.

# 1.    Introduction

## 1.1    TRUSTFOOD project

TRUSTFOOD project will design and implement Blockchain courses, tailored to re-skill and up-skill employees and job seekers in the agri-food sector. The project aims to foster the development of advanced digital skills of people among the labour force, prioritizing small and medium-sized enterprises (SMEs), as well as job seekers. This will be achieved by offering them access to specialized training courses that align with the most recent advancements in Blockchain technology, particularly its comprehensive applications within the Food Supply Chain.

TRUSTFOOD plans to create and implement short-duration training courses designed to enhance and refresh the skills of the labour force. The courses will be designed with a strong emphasis on practical knowledge about Blockchain and its relevance to the FSC.

The courses will be practical and will provide specific knowledge about key digital technologies of Blockchain and their applications to the food supply chain sector.

The TRUSTFOOD project - which started in January 2023 and will run until December 2025 - is made up of a consortium of 14 partners from the European Union (EU) and Ukraine: REZOS BRANDS SA (coordinator), Agricultural University of Athens, University of Nicosia/Institute For the Future (IFF), Wageningen University & Research, Uni Systems, 482.solutions, UBITECH, INSME – The International Network for Small and Medium Enterprises, ITC – Innovation Technology Cluster, Lithuanian Food Exporters Association (LitMEA), Kyiv Academic University, DIH AgriFood Croatia, Green Point – short food supply chain and Smart Agro Hub, and AgroTransilvania Cluster (ATC).

## 1.2    Objectives

A significant part of the TRUSTFOOD project is Task 3.1, and Deliverable 3.1 as each main outcome.

Task 3.1, titled "Probing Trainees", is pivotal to the project's success. It serves as a foundational step, ensuring that the subsequent design and production of the TRUSTFOOD Learning Ecosystem are rooted in real-world needs and insights. The following objectives guided the work done by T3.1:

1. **Engagement in Design**: Create a readable and understandable design aiming to attract respondents in an easy task to complete.
2. **Assessment of Familiarity**: Structure different sections with ascending levels of difficulty to assess familiarity with the topic.
3. **Identify Interest Levels**: Reach the widest range of Blockchain topics structured in evaluating questions to identify a more precise interest level.

The insights and data gathered from T3.1 are instrumental in shaping the project's aims and provide significant inputs for the forthcoming Tasks (e.g., T3.2, T3.3, T3.4 etc.). By understanding the trainees'

perspectives, the TRUSTFOOD project can tailor its courses to be both relevant and impactful, ensuring they address the practical needs of the agri-food sector.

## 1.3 The significance of trainee engagement in the Learning Ecosystem

Trainee engagement is a crucial element in any effective learning ecosystem. It can be defined as the degree of interest, enthusiasm, and commitment a learner brings to a course or learning environment (Axelson & Flick, 2011). This environment often encompasses traditional classroom learning, online courses and knowledge repositories, providing a holistic approach to continuous learning and skill development. It is a defining factor between a successful learning outcome and an unsuccessful one, especially in the case of TRUSTFOOD, as the acquired knowledge can significantly impact our trainees.

In today's rapidly evolving economic landscape, industries across the spectrum are undergoing a significant digital transformation. In this context, re-skilling and up-skilling have emerged as imperatives for high-skilled workers in SMEs and/or job seekers. Particularly, the agri-food sector is witnessing significant changes driven by Blockchain technology, thereby underscoring the need for tailored courses to facilitate effective upskilling (Kamilaris et al., 2019).

Blockchain, as an emerging technology that is already transforming various industries, can have significant implications in the agri-food sector, ranging from enhanced traceability in the supply chain, and improved food safety, to better farm management (Galvez et al., 2018). For instance, by maintaining a transparent record of a food product's journey from farm to fork, Blockchain enhances traceability and ensures food safety. Similarly, by recording data about crop growth, weather patterns, and pesticide use, Blockchain can significantly optimize farm management practices.

However, to leverage Blockchain's potential fully, **it is crucial to have a workforce skilled in this innovative technology**. Herein lies the importance of Blockchain courses, designed to foster a comprehensive understanding of Blockchain technology and its applications in the industry.

Such courses need to cover the basics of Blockchain, smart contracts, consensus algorithms, Blockchain and regulation, while also highlighting real-world case studies within the agri-food sector (Croman et al., 2016). The primary objective is to equip learners with the knowledge and practical skills to effectively apply this technology in their respective roles.

The trainees will play a critical role in the design and production of the TRUSTFOOD learning ecosystem, where they will acquire profound skills and knowledge of Blockchain technologies. Our ecosystem aims to foster a comprehensive understanding of Blockchain in the agri-food sector, catering to all levels of expertise.

**It is through active engagement that our trainees will gain a deeper understanding of this technology, bridging the gap between theory and practical implementation.** Their input will be invaluable, helping us tailor the learning ecosystem to meet their specific needs and ensure the material is both accessible and challenging for each individual. To ensure the effectiveness of our learning ecosystem, we have assessed our

trainees' current knowledge and interest in Blockchain technologies. This evaluation has been conducted via a detailed survey, asking trainees to share their understanding and familiarity with Blockchain. By identifying their level of proficiency, we can better design and customize our courses more effectively, addressing areas of interest, and filling gaps in knowledge. The survey will thus play an integral part in determining the course level, topics, and other relevant details (e.g. course duration). **This in-depth understanding of our trainees' existing knowledge and interest ensures a more personalized and beneficial learning experience, ultimately aiding us in achieving our goal of having engaged trainees in our ecosystem.**

The success of these Blockchain courses hinges on robust trainee engagement. Research suggests that engagement can be bolstered through interactive learning methods such as quizzes, collaborative learning and regular feedback (Prince, 2004; Lee & Hammer, 2011). To maximize the effectiveness of our courses, active trainee engagement is imperative. Engagement can be fostered through interactive learning methods, such as regular feedback, quizzes and collaborative learning.

Trainee engagement plays a pivotal role in the effective delivery of TRUSTFOOD courses which are tailored for the agri-food sector. A highly engaged trainee is more likely to absorb, retain, and apply the knowledge gleaned from these courses, thereby contributing to a skilled workforce capable of harnessing Blockchain technology to drive transformation in the agri-food sector. Thus, learning providers should prioritize strategies that foster engagement, ultimately contributing to a skilled workforce capable of leveraging Blockchain technology to transform the agri-food sector. This is the ultimate goal of our project, and this deliverable outlines our method for creating successful and efficient courses.

## 1.4    What is Blockchain Technology

Don Tapscott, a renowned expert in innovation and technology, provides a clear and succinct definition of Blockchain technology. In his book, "Blockchain Revolution," co-authored with his son Alex Tapscott, they define Blockchain as follows:

*"Blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value."* (Tapscott 2016)

In other words, **a Blockchain is typically a public infrastructure that collectively maintains a shared distributed ledger where immutable and encrypted copies of the information are stored on every computer in the network.**

In essence, Blockchain technology is a type of distributed ledger technology (DLT) that maintains a continually growing list of records, called blocks, which are linked and secured using cryptography. This ensures that every transaction is transparent and cannot be altered retroactively, establishing an immutable trail of information.

*Figure 1 - Blockchain process (underline)source(/underline)*
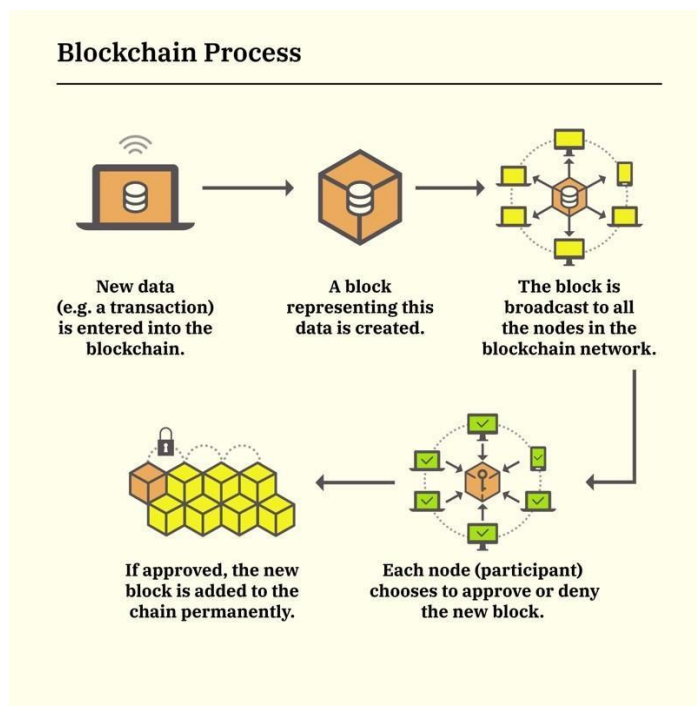


*Figure 1:Blockchain process*

Blockchain's core value is its security and transparency: every transaction made on a Blockchain is visible to all participants and recorded permanently, making it nearly impossible for these records to be tampered with after the fact. This, in turn, reduces the need for intermediaries, like banks in financial transactions, and can increase the efficiency and speed of transactions.

The first and most notable application of Blockchain is in the creation of cryptocurrencies. Bitcoin, as conceptualized by the pseudonymous Satoshi Nakamoto (2008), is a decentralized digital currency that relies on Blockchain technology to facilitate secure, peer-to-peer transactions without the need for a central financial institution. This novel application set the precedent for a host of subsequent cryptocurrencies, including Ethereum, Litecoin, and Ripple, each with its unique attributes and use cases (Antonopoulos, 2014).

Blockchain technology's features of transparency, security, and immutability make it a potent tool for enhancing supply chain management. By recording every transaction or movement on the Blockchain, stakeholders can trace a product's journey from production to the consumer, ensuring authenticity and combating counterfeit goods (Mougayar, 2016).

## 1.4.1 Improved Traceability and Transparency

Blockchain provides an immutable and transparent record of all transactions across the supply chain, from farm to fork. Each step in the journey of a food product can be recorded on the Blockchain, including details of cultivation, harvesting, processing, packaging, and transportation (Galvez et al., 2018, Khan et al., 2022).

This level of traceability enhances transparency and allows consumers to see exactly where their food comes from, how it's been handled, and its journey to the retail shelf.

## *1.4.2 Efficient Supply Chain Management*

Blockchain technology also holds promise in streamlining supply chain operations by automating administrative processes through smart contracts. These programmable contracts self-execute when predefined conditions are met, reducing the need for intermediaries, improving efficiency, and minimizing potential errors (Tapscott & Tapscott, 2016, Moosavi, Javid, et al. 2021).

Blockchain technology has far-reaching implications across various sectors, from finance and supply chain to identity verification and beyond. As we continue to explore and understand this technology, it is critical to prepare for its transformative potential, especially in the food supply chain sector, via education and training the labour force on the benefits of this technology.

## 1.5 Blockchain technology in the context of the food supply chain

Distributed Ledger Technologies (DLTs), including Blockchain Technologies (BCT), have the potential to transform the global food system by introducing important efficiency gains along value chains. BCT provides data storage and exchange through a secure, decentralised platform, enhancing transparency, traceability and trust, and is increasingly used in the agri-food sector which may provide a robust mechanism for enhancing food traceability and a transparent and reliable way to validate food quality, safety, and sustainability. The recent COVID-19 pandemic was a huge driver for digital transformation, and BCT proved a great tool for creating highly secure, transparent, and effective solutions. BCT can also address the food safety and price issues that have already emerged due to the current conflict in Ukraine. Of note, BCT is currently the single, most in-demand hard skill globally, and the relative market is forecasted to reach $163 bn by 2027 (Lon Wong, 2022).

Farmers and agri-food SMEs are the key ingredients to producing quality food, but they are often left out of new technologies and sustainable producers struggle to differentiate themselves. This however often disincentives them, but BCT, providing increased trust, speed, transparency, accountability, reach, sustainability, and reduced costs, could solve this problem and drive consumer purchasing power towards sustainable products. While large actors are likely to make fast and significant inroads in exploiting BCT, small farmers and SMEs also stand to reap significant benefits, provided the technology is made accessible to them. This raises the question of how an enabling environment can be created for smallholders to harness these new technologies, to improve the functioning of global food and agricultural markets.

TRUSTFOOD is uniquely positioned to bridge this gap and provide an elegant and flexible set of courses on BCT, tailored to re-skill and up-skill employees and job seekers in the agri-food sector.

As BCT continues to develop, the international community must contribute to the creation of enabling environments that ensure that the benefits generated from BCT can be shared by all agrifood market participants, including smallholder farmers, processors as well as micro-, small- and medium-sized

enterprises. Efforts should be placed on technical dialogue on BCT, policy guidance on the use of BCT in agriculture through multi-stakeholder interaction, developing regulations and standards, enhancing public and private partnerships, and improving infrastructure and digital skills in rural areas. The technology has huge potential to address many of the challenges that disadvantaged agrifood market players face today, by allowing them to participate in integrated supply chains, in addition to improving rural development interventions and being an impetus to achieve the Sustainable Development Goals (SDGs).

There are several technical, regulatory, institutional, infrastructure and capacity development-related challenges to be addressed before reaching maturity and ensuring the scalability and accessibility of the technology. Scalability, interoperability, and product authenticity through product-process links are important factors for the widespread adoption of BCT in agrifood supply chains. Food fraud, including mislabelling and counterfeit products, is also a major concern in the food industry. Blockchain technology can combat this by providing an immutable and verifiable record of every transaction in the food supply chain. This makes it harder for unscrupulous entities to introduce counterfeit goods or alter product information (Tian, 2016). Moreover, in the event of foodborne disease outbreaks, Blockchain technology can quickly and accurately identify the source of contamination, enabling faster recalls and preventing further spread (Kamilaris et al., 2019, Treiblmaie et al., 2023). Despite these challenges, BCT is ideally positioned to address many of the current needs of the agri-food sector. The agri-food industry is facing the next key challenges:

- Meet the food demands of a growing population.
- Promote more environmentally sustainable agricultural practices and decrease environmental footprints.
- Reduce supply chain costs.
- Maintain high-quality sanitary and phytosanitary standards.
- Sustain profitable farming operations.
- Raise incomes of small-scale food producers.
- Enhance transparency and trust of transactions.
- Eliminate intermediaries.
- Enhance food safety, security, and traceability.

BCT is not a panacea for the agrifood sector and for all aforementioned challenges, but the technology provides great potential: BCT has the ability to reduce risk and increase efficiency in the agri-food industry by providing transparency and traceability and by eliminating intermediaries in agricultural value chains. In addition, by reducing uncertainty and enabling trust among market players, BCT and smart contracts also provide a real opportunity for more inclusive market participation for smallholders and MSMEs (Micro, Small and Medium Enterprises).

In this framework, TRUSTFOOD's overarching objective is to address the capacity development-related challenge of Blockchain adoption across the agri-food sector, by designing and delivering short-term training courses in Blockchain Technologies, for upskilling and reskilling of the labour force, with a particular focus on SME owners, managers, and employees in the Food Supply Chain (FSC).

## 2.    Methodology

## 2.1 Literature and purpose

Task 3.1 through a survey, aimed to identify the trainees interested in attending Blockchain technology applications in the food supply chain. The methodology used to probe the trainees is as follows:

- Reviewing essential skills in Blockchain technology and examining course prerequisites and associated skill requirements. The inclusion of both basic and advanced skills was intended to embrace a broader audience.
- Researching online content related to Blockchain and identifying the primary topics integral to it.
- Consulting Blockchain experts to check the coherence between research questions and objectives.
- Analysing statistical database information on the field (programming, computer science) and level of education of Blockchain among professionals in SMEs and students in the agri-food sector.

*Table 1: Fact Sheet*

| Fact Sheet T3.1 Probing Trainees | |
|---|---|
| **Task** | T3.1: Probing Trainees |
| **Objective** | The trainees will be engaged in the design and production of the TRUSTFOOD projects' learning ECOSYSTEM. Trainees from the case studies will be probed in order to define their level of familiarization with Blockchain technologies, their level of interest etc. |
| **Related deliverables** | D3.1 Probing Trainees |
| **Research activities** | 1. Review on Blockchain main skills required in online courses. 2. In-depth analysis of the main content and topics of Blockchain technology 3. Database analysis of information on the field and level of education of Blockchain professionals and students in SMEs in the agri-food sector 4. Consultations with Blockchain experts for coherence and structure of the survey 5. Field research - Online survey |

## 2.2    Online survey

The online survey collected information from attendants who are either attending Blockchain for food supply chain courses or are planning to do so in the future. The dataset contains information on the characteristics of Blockchain and the current and future skills and educational topics from the perspective of a potential employer in the agri-food sector. This survey ran during the beginning of June with all partners in the Consortium responsible for promoting the online survey to their networks. The initial survey response target was set at 100 responses. Currently, 118 valid returns have been received, so 52% of the total respondents completed the survey, as shown in Table 2.

Table 2: Responses from online survey

| Total responses | Fully completed responses |
|---|---|
| 227 | 118 |

### 2.2.1    Description of the survey preparation process and tools used

**Step-by-step Preparation Process:**

- Preliminary call with the WP leader to establish the steps to be taken.
- Official kick-off meeting of the work package to share the decision taken on the steps.
- The first investigation of the survey typology to check all the requirements for the task.
- Survey Monkey was selected as the official tool to draft the survey.
- Desk research and quantitative content analysis of several training courses requirements
- Online research of the general and specific skills and topics of Blockchain, with qualitative analysis on the percentage of general knowledge of the technology by the public
- The initial draft of the structure is based on different sections, according to each specific objective of the task:
    - Investigate the level of interest.
    - Investigate the level of familiarisation with Blockchain technology on general skills.
    - Investigate the level of familiarisation with Blockchain technology on specific skills.
    - Investigate a specific target audience (SMEs and/or students in the agrifood sector)
- Initially drafted the questions for each section.
- Completion of the initial draft and review by the Consortium through the Survey Monkey comments modality.
- Reviewing and reporting corrections based on the Consortium inputs.
- Finalization of the survey and initial translation in Italian, Greek, Slovenian, Ukrainian, Lithuanian, and Romanian
- Reporting the work in an Excel document in the shared folder of Google Drive

- Finalization of the translations by creating a survey for each language
- Launch of the surveys

**Results**: Key findings are going to be presented in the following sections of this deliverable 3.1.

The questions of all the surveys were validated by partners of the consortium in an organized way. More specifically, their suggestions were directly inserted in the survey draft on Survey Monkey, allowing INSME to edit the survey properly. Their feedback suggested that the questions were appropriate for the needs of this task. Furthermore, they agreed that the collected information would contribute to the expected findings for trainees' related interests and skills. however, the feedback indicated that some of the questions were not necessary for the study, as well as minor comments on the orthography and structure of the survey.

*Table 3: Contributing Partners*

| Participant organisation name | Acronym | Country |
|---|---|---|
| REZOS BRANDS ANONYMI EMPORIKI ETERIA IDON DIATROFIS | REZOS | GREECE |
| SMART AGRO HUB ANONYMI ETAIRIA | SAH | GREECE |
| EDEX - EDUCATIONAL EXCELLENCE CORPORATION LIMITED | UNIC | CYPRUS |
| WAGENINGEN UNIVERSITY | WU | NETHERLANDS |
| UNISYSTEMS LUXEMBOURG SARL | UNI LUX | LUXEMBOURG |
| UNI SYSTEMS SYSTIMATA PLIROFORIKIS MONOPROSOPI ANONYMI EMPORIKI ETAIRIA | UNIS EL | GREECE |
| UBITECH LIMITED | UBITECH | CYPRUS |
| KYIV ACADEMIC UNIVERSITY | KAU | UKRAINE |
| 482.SOLUTIONS LLC | 482.solutions | UKRAINE |
| UDRUGA ZA RAZVOJ SURADNJE NA UNAPRJEDENJU TEHNOLOGIJE U PREHRAMBENOM SEKTORU | AFC | CROATIA |
| ZELENA TOCKA TRANS - CENTER ZATRAJNOSTNI RAZVOJ, Z.O.O. | Green Point | SLOVENIA |
| GEOPONIKO PANEPISTIMION ATHINON | AUA | GREECE |
| RETE INTERNAZIONALE PER LE PICCOLEE MEDIE IMPRESE | INSME | ITALY |
| ASOCIATIA CLUSTERUL AGRO-FOOD-IND NAPOCA | ATC | ROMANIA |
| LIETUVOS MAISTO EKSPORTUOTOJU ASOCIACIJA (LITMEA) | LITMEA | LITHUANIA |

### 2.2.2 Explanation of the study's structure, sections and research questions

The survey starts with the introduction of the TRUSTFOOD project that promotes the questionnaire. Then the purpose of the survey has been explained, as well as the duration and the deadline. A confidentiality section has been dedicated as a disclaimer for the personal data treatment in compliance with GDPR. This ensures that respondents who do not wish to share personal information will opt out of the survey. The full survey can be found in the appendices.

The survey contains 24 questions divided into four sections:

1. Does the respondent acknowledge and agree with the confidentiality statement?

**SECTION A. Level of knowledge on Blockchain**

**Objectives/aim**: Evaluate the level of knowledge of the attendant to understand the starting point of course content.

**Research questions:**

2. Are you aware of any of these statements? (Select all that apply)
   - 8 statements have been displayed on the general knowledge of Blockchain, such as its definition, application in the food supply chain, and combination with IoT technology.
3. Do you consider yourself familiar with the following topics? Please rate each from the least known to the most
   - Evaluate the basic knowledge, requesting familiarity with smart contracts, IT systems, cryptocurrencies, tokenization, smart logistics, NFT ecosystems, sustainability, AI, programming, and legal framework.

**SECTION B. Specific skills demand**

**Objectives/aim:** Gain evidence of specific skills to be achieved by a Blockchain expert.

**Research questions:**

4. Do you think that having Blockchain skills in the agri-food sector is important today?
5. Why?
   - Preliminary questions on the necessity of having Blockchain-specific skills for the attendant.

**Deepening questions:**

6. According to you, which of the following skills do you consider interesting to achieve in the context of Blockchain in food supply chain management? Select all that apply.
7. According to you, which of the following skills do you consider interesting to achieve in the context of sustainability and climate action? Select all that apply.

8. According to you, which of the following skills do you consider interesting to achieve in the context of interoperability and integration? Select all that apply.
9. According to you, which of the following skills do you consider interesting to achieve in the context of compliance and security? Select all that apply.
10. According to you, which of the following skills do you consider interesting to achieve in the context of Blockchain solution implementation? Select all that apply.
- From 3 to 5 statements on specific skills in each sector, thus food supply chain management, sustainability and climate action, interoperability and integration, compliance and security, and solution implementation


**SECTION C. Courses in Blockchain**

**Objectives/aim:** The section addressed to check the level of interest of attendants to take the courses on Blockchain in the food supply chain.

**Research questions:**
1. Have you ever taken an online course on Blockchain technology in food supply chains?
2. Overall, are you satisfied with the current courses available on the Internet?
3. Why?
4. In your opinion, is it necessary to attend a course on Blockchain technology for your current or future job?
5. Would you be interested in participating in Blockchain training courses specifically designed for the agrifood sector?
6. What topics would you most like to learn about or discuss during the course? Put them in order from the least important to the most.
- The topics proposed covered the major points of interest for the general public, such as Blockchain and smart contracts, tokenization and digital assets, traceability in the food industry, ethical considerations, advantages and disadvantages of the Blockchain, areas of applications, and environmental impact of Blockchain.


**SECTION D. Contact information**

**Objectives/aim:** Categorize the future course for a precise audience, thus requesting information on age, country, occupation, and details on the organisation, with a final open-ended question.

**Research questions:**
1. What is your age?
2. Which of the following options most closely aligns with your gender?
3. Country
4. Occupation
5. Sector of organisation
6. How many employees does your organisation have?
7. Position/role of your current job
8. Do you have any thoughts, concerns, or suggestions related to Blockchain technology in the food supply chain?

### 2.2.3  Overview of dissemination, data collection methods and timeline

After the finalization of the survey, INSME requested partners to disseminate the survey among their networks.

Channels:

- E-newsletters
- Social networks
- Word of mouth
- Websites (partner websites and TRUSTFOOD webpage)
- EU Blockchain Observatory and Forum website

The data collection was done by Survey Monkey automatically through aggregation modality in a database. The survey data will be translated and aggregated altogether accordingly.

The survey has been divided into 7 parties, one for each language:
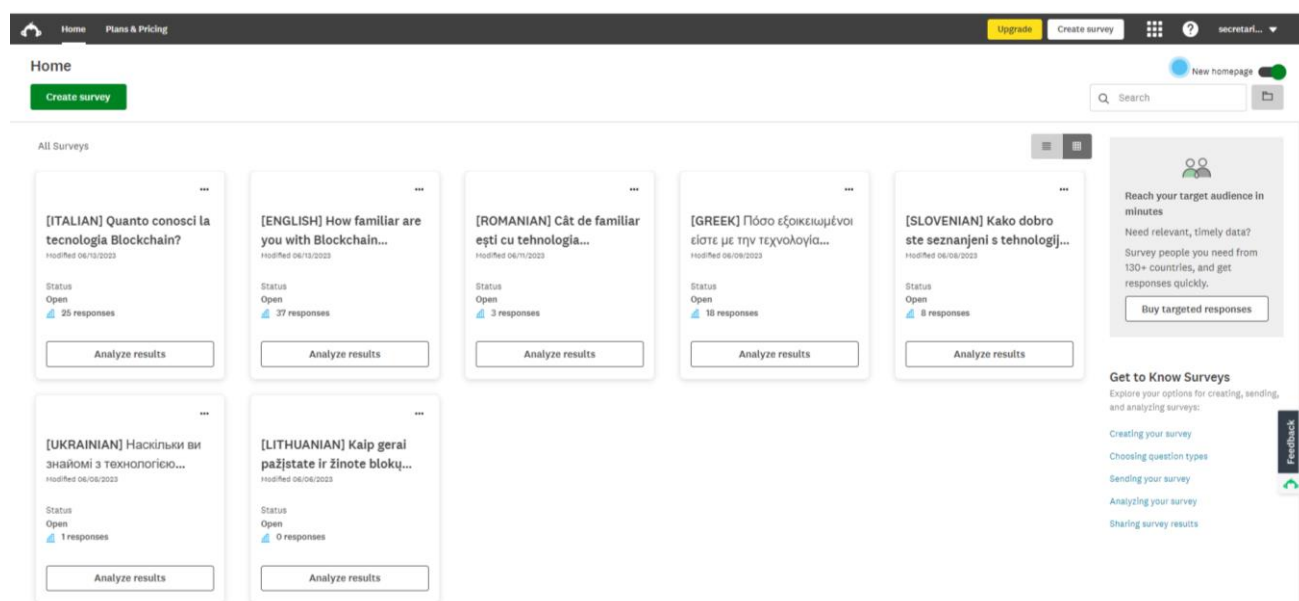


*Figure 2: Surveys division*

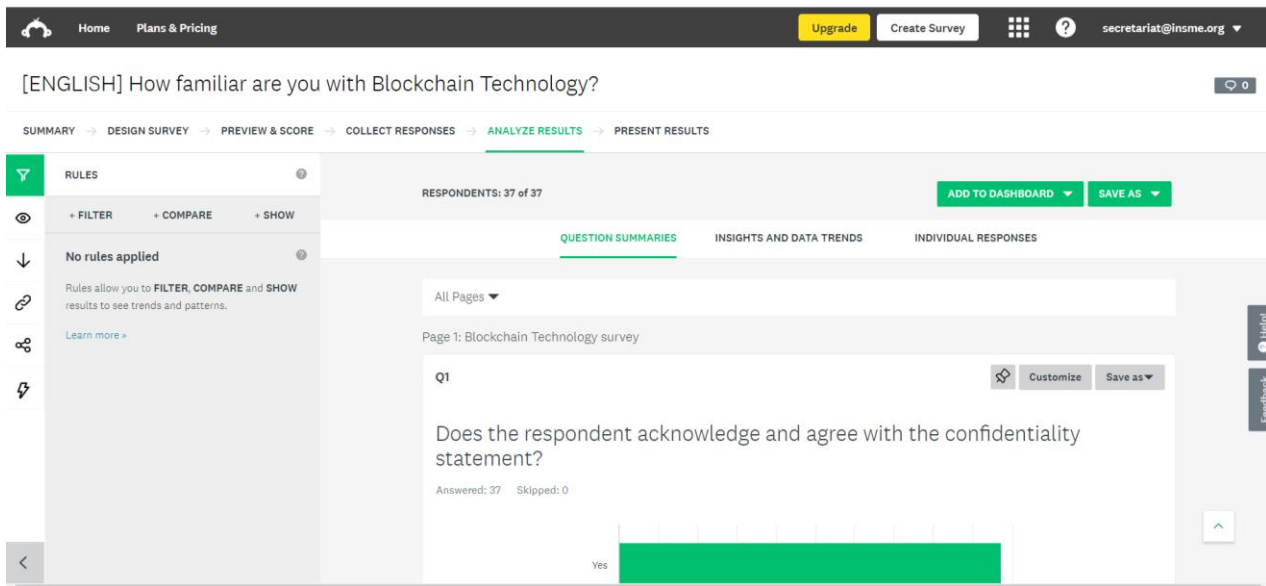Each survey has its section for data analysis:

*Figure 3: Question summaries*

The analysis of this survey modality was conducted into different modalities:

- Question summaries: a collection of all the responses into a graphic for each question
- Insights and data trends: report of total responses, completion rate, typical time spent, most skipped question, and trend of responses by day.

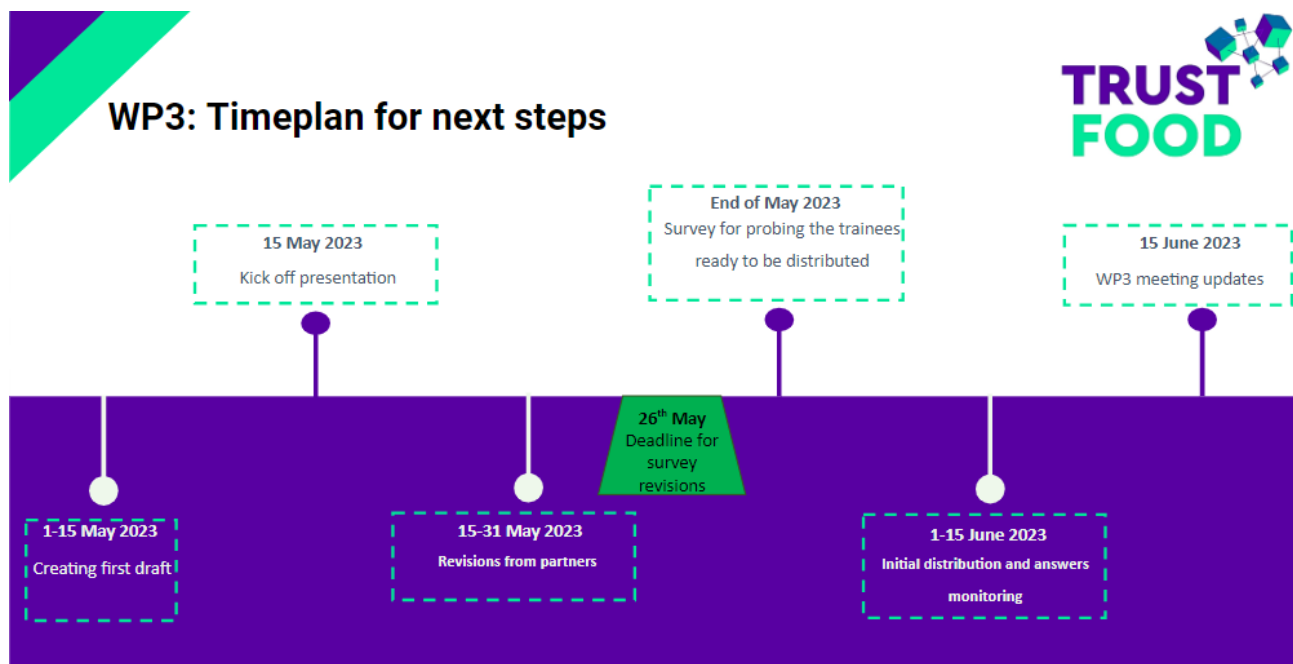The timeline from the beginning of the task to the end of the deliverable is the following one:

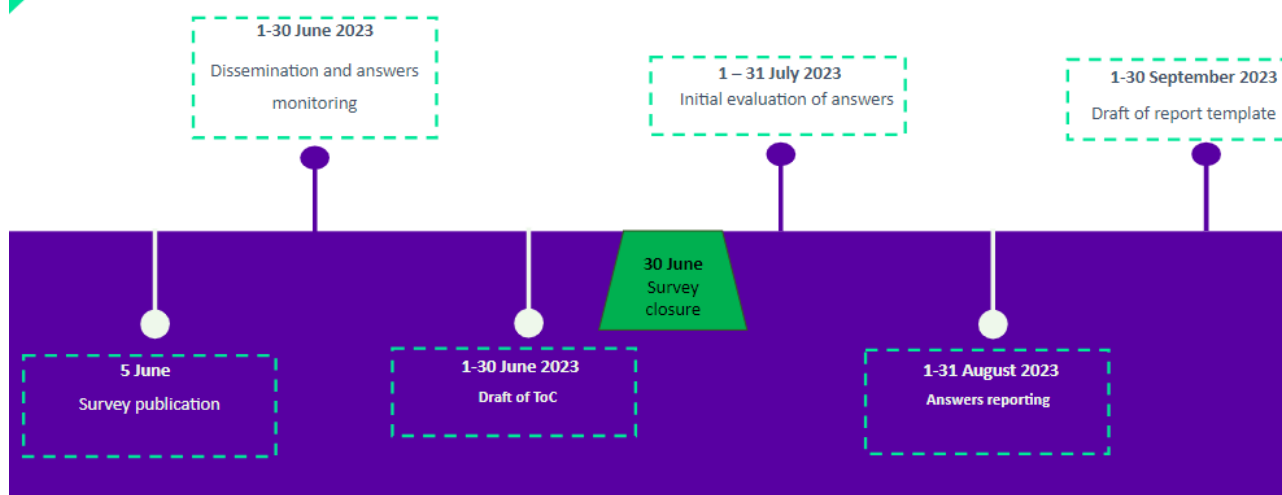

*Figure 4: Timeplan for next steps*

*Figure 5: Timeplan for next steps*

# 3.    Findings and results

This section outlines the main findings, extracted from the 7 surveys in different languages related to each section: (i) Level of knowledge on Blockchain, (ii) Specific skills demand, (iii) Courses in Blockchain, (iv) Contact information.

## 3.1    Level of knowledge on Blockchain

In this section of the study, we examined relevant data sources to gauge the level of knowledge about blockchain, both in terms of basic definitions and familiarity with related topics.

### 3.1.1    Awareness of Blockchain definitions

Respondents from the online survey were asked how many basic definitions of Blockchain technology were aware of, and the results are shown in Figure 6.
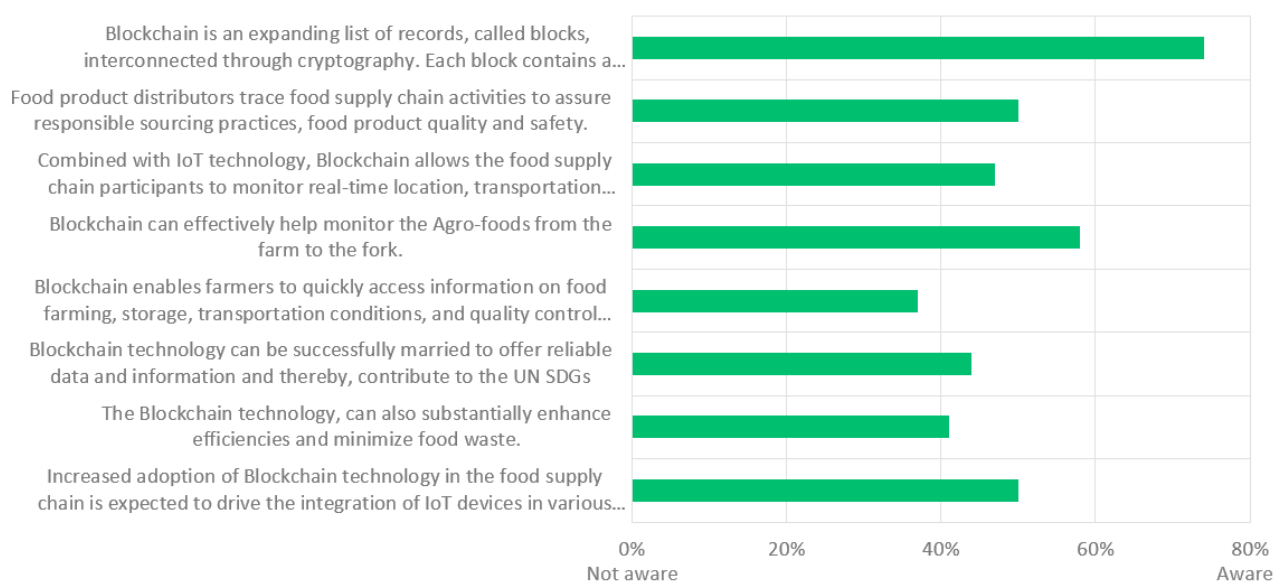
*Figure 6: Level of knowledge on Blockchain. Are you aware of any of these statements?*

A large majority of respondents were familiar with the basic definition of Blockchain. The second most commonly recognized statement was that Blockchain helps in monitoring Agri-foods from Farm to Fork. Other definitions received fewer percentages, with the statement noting that blockchain enables farmers to quickly access information on food processes garnering 37.41%.

### 3.1.2 Familiarity with Blockchain topics

The online survey also asked about the level of familiarity with Blockchain topics shown in Figure 7.
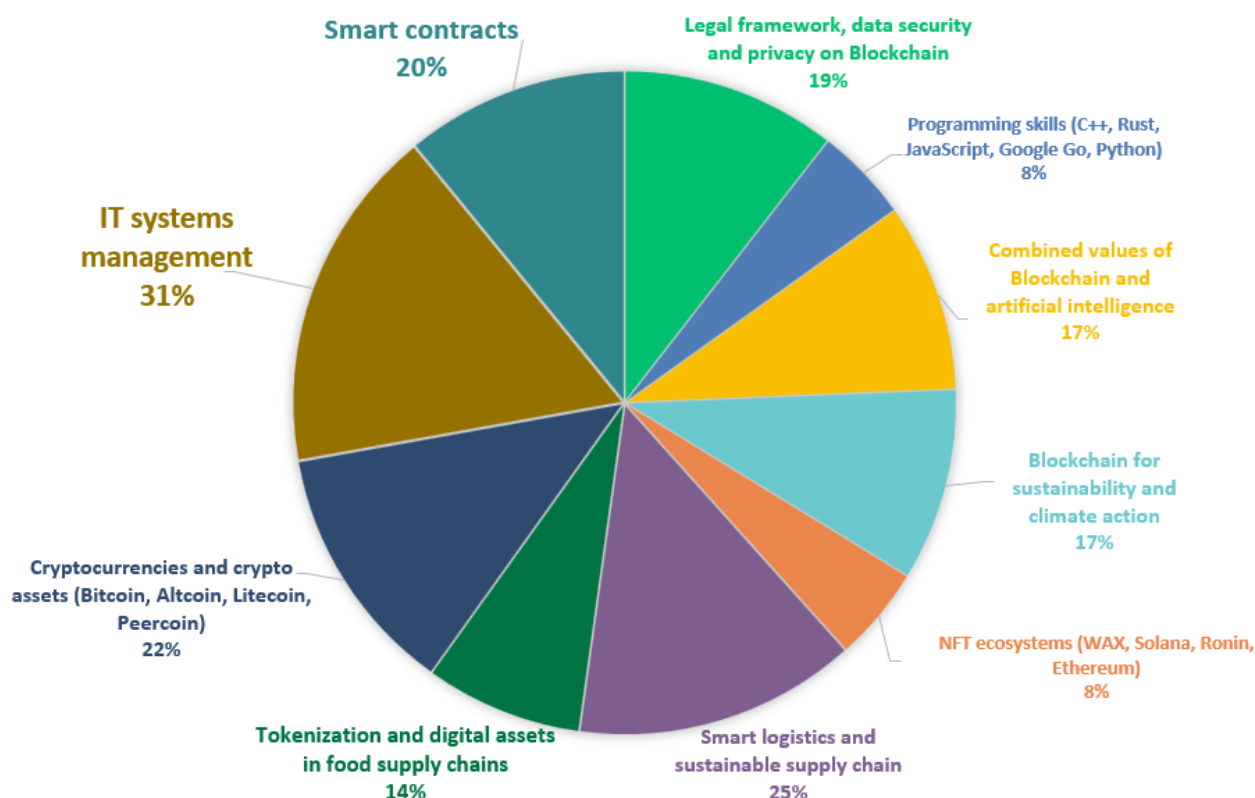
*Figure 7: Do you consider yourself familiar with the following topics?*

For most respondents, IT systems, smart logistics, and cryptocurrencies were very or extremely familiar. Smart contracts, legal framework, combined values of Blockchain and AI, Blockchain for sustainability and climate action and tokenization were considered somewhat familiar. Finally, programming skills and NFT ecosystems were not familiar at all to the respondents.

### 3.1.3   Summary of findings: Level of Familiarization with Blockchain Technologies

From the first section of the online survey, it has been shown that most of the respondents know what Blockchain is, but they were not aware that Blockchain enables farmers to quickly access information on food processes. Furthermore, the familiarity of the respondents was focused mostly on IT, sustainability of Blockchain, smart contracts and legal framework, rather than NFT ecosystems, programming skills and tokenization which were voted as the least familiar.

## 3.2    Specific skills demand

In this section the survey sought to gather information on the specific skills to acquire in the Blockchain environment.

### 3.2.1 Importance of Blockchain skills nowadays

The first question of this section refers to the importance of having Blockchain skills today. Most of the respondents considered it very important, 20% responded extremely important and only 3% answered negatively, as it is shown in Figure 8.
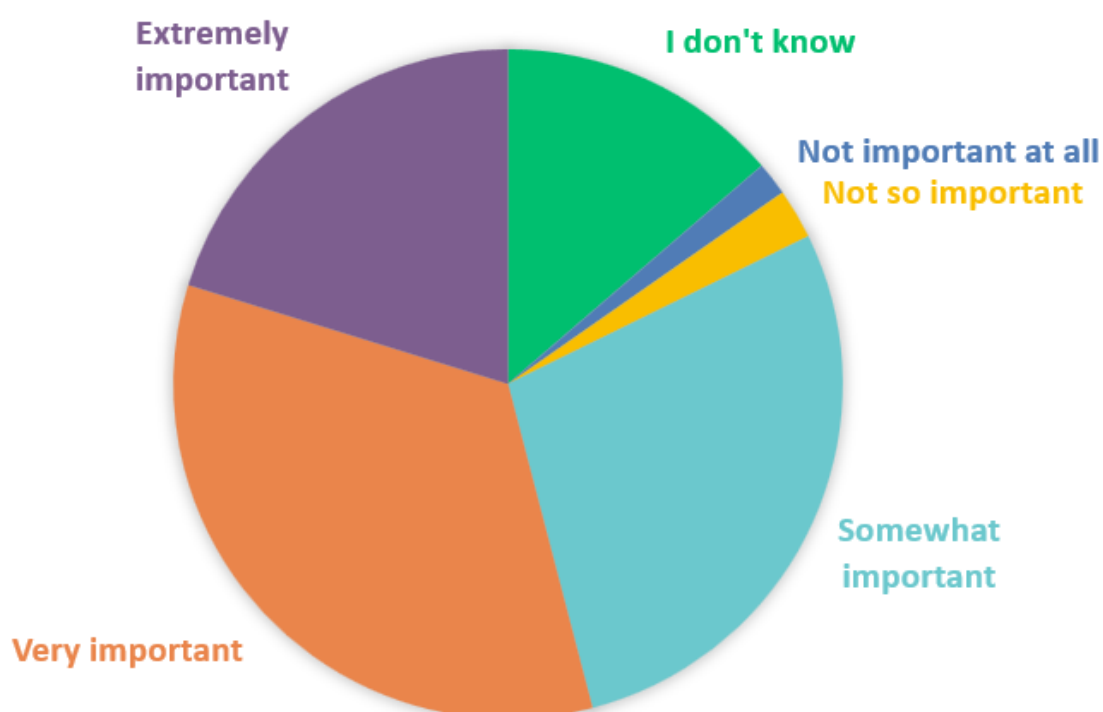


*Figure 8: Do you think that having Blockchain skills in the agri-food sector is important today?*

The primary reasons for these responses were driven by the need to embrace upcoming digital transformation trends and promote relevant regulations. This is to maximize technological potential and prevent inefficiencies in implementation from the producer to the final seller. Moreover, respondents stated that having Blockchain skills is essential for optimizing traceability of the production, transport, storage, transparency, productivity, labelling, consumption, community control and eco certifications. Furthermore, they consider it important to run a food supply chain business with relative data collection analysis effectively, efficiently, and sustainably with minimum waste and fraud, contributing to SDGs. Finally, there is a rising need to ensure decentralized quality control in the food supply chain sector that will create a secure

database in real-time, even though the costs are too high yet. Overall, they consider Blockchain as a rapid solution to the agri-food sector issues, especially to prevent food insecurity.

## 3.2.2 Interest in specific skills achievement

The following chapters will present the questions and relative answers about the specific skills demands that are a source of interest for the public.

### 3.2.2.1 Food supply chain management

In the food supply chain management sector, the most sought-after skill was traceability and asset management based on Blockchain, which accounted for nearly 78% of all responses, as shown in Figure 9.
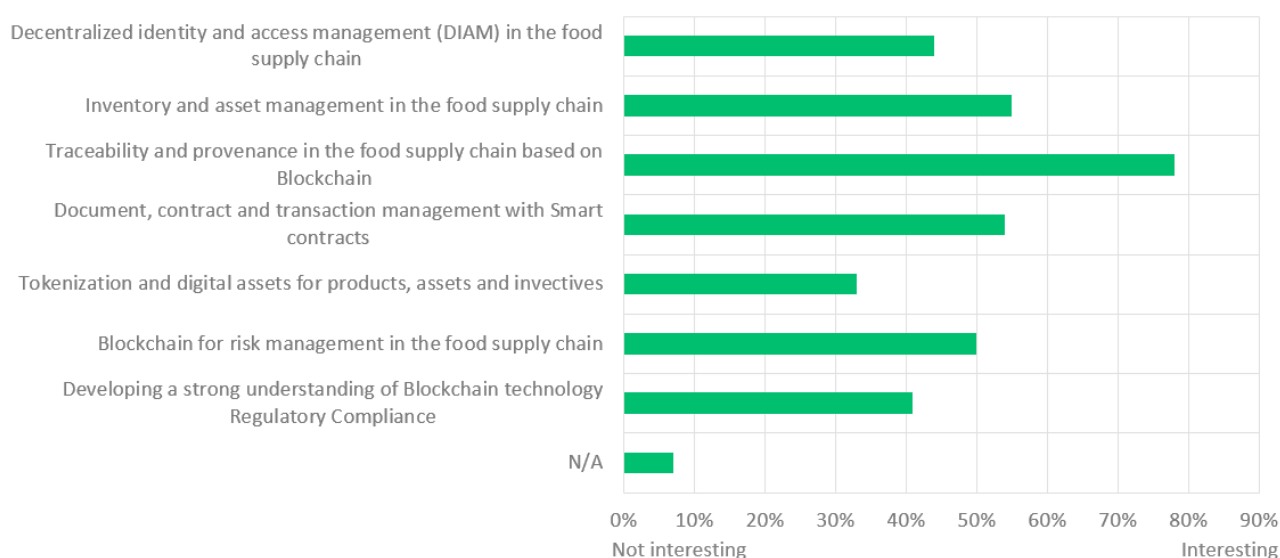


*Figure 9: Food supply chain management. According to you, which of the following skills do you consider interesting to achieve in the context of Blockchain in food supply chain management?*

Moreover, the next set of skills, chosen by 55% of respondents, included inventory and asset management, document management, contract, and transaction management with smart contracts, and Blockchain for risk management in the food supply chain. Fewer respondents prioritized decentralization of identity and access management, regulatory compliance, and tokenization.

### 3.2.2.2 Sustainability and climate action

Figure 10 is also constructed from the online survey responses and shows the interesting skills to achieve in the context of sustainability and climate action.
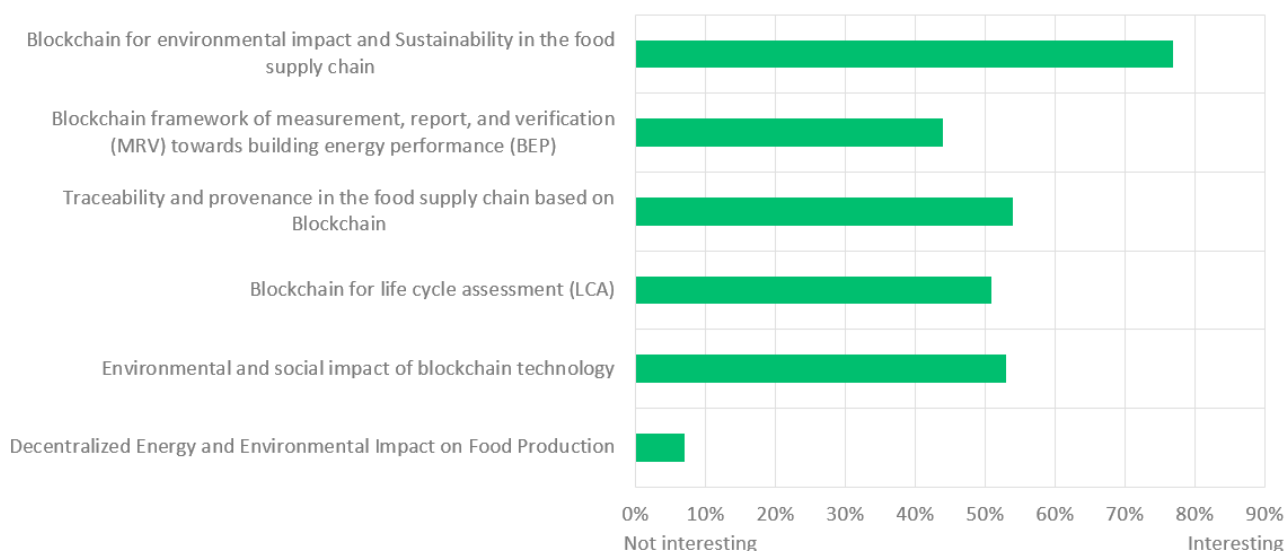


*Figure 10: Sustainability and climate action. According to you, which of the following skills do you consider interesting to achieve in the context of sustainability and climate action?*

The survey respondents all indicate some interest in the first statement "*Blockchain for environmental impact and sustainability in the food supply chain*". Almost at the same level, all the other options were selected at about 50%. Only the last statement on decentralized energy and its environmental impact on food production has been selected by 9 people.

### 3.2.2.3 Interoperability and integration

The online survey also asked about interest in acquiring skills in the context of interoperability and integration. This is shown in Figure 11 below.
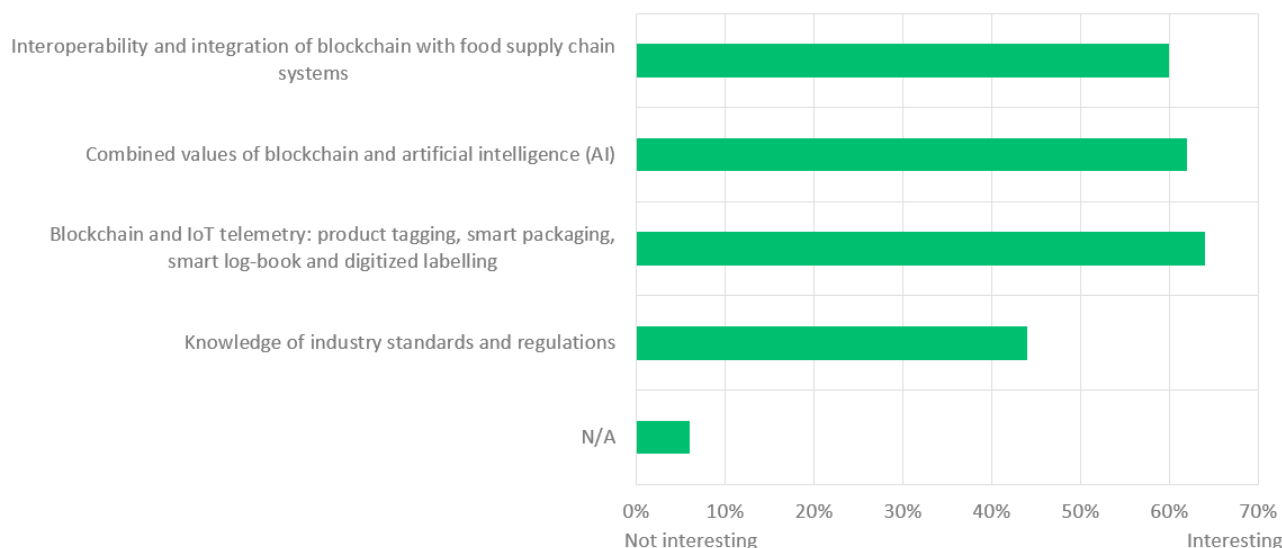
*Figure 11: Interoperability and integration. According to you, which of the following skills do you consider interesting to achieve in the context of interoperability and integration?*

The top three are interoperability and integration of Blockchain with the food supply chain, combined values of Blockchain and AI, and Blockchain and IoT telemetry. The least voted was acquiring knowledge of industry standards and regulations.

### 3.2.2.4 Compliance and security

The data collected from the previous question but in the context of compliance and security have been shown in Figure 12.
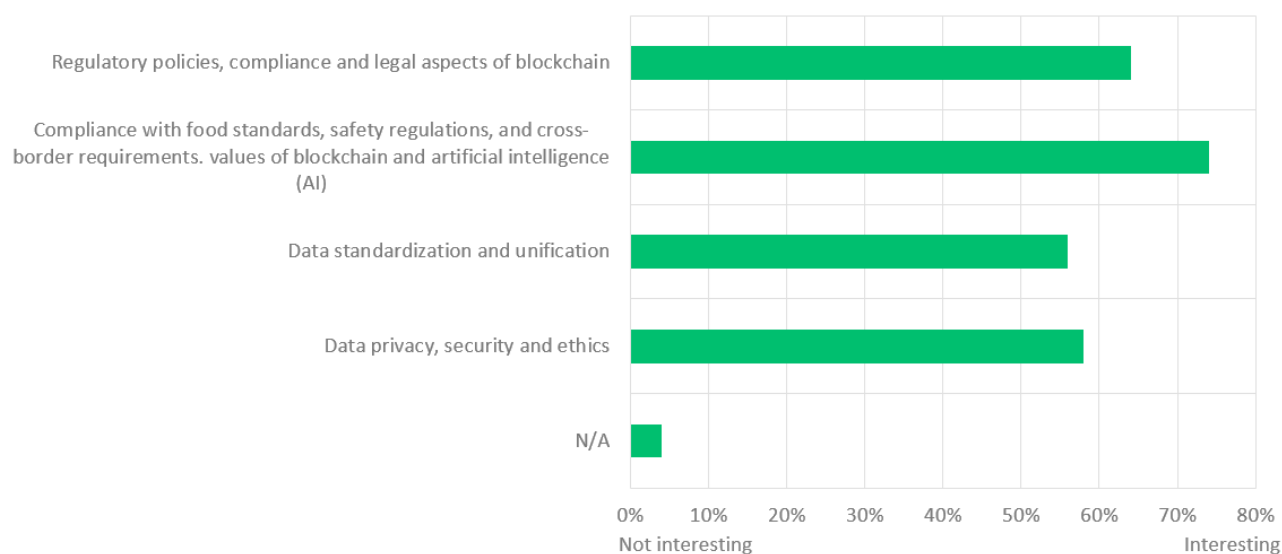


*Figure 12: Compliance and security. According to you, which of the following skills do you consider interesting to achieve in the context of compliance and security?*

It is evident that the majority of respondents were interested in upskilling on compliance with food standards, safety regulations and cross-border requirements, and values of Blockchain and AI, while the other three options were voted at the same level with a difference of about 20% from the most voted one.

### 3.2.2.5 Guide to Blockchain solutions implementation

The online survey also asked a question about the guide to Blockchain solutions implementations, as shown in Figure 13.
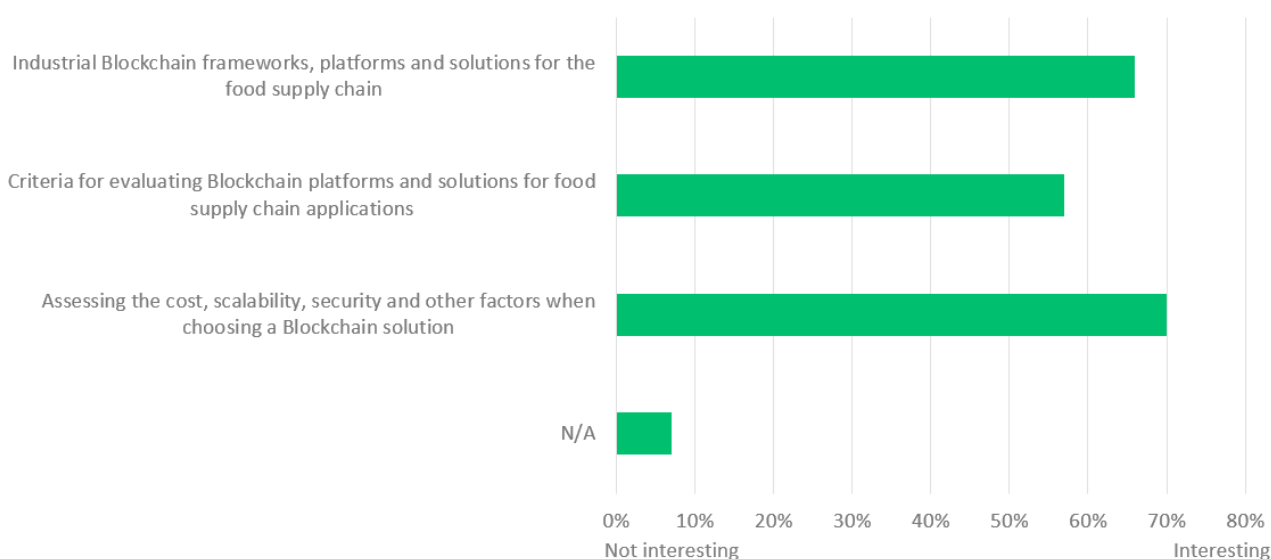


*Figure 13 :Guide to Blockchain solutions implementation. According to you, which of the following skills do you consider interesting to achieve in the context of Blockchain solutions implementation?*

The survey questioned about whether there is interest in gaining skills in Blockchain solutions implementations. Respondents evenly considered important all three statements presented: assessing the cost, scalability, security, and other factors when choosing a Blockchain solution, industrial Blockchain frameworks, platforms and solutions for the food supply chain, and criteria for evaluating Blockchain platforms and solutions for food supply chain applications.

### 3.2.2.6 Summary of findings: Demand for specific skills

In sum, respondents showed their interest in acquiring knowledge on Blockchain technologies as it is important for the future humanity is going to face. Specifically, they displayed interest in upskilling and reskilling in areas such as traceability, the environmental impact of Blockchain, IoT telemetry, and Blockchain's standards and regulations. Skills related to tokenization, digital assets, the BMV and BEV frameworks, industry standards, and security received the least interest.

## 3.3 Courses in Blockchain

The online survey in the third section specifically addresses the main objective of the TRUSTFOOD project: deliver online courses on Blockchain technologies. To do it, the survey asked respondents some questions about their interest and/or experience in attending online courses and relevant topics they would like to discuss.

### 3.3.1 Online courses attended

The first questions of the section asked respondents whether they attended an online course on Blockchain technology.
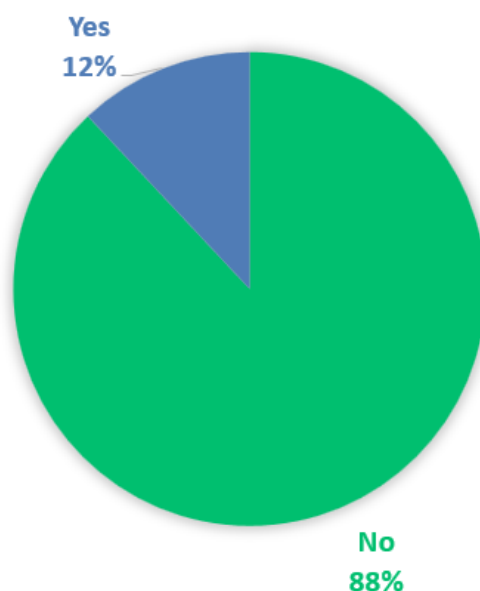


*Figure 14: Courses in Blockchain. Have you ever taken an online course on Blockchain technology in the food supply chain?*

From Figure 14 it is self-evident that most of the respondents have never attended a course in BCT: 87,7% of the respondents never attended a course, while 12,29% attended a course.

### 3.3.2 Level of satisfaction in existing courses

Another question was posed on the level of satisfaction in existing courses. Respondents who attended the existing courses on the Internet were somewhat satisfied and not so satisfied but most of them have never attended a course yet as shown in Figure 15.

*Figure 15: Overall, are you satisfied with the current courses available on the Internet?*

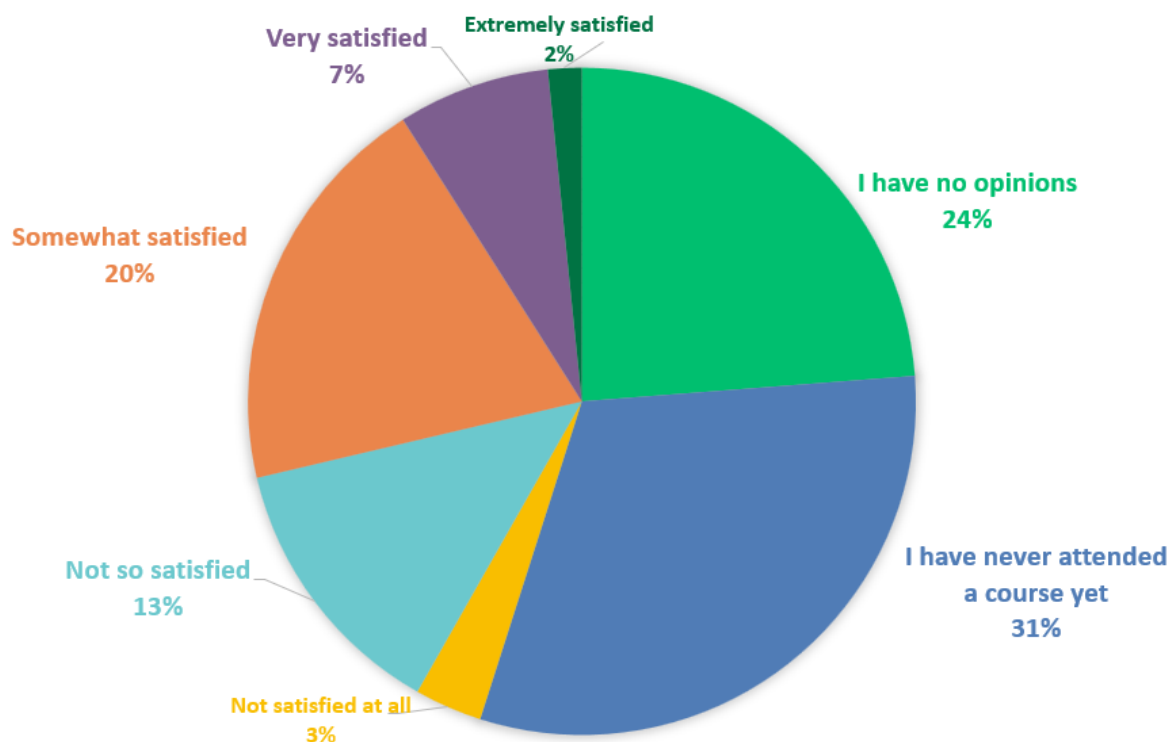The reasons why the level of satisfaction was not as high as expected is mainly because the existing courses lack details (such as the catalogue of ratings), good structure and professional content (specially tailored to the food and food FMCG sector) and professors. therefore, they claimed more real and practical lessons as the courses they attended were merely academic and difficult to adapt. Moreover, respondents were unsatisfied with low visibility and advertisements due to Python, QA and security that have flooded the market. Also, some courses are too technical, and inefficient in the online modality.

### 3.3.3 Necessary courses for job purposes

The survey went through the question: "Is it necessary to attend a course on Blockchain technology for your current or future job?". The results are presented in Figure 16.
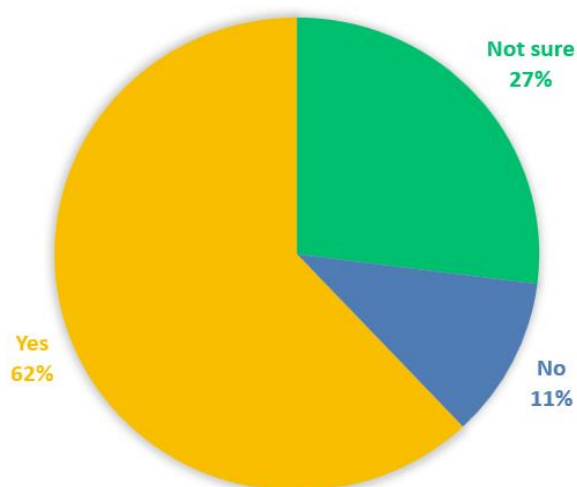
*Figure 16: In your opinion, is it necessary to attend a course on Blockchain technology for your current or future job?*

Most of the answers were positive, while a small percentage was negative. More specifically, 11% of people responded no, while 27% were not sure.

### 3.3.4 Interest in Blockchain course participation

Subsequently, the survey questioned their interest in Blockchain course participation, as the main objective of this questionnaire is to find out how many people would be interested in participating in courses about such topics.



*Figure 17: Would you be interested in participating in Blockchain training courses specifically designed for the agrifood sector?*

In the figure above, it is shown that 70% of respondents are interested in participating in Blockchain training courses specifically designed for the agri-food sector, while30% responded that they were not interested.
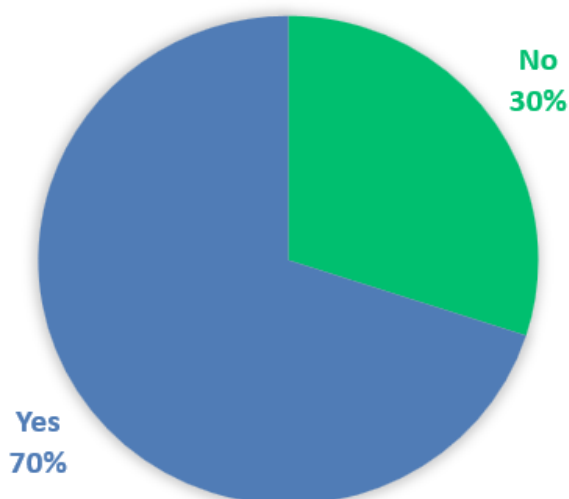
### 3.3.5 Classification of Blockchain topics

The survey then displayed a few potential topics to be discussed during the training courses.
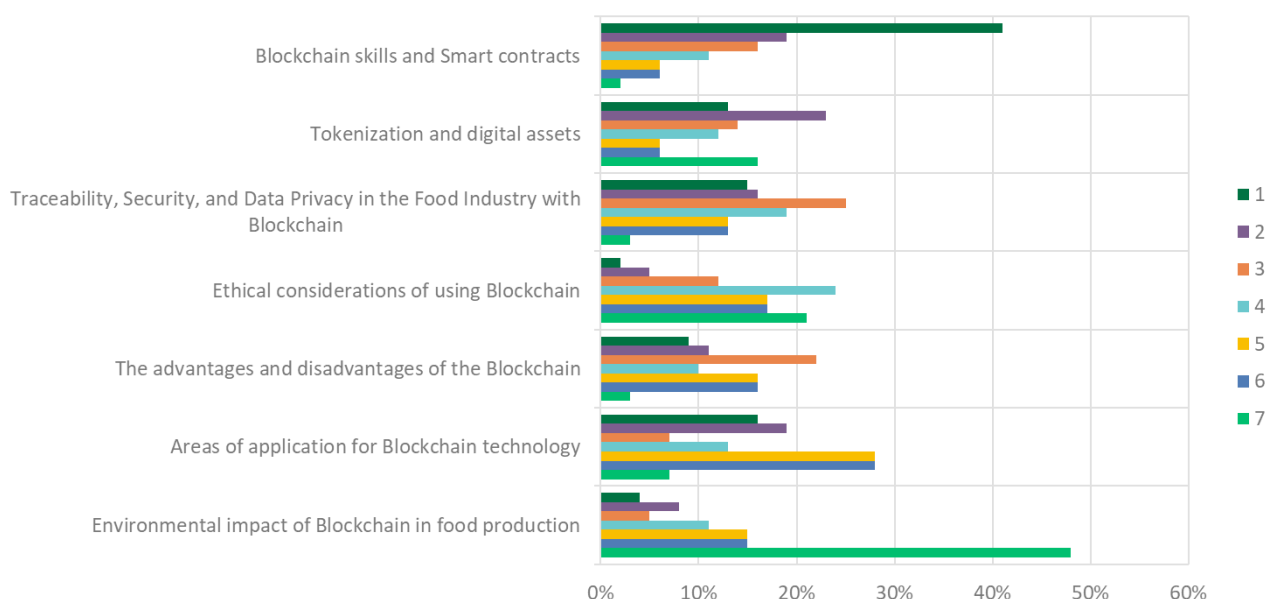


Figure 18: What topics would you most like to learn about or discuss during the course? Put them in order from the least important to the most.

The respondents were asked to put them in order from the least important to the most. The results show the following classification:

3    Blockchain skills and smart contracts
4    Tokenization and digital assets
5    Traceability, security, and data privacy in the food industry with Blockchain
6    Ethical considerations of using Blockchain
7    Areas of application for Blockchain technology
8    The advantages and disadvantages of the Blockchain
9    Environmental Impact of Blockchain in food production

### 3.3.6 Summary of findings: Feedback on Learning Ecosystem and Educational Design

The findings show that most of the respondents haven't attended a course yet. The only respondents who attended a course were somewhat and not so much satisfied because of lack of details, visibility, and high-level technical lessons. The respondents, according to their jobs, have the necessity to attend a course on Blockchain application in the food supply chain and the topics that they want to discuss are Blockchain skills and smart contracts.

## 3.4 Contact information

### 3.4.1 Age

The average age of respondents is shown in Figure 19 below.
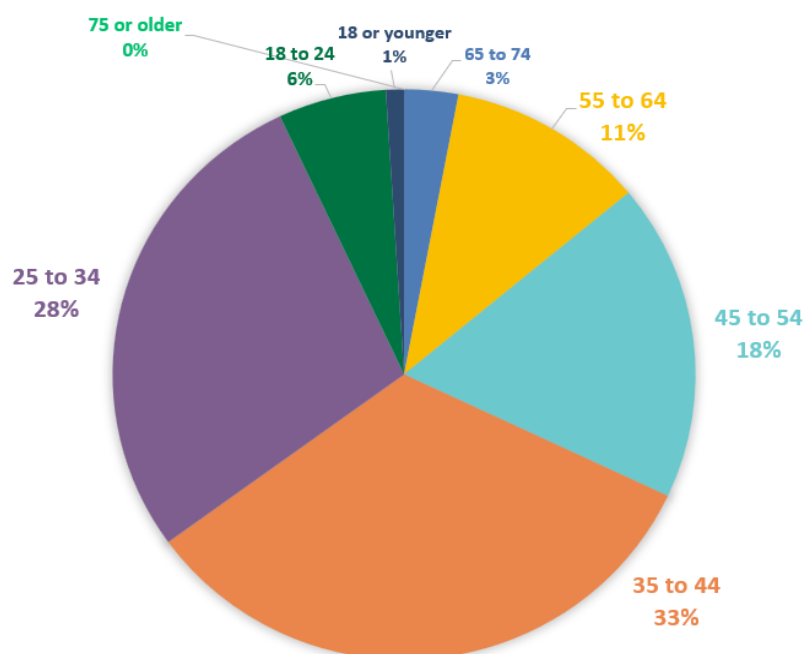


*Figure 19: Contact information. What is your age?*

It appears that interested people are generally younger workers; as 118 responses (68%) report an average age of 44 years or less. The rest of the respondent's age ranging from 45 to 74 years old.

### 3.4.2 Gender

Many occupations around Blockchain technology are characterised as being heavily male dominated.
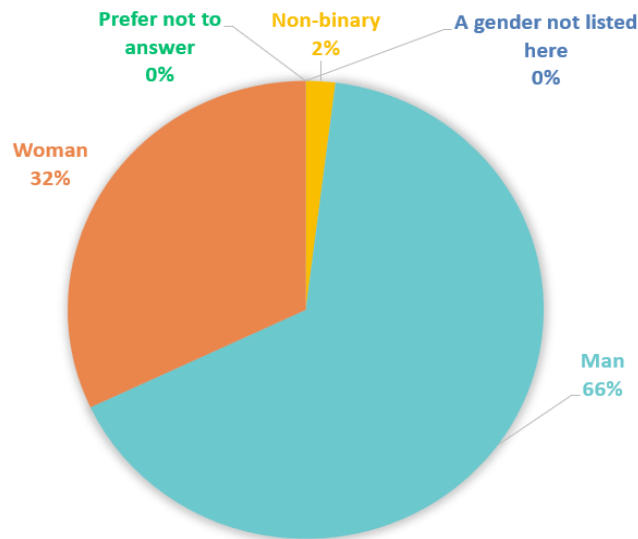
*Figure 20: Which of the following options most closely aligns with your gender?*

As evidenced by Figure 19, the survey is a confirmation of this hypothesis: it is widely clear that the percentage of males (66%) is double compared to the females (32%) participating.

### 3.4.3 Country

The distribution of attendants by country is given in Figure 20 and, as such, provides an indicator of the distribution of Blockchain course demand across the globe.
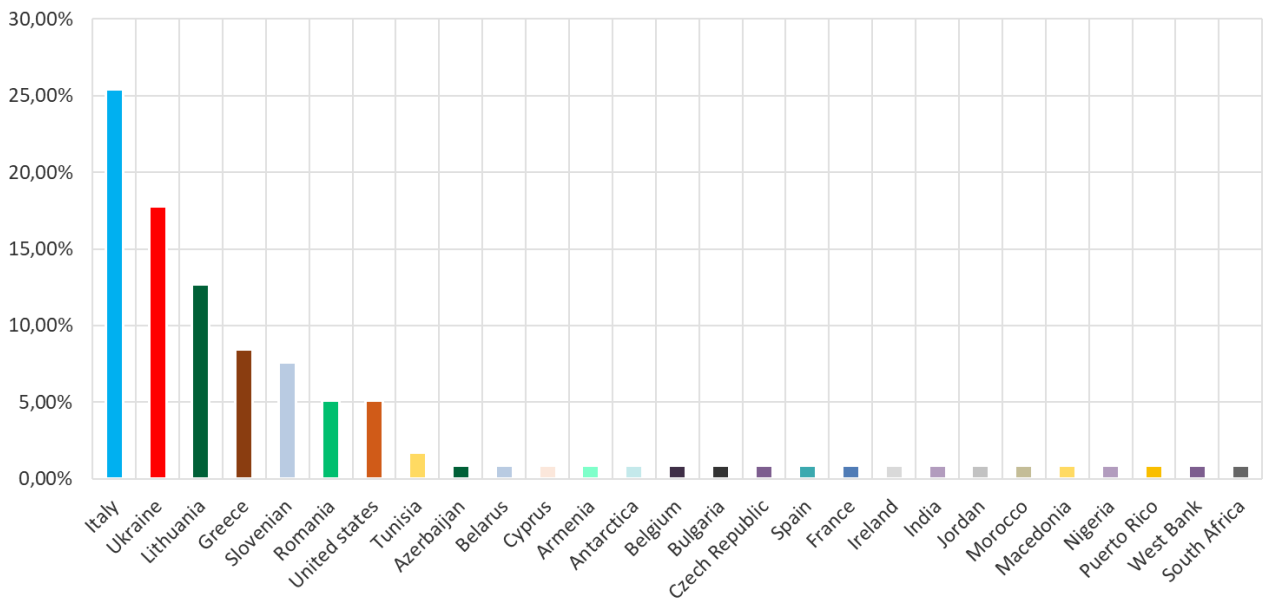


*Figure 21: Country*

At 25% Italy accounted for the highest share of interest in Blockchain according to the pool of respondents, followed by Ukraine (17%) and Lithuania (12%). Thus, only 5 countries accounted for over 1% of all respondents, with an average of 7%.

### 3.4.4 Occupation

To ascertain the current type of occupation of respondents, the survey asked whether they were employed, students, unemployed, seeking opportunities or retired.
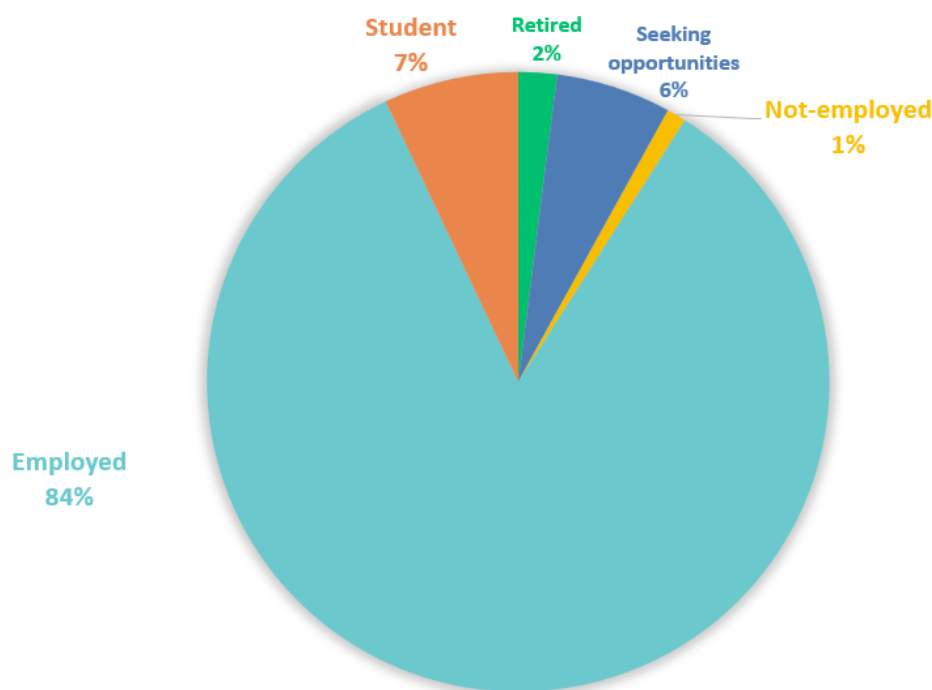


*Figure 22: Occupation*

The results revealed that the majority of respondents were employed, with students comprising only a small portion which is not exceeding 7%.

### 3.4.5 Sector of organisation

In Figure 23, the survey aimed to examine in which job sector Blockchain skills are required to represent a source of interest.
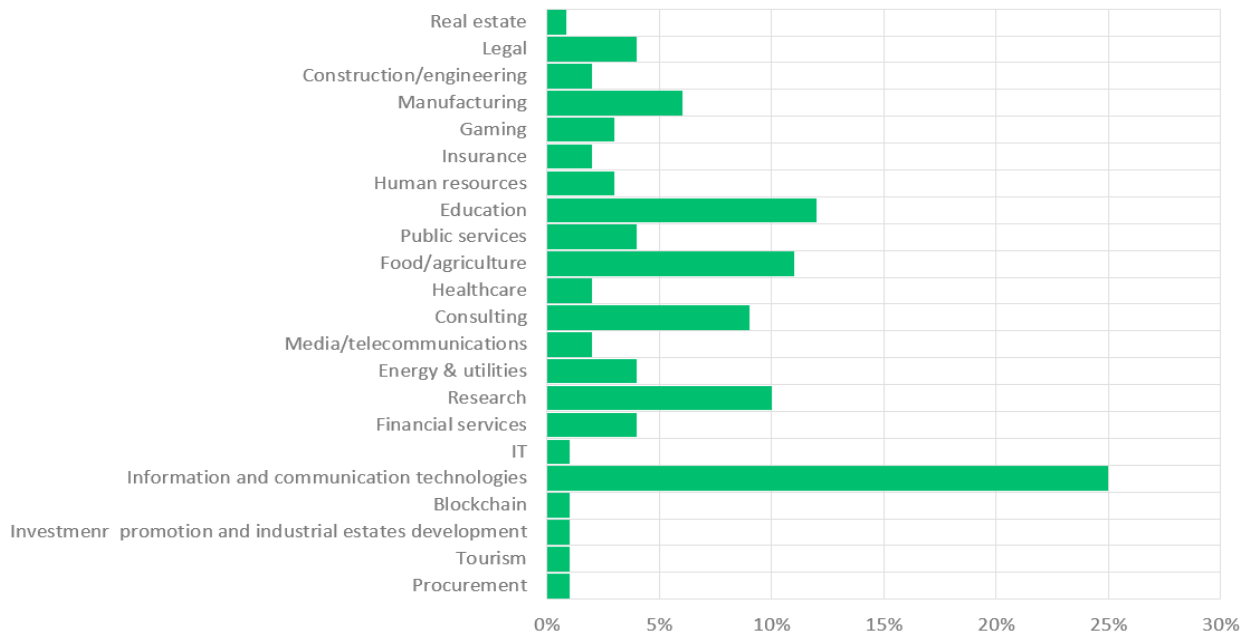
*Figure 23: Sector of organisation*

The most voted sector was information and communication technology (25%), followed by education, food agriculture and research at about 10%. Less than 10% comprehended the legal sector, construction/engineering, manufacturing, insurance, HR, public services, consulting, media, energy, and utilities, financial services, and tourism.

### 3.4.6 Employees in the organisation

In this section the survey analysed the number of employees of the respondent's organisation.
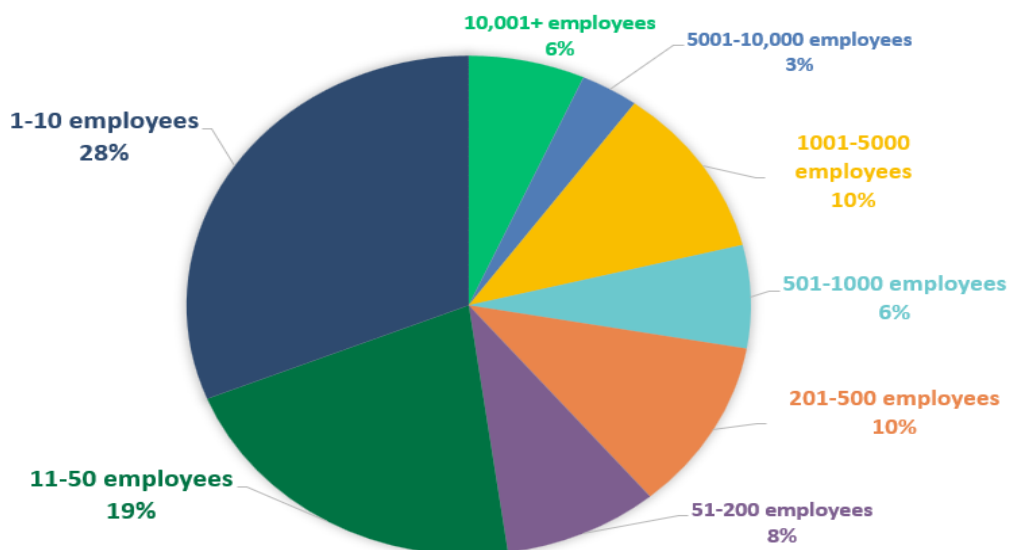


*Figure 24: How many employees does your organisation have?*

It appears that employees interested in Blockchain courses are working in Micro and Small enterprises. About 46% of total respondents worked in micro and small companies, while 40% were associated with companies that have 50 or more employees.

### 3.4.7 Position/role in the current job

Figure 25 categorised the respondents by position in the current job they hold.
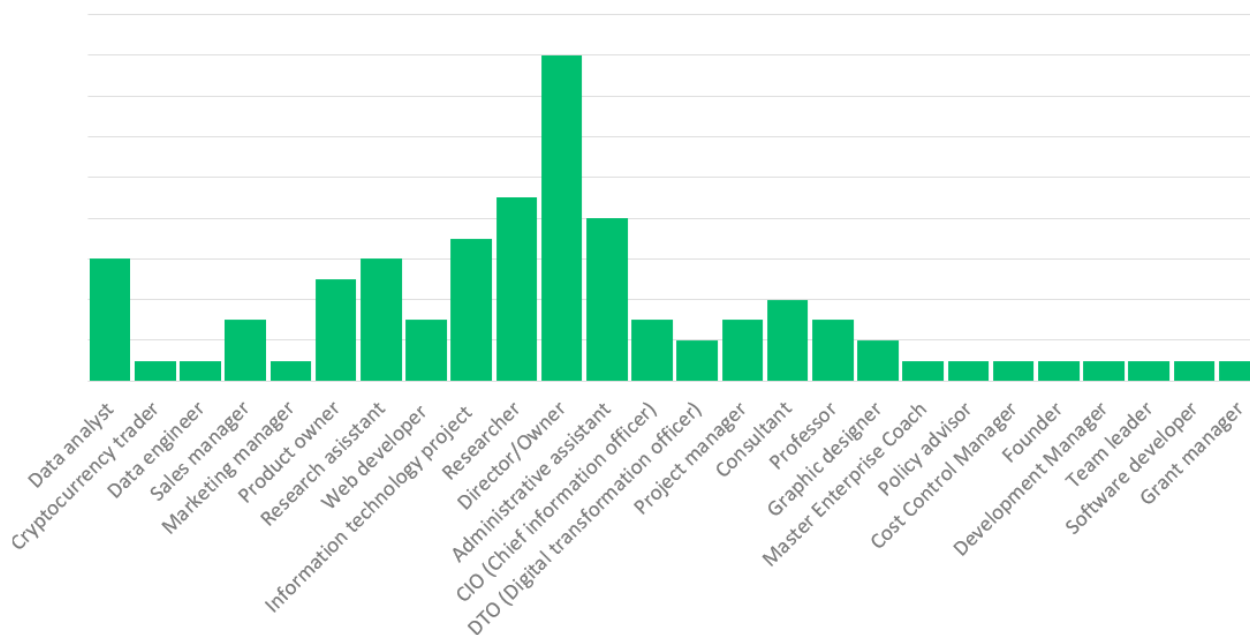


*Figure 25: Position/role in the current job*

Most of the respondents were directors or owners of an organisation, followed by researchers with 9% and administrators with 7%. Furthermore, data analysts, marketing managers, research assistants, and information technology projects, were almost at the same percentage which is 5%. Other roles with fewer selections included sales manager, web developer, CIO, project manager, DTO, and graphic designer.

### 3.4.8 Other thoughts, concerns or suggestions

An open-ended question addressing additional feedback was posed at the end of the survey. A few respondents added the following statements:

- Interactive training
- Familiarization with this technology and its potential applications in the food supply chain
- Willing to create a strategic plan of Blockchain technology of industrial zones in West Bank
- Proposal to conduct a pilot project.
- Requesting information about transparency for the consumer

### 3.4.9 Summary of findings: Personas Profile

The summary of this section primarily aims to provide a general overview of Personas profiles. From the findings, it has been acknowledged that the average trainee will be from 35 to 44 years old, male gender, and probably from Italy, Ukraine, and Lithuania. He will be already employed in the sector of information and communication technologies, in micro or small enterprises. Moreover, he is likely a director of the enterprises and requested predominantly familiarization with the technology and its potentiality, as well as transparency for the consumer. Technically, the feedback on courses is to promote interactive training with pilot projects and strategic plan implementation.

Age: 35 to 44

Gender: Man

Country: Italy

Occupation: Employed

Sector of organisation: Info. and comm. technologies

Number of employees: 1-10 employees

Position role: Director/owner
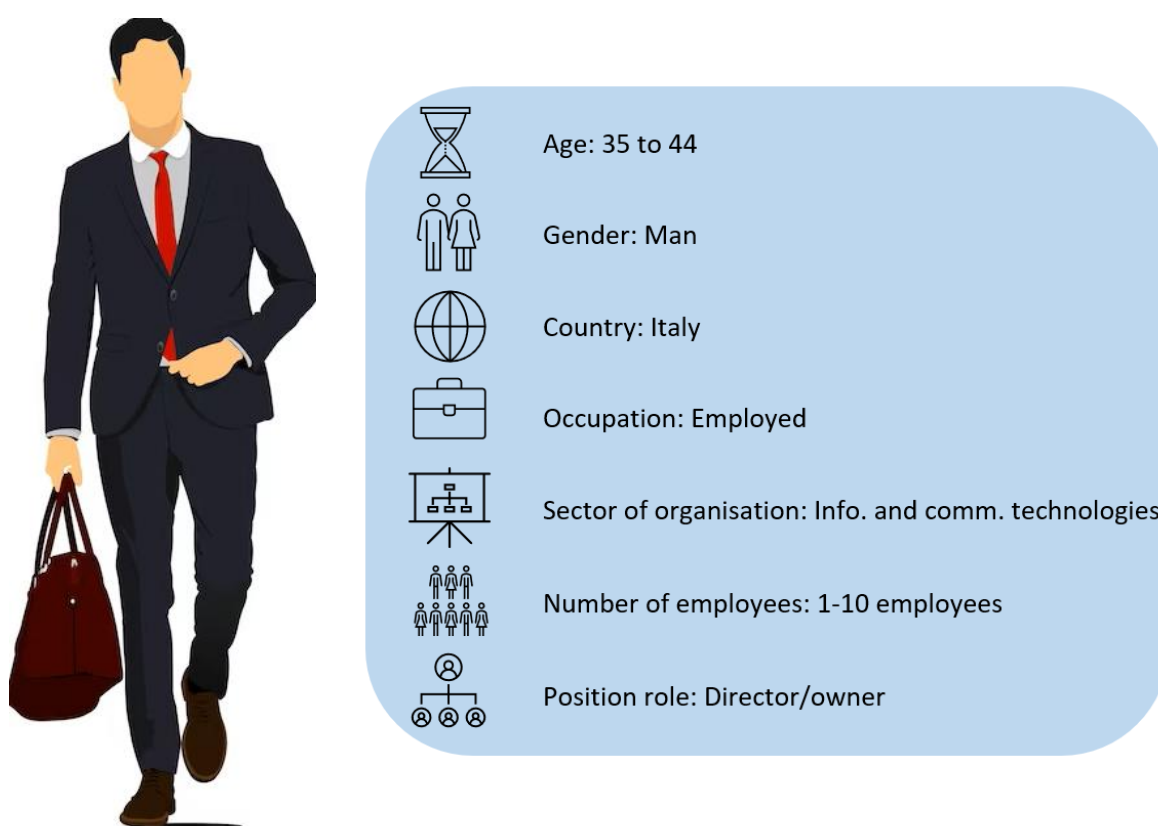
*Figure 26 - Personas profile*

These findings, while informative, underscore a broader challenge and opportunity that lies ahead. We believe in the potential that diversity holds, not just as a buzzword but as a genuine catalyst for innovation and progress.

Drawing from diverse backgrounds, experiences, and perspectives ensures that solutions and ideas are holistic, catering to the vast spectrum of realities and challenges faced across Europe. With this in mind, our mission is now more critical than ever. We aim to broaden our outreach, making our training more accessible and appealing to individuals from all European countries. Furthermore, we are committing to initiatives that

support and promote female participation. By doing so, **we hope to redress the gender imbalance** and tap into the wealth of talent and perspective that women bring to the table.

Additionally, **age diversity is another area we intend to champion**. Every age group, be it the younger generation teeming with fresh perspectives or senior professionals with years of industry experience, has unique insights to offer. We are strategizing to make our programs resonate with various age groups, ensuring that learning and collaboration are intergenerational.

That is why the TRUSTFOOD project designed an additional prototype of the Personas profile. This way, we have both profiles which reflect all the characteristics of what we aim to achieve. The additional profile is represented below:
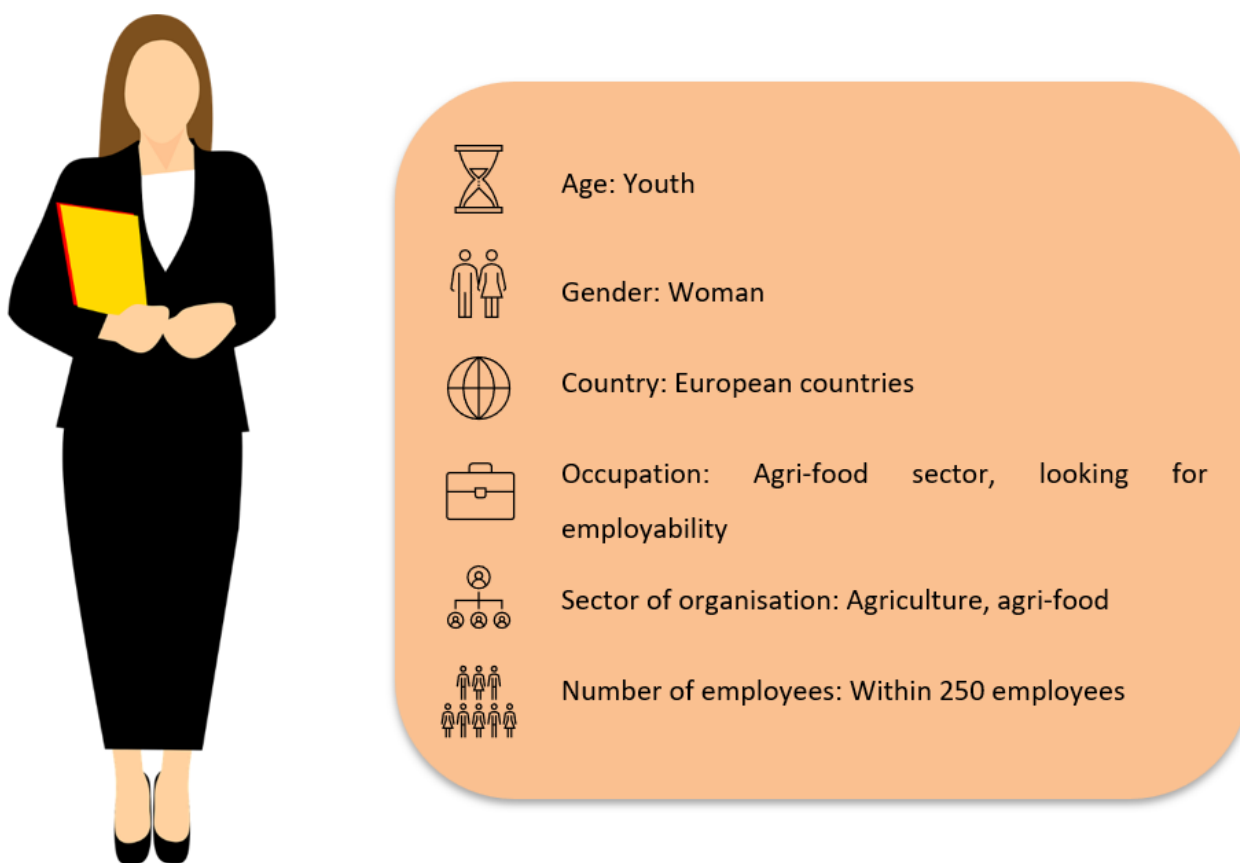


*Figure 27: Personas profile*

In essence, while the survey results have shown us where we are, they also illuminate the path forward. **Our vision for the future is one of inclusivity, where the vast tapestry of European diversity finds representation, voice, and value in our training programs.**

# 4.    Summary and conclusions

## 4.1    Summary of section findings from the trainees' engagement in the learning ecosystem design and production

This section is dedicated to the specific summary for each section of the survey, highlighting the aspects that will be useful for further analysis in the process of course structuring by gathering detailed information of each augment aggregated relatively.

- The majority of respondents indicated that they were aware of what Blockchain technology is, but they were not aware that Blockchain enables farmers to quickly access information on food processes. Furthermore, the familiarity of the respondents was focused mostly on IT, sustainability of Blockchain, smart contracts and legal framework, rather than NFT ecosystems, programming skills and tokenization which were voted as the least familiar.

- Respondents showed their interest in acquiring knowledge on Blockchain technologies as it is important for the future humanity is going to face. Specifically, they would like to upskill and reskill traceability, the environmental impact of Blockchain, IoT telemetry and standards and regulations of Blockchain. The least voted skills to acquire were referred tokenization, digital assets, frameworks BMV and BEV, industry standards and security.

- Most of the respondents never attended a course yet. The only respondents who attended a course were somewhat and not so much satisfied because of lack of details, visibility, and highly technical lessons. The respondents, according to their jobs, have the necessity to attend a course on Blockchain application in the food supply chain and the topics that they want to discuss are Blockchain skills and smart contracts.

- Based on our data, the typical trainee is likely aged between 35 and 44, identifies as male, and hails from countries such as Italy, Ukraine, or Lithuania. This individual is usually employed in the sector of information and communication technologies, in micro or small enterprises. Moreover, they are likely a director of the enterprises and requested predominantly familiarization with the technology and its potentiality, as well as transparency for the consumer. Technically, the feedback on courses is to promote interactive training with pilot projects and strategic plan implementation.

## 4.2    Conclusions

Based on the survey, the TRUSFOOD project outlined the familiarization and interest in Blockchain technology. The methodology used was to find out the responses by dividing requested information into four sections: level of knowledge in Blockchain technology, specific skills demand, courses in Blockchain and contact information. Clearly, micro and small enterprises are the most interested in taking online courses,

thus upskilling and reskilling competencies like traceability, sustainability, application with other technologies like IoT and legal framework of Blockchain in the food supply chain sector. Although respondents did not take a course yet, they considered it highly important to attend training which could address the expectations and interests demanded. Considering the overall results, the courses should be focused primarily on Blockchain skills and smart contracts, their application and security in the food industry. The courses should prioritize younger employers in the European contexts, by encouraging women's employability in the technological sector. The future of entrepreneurship in the food supply chain is highly oriented towards Blockchain application and integration, evidenced by the fact that most respondents have a job that requires these skills.

## 4.3   Policy statement

Each respondent who decided to proceed with the survey, has been acknowledging the following policy disclaimer:

*"Information that the respondent provides when registering, will be only shared with the account owner, remaining strictly confidential, and anonymous, and will be only used for research purpose"*.

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## Appendices

Online survey

### [ENGLISH] How familiar are you with Blockchain Technology?

**Blockchain Technology survey**

<u>TRUSTFOOD project</u>
This survey has been created by Trustfood, an EU-funded project aiming to promote Blockchain technology in the food supply chain sector. The TRUSTFOOD project will develop 140 courses in 7 languages to support the development of advanced digital skills of people in the labour force, with a focus on SMEs, and students in the agricultural industry.

<u>Purpose of the survey</u>
Trustfood partners will propose to the attendants a few questions to define the level of familiarization and interest in Blockchain technologies. The developed courses will be issued by considering the preferences and expectations provided by the survey.

<u>How long does it take</u>

The survey will take about 15 minutes to complete. It contains 24 questions divided into four sections.
**The deadline for submission is 30 June.**

Confidentiality
Information that the respondent provides when registering, will be only shared with the account owner, remaining strictly confidential, and anonymous, and will be only used for research purposes.

* 1. Does the respondent acknowledge and agree with the confidentiality statement?

○ Yes

○ No

## [ENGLISH] How familiar are you with Blockchain Technology?

**\* 2. <u>SECTION A. Level of knowledge on Blockchain</u>**
Are you aware of any of these statements? (Select all that apply)

☐ Blockchain is an expanding list of records, called blocks, interconnected through cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data pertaining to the transfer of a unit of value between accounts

☐ Food product distributors trace food supply chain activities to assure responsible sourcing practices, food product quality and safety.

☐ Combined with IoT technology, Blockchain allows the food supply chain participants to monitor real-time location, transportation and storage conditions (temperature, humidity, vibration, etc.) for food products in transit and in the warehouse.

☐ Blockchain can effectively help monitor the Agro-foods from the farm to the fork.

☐ Blockchain enables farmers to quickly access information on food farming, storage, transportation conditions, and quality control procedures and provides governmental regulators with detailed information on the point of potential food contamination within a moment.

☐ Blockchain technology can be successfully married to offer reliable data and information and thereby, contribute to the UN SDGs

☐ The Blockchain technology, can also substantially enhance efficiencies and minimize food waste.

☐ Increased adoption of Blockchain technology in the food supply chain is expected to drive the integration of IoT devices in various aspects, including transportation (e.g. the movement of food products from their origin to different points in the supply chain), home appliances (e.g. smart refrigerators equipped with IoT sensors that can monitor and manage food inventory, track expiration dates etc), and more.

**\* 3. Do you consider yourself familiar with the following topics? Please rate each from the least known to the most.**

| | | | | | |
|---|---|---|---|---|---|
| IT systems management | ○ | ○ | ○ | ○ | ○ |
| Cryptocurrencies and crypto assets (Bitcoin, Altcoin, Litecoin, Peercoin) | ○ | ○ | ○ | ○ | ○ |
| Tokenization and digital assets in food supply chains | ○ | ○ | ○ | ○ | ○ |
| Smart logistics and sustainable supply chain | ○ | ○ | ○ | ○ | ○ |
| NFT ecosystems (WAX, Solana, Ronin, Ethereum) | ○ | ○ | ○ | ○ | ○ |
| Blockchain for sustainability and climate action | ○ | ○ | ○ | ○ | ○ |
| Combined values of Blockchain and artificial intelligence | ○ | ○ | ○ | ○ | ○ |
| Programming skills (C++, Rust, JavaScript, Google Go, Python) | ○ | ○ | ○ | ○ | ○ |
| Legal framework, data security and privacy on Blockchain | ○ | ○ | ○ | ○ | ○ |

## [ENGLISH] How familiar are you with Blockchain Technology?

### * 4. SECTION B. Specific skills demand
Do you think that having Blockchain skills in the agri-food sector is important today?

○ Extremely important

○ Very important

○ Somewhat important

○ Not so important

○ Not important at all

○ I don't know

### 5. Why?

[                                        ]

### * 6. Food supply chain management
According to you, which of the following skills do you consider interesting to achieve in the context of Blockchain in food supply chain management? Select all that apply.

☐ Decentralized identity and access management (DIAM) in the food supply chain

☐ Inventory and asset management in the food supply chain

☐ Traceability and provenance in the food supply chain based on Blockchain

☐ Document, contract and transaction management with Smart contracts

☐ Tokenization and digital assets for products, assets and invectives

☐ Blockchain for risk management in the food supply chain

☐ Developing a strong understanding of Blockchain technology Regulatory Compliance

☐ N/A

## * 7. Sustainability and climate action
According to you, which of the following skills do you consider interesting to achieve in the context of sustainability and climate action? Select all that apply.

☐ Blockchain for environmental impact and Sustainability in the food supply chain

☐ Blockchain framework of measurement, report, and verification (MRV) towards building energy performance (BEP)

☐ Blockchain for life cycle assessment (LCA)

☐ Environmental and social impact of blockchain technology

☐ Decentralized Energy and Environmental Impact on Food Production

☐ N/A

## * 8. Interoperability and integration
According to you, which of the following skills do you consider interesting to achieve in the context of interoperability and integration? Select all that apply.

☐ Interoperability and integration of blockchain with food supply chain systems

☐ Combined values of blockchain and artificial intelligence (AI)

☐ Blockchain and IoT telemetry: product tagging, smart packaging, smart log-book and digitized labelling

☐ Knowledge of industry standards and regulations

☐ N/A

## * 9. Compliance and security
According to you, which of the following skills do you consider interesting to achieve in the context of compliance and security? Select all that apply.

- [ ] Regulatory policies, compliance and legal aspects of blockchain

- [ ] Compliance with food standards, safety regulations, and cross-border requirements.

- [ ] Data standardization and unification

- [ ] Data privacy, security and ethics

- [ ] N/A


## * 10. Guide to blockchain solutions implementation
According to you, which of the following skills do you consider interesting to achieve in the context of blockchain solutions implementation? Select all that apply.

- [ ] Industrial Blockchain frameworks, platforms and solutions for the food supply chain

- [ ] Criteria for evaluating Blockchain platforms and solutions for food supply chain applications

- [ ] Assessing the cost, scalability, security and other factors when choosing a Blockchain solution
- [ ] N/A

[ENGLISH] How familiar are you with Blockchain Technology?

**\* 11. SECTION C. Courses in Blockchain**
Have you ever taken an online course on Blockchain technology in food supply chain?

◯ Yes

◯ No

**\* 12. Overall, are you satisfied with the current courses available on the internet?**

[ ▼ ]

**13. Why?**

[                                        ]

**\* 14. In your opinion, is it necessary to attend a course on blockchain technology for your current or future job?**

◯ Yes

◯ No

◯ Not sure

◯ Other (please specify)

[                                        ]

**\* 15. Would you be interested in participating in Blockchain training courses specifically designed for the agrifood sector?**

◯ Yes

◯ No

* 16. What topics would you most like to learn about or discuss during the course? Put them in order from the least important to the most.

| | | |
|---|---|---|
| 1 | ☰ Blockchain skills and Smart contracts | ⌃ ⌄ |
| 2 | ☰ Tokenization and digital assets | ⌃ ⌄ |
| 3 | ☰ Traceability, Security, and Data Privacy in the Food Industry with Blockchain | ⌃ ⌄ |
| 4 | ☰ Ethical considerations of using Blockchain | ⌃ ⌄ |
| 5 | ☰ The advantages and disadvantages of the Blockchain | ⌃ ⌄ |
| 6 | ☰ Areas of application for Blockchain technology | ⌃ ⌄ |
| 7 | ☰ Environmental impact of Blockchain in food production | ⌃ ⌄ |

[ENGLISH] How familiar are you with Blockchain Technology?

* 17. SECTION D. Contact information
What is your age?

[          ▼]

* 18. Which of the following options most closely aligns with your gender?

○ Woman

○ Man

○ Non-binary

○ A gender not listed here

○ Prefer not to answer

* 19. Country

[dropdown]

* 20. Occupation

○ Student

○ Employed

○ Not-employed

○ Seeking opportunities

○ Retired

○ Other (please specify)

[text field]

* 21. Sector of organisation

[dropdown]

* 22. How many employees does your organisation have?

[dropdown]

* 23. Position/role in your current job

[dropdown]

24. Do you have any thoughts, concerns, or suggestions related to Blockchain technology in the food supply chain?

[text area]