The Food Safety Market: An SME-powered industrial data platform to boost the competitiveness of European food certification

D1.1 – Report on Requirements for TheFSM

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ACRONYMS LIST

TheFSM	The Food Safety Market
DoA	Description of Action
WP	Work Package
EU	European Union
BR(s)	Business Requirement(s)
BSC(s)	Business Scenario(s)
rBRc	Reference business requirement category
CB	Certification Body
FSMS	Food Safety Management System
T	Task
D	Deliverable
GFSI	Global Food Safety Initiative
FGs	Focus groups

EXECUTIVE SUMMARY

This deliverable aims at providing **the 2nd version of business, data, legal and technical requirements under the TheFSM project**, which will be the basis of the main functionalities of TheFSM platform and applications**.** The deliverable documents the outcomes of the second iteration of the following tasks under WP1 Requirements, which is delivered on M15:

Task 1.1 Business Requirements [M1-M27]

Task 1.2 Technical Requirements [M1-M33]

Task 1.3 Legal Requirements [M1-M33]

Task 1.4 Data Requirements [M1-M33]

The 1st version of business, data, legal and technical requirements under the TheFSM project (delivered on M4), were extracted from five (5) high level inspection and certification business scenarios in the food sector (food safety management and production systems, PDO/PGI and Organic wine certification, Dutch broiler meat case), which represented the core business activities of end users that are considered the ones that would benefit mostly from the platform.

This 2nd version focuses mainly on:

1. The 1st assessment of BSCs after the 1st version of D1.1, by clearing out/merging the "final" end-users (stakeholders / actors) in each scenario according to their role in TheFSM platform in order reach common BRs for all common end-users (stakeholders / actors). In this direction all BSc and BRs that were recorded during the 1st version of the deliverable, were grouped and a number of 'User Stories' were produced (in collaboration with the WP3 Leader). The aim was to have an horizontal perspective of what we would like to achieve by adjusting the FSM Platform to the end users daily operations and facilitating the certification process.
2. The finalization of the BRs and the prioritization/evaluation of user stories in terms of business and technical feasibility.
3. Evaluating whether the validation method used in the 1st version requires adjustment / changes and creating a more technical and business-oriented guide based on each user story with focus to the user stories concerning the three applications (food inspector application, supplier application and farm management system application).
4. Validation (through the second cycle of focus groups) and the first ''ranking" of BRs through the evaluation of user stories from potential end users in order to guide the Platform Cluster (technical partners) and decide on the priorities of the next steps of software development.
5. Updating the data, legal and technical requirements according to the finalised BRs emerged from the validation of user stories.
6. Preparing a roadmap regarding the implementation of Pilots in the 4th semester of 2021.

The next update of the deliverable will take place on month M27 by providing the relevant feedback according to the development progress of the FSM platform and the relative

applications (food inspector application, supplier application and farm management system application).

Participating Partners: TUV AU HELLAS (WP leader), AGROKNOW, SAI, UBITECH, Agrivi d.o.o., PROSPEH DOO, UNIVIE, WFSR, TUV AU ROMANIA, VALORITALIA, TUV AU CERT

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1. INTRODUCTION

The main objective of the 2nd version D1.1 is to provide a prioritization and ranking of BRs with criteria that resulted from the validation of user stories during the second cycle of focus groups meetings. These meetings were held with third parties that are already working with partners in each country where pilots are going to take place in order to validate their needs.

The implementation of the requirement refinement and prioritization proceeded in the following phases:

- Review the resulting BRs for each end-user (stakeholder / actor) as opposed (v1 of D1.1) from merging end users and according to the validation process (1ST Cycle of focus groups, interviews, questionnaires), so they end up with what has already been validated in every way.
- Scenarios review during end users meetings
- Share with tech partners and legal partners the revised BRS (Once we reach common BRs for all common end-users (stakeholders / actors))
- Grouping of Business requirements, creation of user stories, and ranking by the end-users of the project with criteria set for everyone (eg complexity/importance BR, etc)
- Evaluation of whether the validation method used in cycle 1 requires adjustment/changes etc before the next iteration
- Validation of the user stories in terms of business maturity/feasibility, time urgency, critical to business success/competitive advantage and added value by end-users and validation (or adjustment) of BRs, through extended focus groups (2nd cycle)
- Final ranking/prioritization of BRs which will become the functionalities of the 3 applications (food inspector application, supplier application and farm management system application).
- Update of LRs, TRs, DRs according to the validation results

The structure of the deliverable is as follows:

Section 2: completed work on 1st version of d1.1

Section 3: working methodology

Section 4: challenges faced in 2nd version of d1.1

Section 5: presentation of brs grouped in user stories

Section 6: description and evaluation of user stories by scenario leaders

Section 7-8: validation method on user stories & validation results

Section 9: integration of the individual “user stories” prioritization

Section 10-12: update of LEGAL, TECHNICAL, DATA REQUIREMENTS

Section 13: next steps and timeline for next versions of d1.1

Section 14: annexes which include timeline of the working methodology followed in D1.1 (2nd version), focus group agenda, focus groups user stories tables

2. COMPLETED WORK ON 1ST VERSION OF D1.1

The 1st version of business, data, legal and technical requirements under the TheFSM project (D1.1) was delivered on M4 and included the following progress in the relevant WP1 tasks:

- Task 1.1 Business Requirements [M1-M27] - represented the core business activities of the pilot partners and are considered the ones that would benefit most from being channeled through the platform
- Task 1.2 Technical Requirements [M1-M33] - a common framework for mapping and analysis of the specific technical requirements by:
    1. Reviewing the existing technical systems
    2. Reviewing business and data requirements
- Task 1.3 Legal Requirements [M1-M33] - the first introduction to the legal framework governing the business scenarios that have been selected, as we know them now, as well as potential issues that may arise in the project
- Task 1.4 Data Requirements [M1-M33] - focused on the analysis and documentation of important data flows within each business scenario

3. METHODOLOGY

In order to update the BRs, LRs, DRs and TR for the 2nd version of D1.1, the methodology presented in this section has been applied, which proceeded in the following steps:

- ✔ The 1st assessment of BSCs after the 1st version of D1.1, by clearing out/merging the "final" end-users (stakeholders/actors) in each scenario according to their role in THEFSM platform in order to reach common BRs for all common end-users (stakeholders/actors) as an interim step to extract a number of 'User Stories'
- ✔ Mapping and grouping of BRs with technical partners according to the functionality of each BR and the role of each end user that every single BR corresponds to, with reference to the platform. Extraction of user stories from the BRs - grouped version of merged BSCs and BRs
- ✔ Prioritization/evaluation of user stories by platform end users and scenario leaders in terms of business and technical feasibility
- ✔ Evaluating whether the validation method used in 1st version requires adjustment/changes
- ✔ Creating a more technical and business-oriented guide as a collaborative work between WP1 and WP3 (also, mentioned in the second version of D3.1) based on each user story with a focus on the user stories concerning the three applications (food inspector application, supplier application, and farm management system application).
- ✔ Finalization-Allocation of the content of focus groups (user stories, BRs) for each scenario leader
- ✔ Connection of the application with user stories/BRS (from application owners (Agrivi-Agroknow)
- ✔ Clarification of the application owners and request to prepare the mockups/wireframes or prototypes of the application that they will develop in the context of TheFSM.
- ✔ Evaluation whether the validation method used requires adjustment/changes etc before the next phases of validation and create a more technical and business-oriented roadmap based on each user story with a focus on the user stories concerning the 3 applications (focus on the adjustment of the agenda-interview guide with more data regarding your user stories collecting data regarding the commercial-business/exploitation of the platform)
- ✔ Technical feasibility results on user stories by technical partners (as input for focus groups)
- ✔ Finalizing the time planning to properly coordinate the focus groups and the pilots
- ✔ **Implementation of the Focus Groups** (validation of BRs, User stories, Priority (business feasibility, time urgency), Critical to business success/competitive advantage)
- ✔ Report and feedback on focus groups

- ✔ Integration of the individual "user stories" prioritization through matrix tables (overall ranking from all end users partners)
- ✔ Mapping existing legal requirements with user stories by (Study existing contracts with clients or between clients of end-users, Adjustment to current legal documents (contracts, agreements, declarations, etc) due to the use of THEFSM PLATFORM (List of documents affected and new ones and templates)
- ✔ Present draft v1 of technical requirements based on v1 of platform architecture to partners for feedback, map existing technical requirements with user stories and Finalize v1 of technical requirements
- ✔ Map existing Data requirements with user stories
- ✔ Report on D1.1 (v2) - update of the project requirements (BRs, LRs, TRs, DRs) and presentation of prioritization of BRs/user stories in matrix table

4. CHALLENGES FACED IN 2ND VERSION OF D1.1

Specific challenges have been met and addressed while preparing this report. These included:

- Set realistic priorities/value to BRs according to actual needs of end-user and connect them with technical feasibility in collaboration with technical partners
- Define and acquire feedback on critical input (contribution) from other WPs and Platform Cluster (technical partners) in order to achieve a connection between BRs and the Platform-Applications and work in a collaborative way
- Incorporation of technical feasibility of BRs/user stories during the implementation of focus groups in order to achieve a realistic prioritization of the ones included in the platform application
- In time implementation of focus groups (2nd validation phase) accompanied with input on mockups, working prototypes, etc from AGROKNOW and AGRIVI, taking into account also the COVID-19 pandemic
- Selection and implementation of suitable methodology (through matrix tables) regarding the ranking of BRs/user stories, in order to provide to technical partners which are the BRs/user stories that are crucial to be incorporated as functionalities in the three applications
- Elaboration of the input/feedback from all focus groups (Greece, Italy, Cyprus, Romania, Netherlands) in order to present unified and concrete results
- Connection of outcome and impact indicators with WP1 in order to coordinate accordingly an achievement plan
- Prepare the roadmap for the implementation of pilots through successful focus groups

5. PRESENTATION OF BRS GROUPED IN USER STORIES

After the submission of the first version of deliverable D1.1 the conclusion was that all the BSC (business scenario) are bounded to the same generic scope, as the one of the "inspection and certification in the food supply chain", and due to the bidirectional interactions and interrelation that exist between its main actors, some common BRs have been recorded amongst the different BSC and the different stakeholder within each BSC.

Specifically, four (4) reference BR Categories had been introduced in our BR analysis, under which all the 175 identified BRs were allocated. These four reference BR categories had been adapted based on both the relevant customized international literature for developing business scenarios (Manager's Guide to Business Scenarios, by The Open Group Architecture Forum) and the former experience of the WP1 project team.

These reference BR categories were:

1. **rBRc 1: Improve business process performance**
2. **rBRc 2: Improve business operation**
3. **rBRc 3: Improve management efficacy**
4. **rBRc 4: Improve business continuity & sustainability**

(rBRc: reference BR category)

From the first deliverable, the conclusion was that the most important categories, in terms of the number of the relevant BRs gathered were, **rBRc3** management efficacy and **rBRc4** Business Continuity & Sustainability.

The user stories that consequently developed from the reference categories, are the sum of these business requirements under each one of the four reference categories, which addressed a specific need regardless of the end user that presented in each business scenario. The user stories attempt to answer critical questions raised by each end user, which are "What I want to do" with each BR and "Which will be the outcome" to expect as a tangible result.

For that reason, it was significant to evaluate the user stories theoretically from the perspective of facilitating the food safety certification information exchange in the food supply chain, and validate them with representative companies of this supply chain, aiming to prioritize them as basic components of the FSM functionalities to be served.

In the tables below the user stories that have been created and underlie each reference BR category are presented, related with the critical questions that combine the commentary behind each BR.

5.1. rBRc 4: Improve business continuity & sustainability

ID	Business requirement no	Category	User Story		
			As a	I want to <user>	So that
US_1	BR_nr2_1	Analytics	Producer	Collect different data related to business characteristics and the final product	I can have a better view of products I am interested in / i can confirm (reveal) that my production process conforms with the certification requirements
US_2	BR_nr2_2	Analytics	Producer	Be able to manage and evaluate data from different heterogenous sources	I can draw conclusions for analysis, legislative requirements, etc.
US_10	BR_nr2_16, BR_nr4_11, BR_nr4_15	Decision making	All	Use real-time data	Reduce decision-making time
US_11	BR_nr2_20	Decision making	Food Processor	Be able to segregate critical control points data (regarding product safety) from functional control points data	I can better assess both
US_22	BR_nr2_45, BR_nr4_2	Monitoring, Certification	Certification Body, Inspector/auditor	Have direct and official information on findings of the National Audit Authorities in certified Producers, Food processors and Retailers	I can consult this information for decision making
US_29	BR_nr1_1	Decision making	Retailer	Be able to access information regarding findings of the inspection of suppliers in the food chain	I can make better decisions based on evidence
US_33	BR_nr3_3, BR_nr3_11, BR_nr3_19	Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process/Be able to chose appropiate certificate scheme	Have more information when considering/ I can meet the requirements of different organizations (retailers, distributor, processors)

US_34	BR_nr3_4, BR_nr3_12, BR_nr3_20, BR_nr3_30	Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations
US_35	BR_nr3_7, BR_nr3_15, BR_nr3_23, BR_nr3_31	Decision making, certification	Producer, Distributor, Certification Body, Food processor	Have access to validated data of all stakeholders	I can support decision-making processes
US_36	BR_nr3_21	Decision making	Distributor	assess data	I Can conduct fact driven management
US_43	BR_nr4_9, BR_nr4_10, BR_nr4_13, BR_nr4_14, BR_nr4_16, BR_nr4_17, BR_nr4_19, BR_nr4	Traceability	Farmer/Producer, Distributor	Be able to trace input suppliers	Ensure the quality of my product

	_20, BR_nr4 _22				
US _44	BR_nr4 _23	Decision making	Public authorities	Be able to check and verify product data with respect to compliance with certification regulations	I can ensure transparency
US _45	BR_nr5 _1	Monitoring	Public Authorities (NVWA)	Be able to predict when/what/where to check	I can ensure food safery and effeciency
US _46	BR_nr5 _2	Monitoring	Public Authorities (NVWA)	Be able to have access to the degital format of the inspection	I can ensure effeciency
US _47	BR_nr5 _3	Monitoring	Public Authorities (NVWA)	Be able to to search past audit performance per actor (producer, supplier, etc.)	I can ensure food safety and inspection effeciency
US _48	BR_nr5 _4	Risk estimation	Public Authorities (NVWA)	Be able to conduct risk-based monitoring	I can conduct effecient sampling
US _49	BR_nr5 _8	Certification	Public authorities	Be able to assess the performance of the producers in complying to the certification standards	I can decide to what extent they comply with law and certification standards
US _50	BR_nr5 _12	Monitoring	Industry	Be able to inspect market needs and new clients	I can better supervise the supply chain process
US _51	BR_nr5 _13	Monitoring	Industry	Be able to establish an up to date communication channel with traders	I can ensure communication

5.2. rBRc 3: Improve management efficacy

ID	**Business requirement no**	**Category**	**User Story**		
			As a	**I want to <user>**	**So that**

US_3	BR_nr2_3	Notifications	Producer	Be constantly updated about information shown to me	I can make valid decisions
US_4	BR_nr2_4	Logging	Producer	Record up to date data assets for exploitation	I can catalogue data which is of interest to me
US_5	BR_nr2_6	Certification	Producer	Be able to validate GLOBALGAP certificates	I can be certain about the credibility of the certificates I am viewing
US_6	BR_nr2_7	Logging	Producer	Archive agreed specifications on the delivered product	I can make cooperation easier
US_9	BR_nr2_14, BR_nr5_10, BR_nr4_1, BR_nr4_5, BR_nr4_8, BR_nr4_12, BR_nr4_18, BR_nr4_21, BR_nr5_2	Data, Certification	Producer, Food processor, Industry, Inspector/auditor	Replace physical documents with a complete digital collection	I can organize daily work faster and more efficiently

US_10	BR_nr2_16 BR_nr4_11 BR_nr4_15	Decision making	All	Use real-time data	Reduce decision-making time
US_11	BR_nr2_20	Decision making	Food Processor	Be able to segregate critical control points data (regarding product safety) from functional control points data	I can better assess both
US_12	BR_nr2_21	Monitoring	Food Processor	Be constantly updated about information that directly or indirectly affects food safety	I can ensure better quality for the product
US_13	BR_nr2_22, BR_nr2_35	Data, Traceability, Certification	Food Processor, Certification Body	Be able to easily access aggregated data from various sources (e.g., suppliers)	I can assess compliance with food safety standards and with the requirements of certified schemes
US_14	BR_nr2_24	Monitoring	Food Processor	Be immediately notified about any non-conformity raised for the producer and their certified product	I can take proper action
US_15	BR_nr2_25	Certification	Food Processor	Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding the accrediation of different kind of labs	I can validate my working collaborators and verify the effectiveness of the FSMS
US_16	BR_nr2_27	Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe
US_17	BR_nr2_33	Monitoring	Food Processor	Have the ability of finding new partnerships and cooperation, via accessing information relevant to the current market needs	I can produce products which will cover above needs
US_18	BR_nr2_36	Certification	Certification Body	Be able to access up-to-date data from different sources and access to new and amended legislation	I can ensure the transparency of the certification process
US_19	BR_nr2_37	Certification	Certification Body	Be able to use a representative sample of the processed data	I can evaluate compliance with product specifications

US_20	BR_nr2_39	Certification	Certification Body	Be able to collect needed documentation prior to the certification decision	The decision can be properly certified
US_21	BR_nr2_40	Certification	Certification Body	Have different methods of sending and receiving information	I can collect documentation during the certification process
US_29	BR_nr1_1	Decision making	Retailer	Be able to access information regarding findings of the inspection of suppliers in the food chain	I can make better decisions based on evidence
US_31	BR_nr1_3	Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities
US_33	BR_nr3_3, BR_nr3_11 BR_nr3_19	Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process/Be able to chose appropiate certificate scheme	Have more information when considering/ I can meet the requirements of different organizations (retailers, distributor, processors)
US_36	BR_nr3_21		Distributor	assess data	I Can conduct fact driven management
US_40	BR_nr3_35, BR_nr3_36	Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency
US_43	BR_nr4_9 BR_nr4_10 BR_nr4_13 BR_nr4_14 BR_nr4_16 BR_nr4_17	Traceability	Farmer/Producer, Distributor	Be able to trace input suppliers	Ensure the quality of my product

	BR_nr4_19 BR_nr4_20 BR_nr4_22				
US_44	BR_nr4_23		Public authorities	Be able to check and verify product data with respect to compliance with certification regulations	I can ensure transparency
US_45	BR_nr5_1	Monitoring	Public Authorities (NVWA)	Be able to predict when/what/where to check	I can ensure food safery and effeciency
US_46	BR_nr5_2	Monitoring	Public Authorities (NVWA)	Be able to have access to the degital format of the inspection	I can ensure effeciency
US_47	BR_nr5_3	Monitoring	Public Authorities (NVWA)	Be able to to search past audit performance per actor (producer, supplier, etc.)	I can ensure food safety and inspection effeciency
US_48	BR_nr5_4	Risk estimation	Public Authorities (NVWA)	Be able to conduct risk-based monitoring	I can conduct effecient sampling
US_49	BR_nr5_8	Certification	Public authorities	Be able to assess the performance of the producers in complying to the certification standards	I can decide to what extent they comply with law and certification standards
US_50	BR_nr5_12	Monitoring	Industry	Be able to inspect market needs and new clients	I can better supervise the supply chain process
US_51	BR_nr5_13	Monitoring	Industry	Be able to establish an up to date communication channel with traders	I can ensure communication

5.3. rBRc 2: Improve business operation

ID	Busine	Categor	User Story

	ss requirement no	y	As a	I want to <user>	So that
US_7	BR_nr2_8	Integration	Producer	Be able to interconnect with the food processor's recording system	I can view terms of critical product data, tracking per batch and certificates of conformity
US_8	BR_nr2_12	Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience
US_16	BR_nr2_27	Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe
US_23	BR_nr2_46, BR_nr3_6, BR_nr3_14	Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency
US_24	BR_nr2_48	Auditing, Certification	Certification Body	Be able to obtain on-demand immediate stakeholder profile in terms of certification history	I can easier analyze the audit risk and for control/validation
US_25	BR_nr2_50	Risk estimation, Auditing	Certification Body	Be able to use and re-examine previous customers' audit findings, grouped into certain categories	I can highlight areas of high risk for subsequent audits
US_26	BR_nr2_51 BR_nr3_5 BR_nr3_13 BR_nr3_21	Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain a robust traceability and be able to efficiently withdraw products, should the need arise

US_27	BR_nr3_8, BR_nr3_16 BR_nr3_22 BR_nr3_24 BR_nr3_32 BR_nr2_53	Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access fully traced information	I can have transparency and ensure no unfrair trade practices effect consumers
US_28	BR_nr2_55	Profiling	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust on my brand name
US_30	BR_nr1_2	Certification	Retailer	Be able to access current status of food supply actors, as far as audit results of certify organizations are concerned	I can validate their credibility for cooperation
US_31	BR_nr1_3	Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities
US_32	BR_nr3_2, BR_nr3_10, BR_nr3_18	Certification	Producer, Food processor, Distributor	Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer/ Be able to access detailed information regarding certificate validity and scope of certification	I can speed up certification and validation
US_36	BR_nr3_21		Distributor	assess data	I Can conduct fact driven management
US_37	BR_nr3_26	Certification	Certification Body	Be able to understand the specific requirements of an organization	I can speed up the certification process without grey areas
US_38	BR_nr3_27	Certification	Certification Body	Be able to directly interact with organizations requesting certification	To speed up the certification process
US_39	BR_nr3_33	Certification,	Certification Body	Be able to have a better overall view of the ability of an audited organization	I can have better audit results

		Auditing			
US_40	BR_nr3_35 BR_nr3_36	Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency
US_41	BR_nr4_4, BR_nr4_7	Monitoring	Inspector/Auditor	Be able to interact with data of different Certification Bodies	The data has increased reliability
US_42	BR_nr4_5	Certification	Certification Committee	Be able to verify a digital report	
US_43	BR_nr4_9, BR_nr4_10 BR_nr4_13 BR_nr4_14 BR_nr4_16 BR_nr4_17 BR_nr4_19 BR_nr4_20 BR_nr4_22	Traceability	Farmer/Producer, Distributor	Be able to trace input suppliers	Ensure the quality of my product
US_44	BR_nr4_23		Public authorities	Be able to check and verify product data with respect to compliance with certification regulations	I can ensure transparency
US_45	BR_nr5_1	Monitoring	Public Authorities (NVWA)	Be able to predict when/what/where to check	I can ensure food safery and effeciency

US_46	BR_nr5_2	Monitoring	Public Authorities (NVWA)	Be able to have access to the degital format of the inspection	I can ensure effeciency
US_47	BR_nr5_3	Monitoring	Public Authorities (NVWA)	Be able to to search past audit performance per actor (producer, supplier, etc.)	I can ensure food safety and inspection effeciency
US_48	BR_nr5_4	Risk estimation	Public Authorities (NVWA)	Be able to conduct risk-based monitoring	I can conduct effecient sampling
US_49	BR_nr5_8	Certification	Public authorities	Be able to assess the performance of the producers in complying to the certification standards	I can decide to what extent they comply with law and certification standards
US_50	BR_nr5_12	Monitoring	Industry	Be able to inspect market needs and new clients	I can better supervise the supply chain process
US_51	BR_nr5_13	Monitoring	Industry	Be able to establish an up to date communication channel with traders	I can ensure communication

5.4. rBRc 1: Improve business process performance

ID	Business requirement no	Category	User Story		
			As a	I want to <user>	So that
US_7	BR_nr2_8	Integration	Producer	Be able to interconnect with the food processor's recording system	I can view terms of critical product data, tracking per batch and certificates of conformity
US_8	BR_nr2_12	Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience
US_16	BR_nr2_27	Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe

US_25	BR_nr2_50	Risk estimation, Auditing	Certification Body	Be able to use and re-examine previous customers' audit findings, grouped into certain categories	I can highlight areas of high risk for subsequent audits
US_26	BR_nr2_51 BR_nr3_5 BR_nr3_13 BR_nr3_21	Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain a robust traceability and be able to efficiently withdraw products, should the need arise
US_27	BR_nr3_8, BR_nr3_16 BR_nr3_22 BR_nr3_24 BR_nr3_32 BR_nr2_53	Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access fully traced information	I can have transparency and ensure no unfrair trade practices effect consumers
US_28	BR_nr2_55	Profiling	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust on my brand name
US_31	BR_nr1_3	Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities
US_36	BR_nr3_21		Distributor	assess data	I Can conduct fact driven management
US_40	BR_nr3_35 BR_nr3	Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency

	_36				
US_43	BR_nr4_9 BR_nr4_10 BR_nr4_13 BR_nr4_14 BR_nr4_16 BR_nr4_17 BR_nr4_19 BR_nr4_20 BR_nr4_22	Traceability	Farmer/Producer, Distributor	Be able to trace input suppliers	Ensure the quality of my product
US_44	BR_nr4_23		Public authorities	Be able to check and verify product data with respect to compliance with certification regulations	I can ensure transparency
US_45	BR_nr5_1	Monitoring	Public Authorities (NVWA)	Be able to predict when/what/where to check	I can ensure food safery and effeciency
US_46	BR_nr5_2	Monitoring	Public Authorities (NVWA)	Be able to have access to the degital format of the inspection	I can ensure effeciency
US_47	BR_nr5_3	Monitoring	Public Authorities (NVWA)	Be able to to search past audit performance per actor (producer, supplier, etc.)	I can ensure food safety and inspection effeciency
US_48	BR_nr5_4	Risk estimation	Public Authorities (NVWA)	Be able to conduct risk-based monitoring	I can conduct effecient sampling

US_49	BR_nr5_8	Certification	Public authorities	Be able to assess the performance of the producers in complying to the certification standards	I can decide to what extent they comply with law and certification standards
US_50	BR_nr5_12	Monitoring	Industry	Be able to inspect market needs and new clients	I can better supervise the supply chain process
US_51	BR_nr5_13	Monitoring	Industry	Be able to establish an up to date communication channel with traders	I can ensure communication

6. DESCRIPTION AND 1ST EVALUATION OF USER STORIES

Each partner took over to evaluate those "User Stories" that correspond to the "end-users" of the business scenario they have developed.

The rationale behind this 1st evaluation was to provide the Technical Partners initial constructive key user needs that the Applications, to be used in "TheFSM" project, should cover. This consequently would allow the Technical Partners to develop the software prototypes to be used as a means to further support the WP1 objectives. Meaning to provide the end-users with a more descriptive outlook of the upcoming functionalities to be provided through the "TheFSM" platform, tailor-made to answer their business need (business requirements) as they had been identified during the initial approach of WP1 (1st version-deliverable).

The evaluation intended to prioritize the "user stories" specifically by taking into consideration three critical factors. The ones of (i) Business Maturity/Feasibility, (ii) the Time Urgency and also (iii) the criticality of the "user story" to the business success or the competitive advantage given to the end users.

For each one of these critical factors, the following three qualitative levels of importance were used to rank the "User Stories:

(a) High importance,

(b) Medium importance and

(c) Low importance.

6.1. From qualitative to quantitative results

In order to analyze the qualitative results of the User Stories in a uniform and tangible way throughout all the Business Scenarios, a quantitative interpretation of the quality values (high, medium, low) that were defined during the evaluation process for each critical factor, was implemented.

More precisely, the numeric values of one (1), two (2) and three (3) were given to each one of the quality attributes of Low, Medium and High importance respectively.

These values were applied to the corresponding quality attributes at each User Story and a numeric multiple emerged ("critical value"). This "critical value" was used for prioritizing the importance of each User Story between the following scale.

Rating Scale for User Stories

Critical Value	Rating Attribute
1 – 6	Low Importance
7 – 12	Medium Importance
13 - 27	High Importance

6.2. Business Scenario 1: The retailer

6.2.1. Evaluation of the User Stories of BSC1

Based on the content of the BSC 1, Agroknow took over to evaluate forty five (45) out of the fifty one (51) User Stories developed. The results of this evaluation are presented below in Table 1.

The user stories that were evaluated, were relevant to needs addressed mainly by food processors, retailers, and public authorities.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_1	Medium	Low	Low
US_2	Low	Low	Low
US_3	Low	Low	Low
US_4	Low	Low	Low
US_5	Low	Medium	Medium
US_6	Medium	Low	Medium
US_7	Medium	Medium	Medium
US_8	High	Medium	Medium
US_9	Low	Medium	Medium
US_10	Medium	Medium	Medium
US_11	Medium	Medium	Medium
US_12	High	High	High
US_13	Medium	High	High
US_14	Medium	Medium	Medium
US_15	Low	Low	Low
US_16	High	High	High
US_17	Low	Medium	Medium
US_18	Low	Medium	High
US_21	Medium	Medium	High
US_22	Low	High	High
US_24	Medium	High	Medium
US_25	High	High	High
US_26	Medium	Low	Low
US_27	Medium	High	High

US_29	High	High	High
US_30	High	High	High
US_31	High	Medium	Medium
US_32	Medium	Medium	Medium
US_33	Low	Low	Low
US_34	Medium	High	High
US_35	Medium	Medium	High
US_37	Medium	Low	Low
US_38	Medium	Medium	Medium
US_39	Medium	Medium	High
US_40	High	High	High
US_41	High	High	High
US_43	Medium	High	Medium
US_44	Low	Low	Low
US_45	Medium	Medium	High
US_46	Medium	Medium	High
US_47	High	High	High
US_48	High	High	High
US_49	Medium	High	High
US_50	Low	Low	Low
US_51	Low	Low	Low

Table 1: Table of BSC 1 with the evaluation of the User Stories that correspond to BSC1

6.2.2. Conclusions on the User Stories evaluation of BSC 1

The results of the evaluation of the User Stories of BSC1 were further analyzed through a quantitative matrix approach, that allows overall for a qualitative categorization of the User Stories in terms of their importance from the perspective of the involved partner. The categorization is presented in the Table 2 below, using the Green (high importance), orange (medium importance) and red (low importance) color depiction.

Specifically, this evaluation indicated thirteen (13) User Stories of "High Importance", sixteen (16) User Stories of "Medium Importance" as well as an equal number of sixteen (16) User Stories as of "Low Importance" based on the need of the BSC1.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	Matrix Score
US_1	2	1	1	2
US_2	1	1	1	1
US_3	1	1	1	1
US_4	1	1	1	1
US_5	1	2	2	4
US_6	2	1	2	4
US_7	2	2	2	8
US_8	3	2	2	12
US_9	1	2	2	4
US_10	2	2	2	8
US_11	2	2	2	8
US_12	3	3	3	27
US_13	2	3	3	18
US_14	2	2	2	8
US_15	1	1	1	1
US_16	3	3	3	27
US_17	1	2	2	4
US_18	1	2	3	6
US_21	2	2	3	12
US_22	1	3	3	9
US_24	2	3	2	12
US_25	3	3	3	27
US_26	2	1	1	2
US_27	2	3	3	18
US_29	3	3	3	27
US_30	3	3	3	27
US_31	3	2	2	12
US_32	2	2	2	8
US_33	1	1	1	1

US_34	2	3	3	18
US_35	2	2	3	12
US_37	2	1	1	2
US_38	2	2	2	8
US_39	2	2	3	12
US_40	3	3	3	27
US_41	3	3	3	27
US_43	2	3	2	12
US_44	1	1	1	1
US_45	2	2	3	12
US_46	2	2	3	12
US_47	3	3	3	27
US_48	3	3	3	27
US_49	2	3	3	18
US_50	1	1	1	1
US_51	1	1	1	1

Table 2: Table of BSC 1 with the matrix of evaluation of the User Stories

6.3. Business Scenario 2: Food Processing

6.3.1. Evaluation of the User Stories of BSC2

Based on the content and commentary of the BSC 2, "TUV AUSTRIA Hellas" took over to evaluate thirty nine (39) representative user stories, out of the total fifty one (51) User Stories developed. The results of this evaluation are presented below in Table 3.

The user stories that were evaluated, were relevant to needs addressed mainly by producers (farmers), food processors, retailers and certification bodies.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage
US_1	High	Medium	High
US_2	High	Medium	High
US_3	High	Medium	High
US_4	Medium	Low	High

US_5	Medium	Medium	Medium
US_6	Medium	Medium	Medium
US_7	Medium	Medium	High
US_8	High	High	High
US_9	High	High	High
US_10	Medium	Medium	High
US_11	Medium	Medium	High
US_12	High	Medium	High
US_13	Medium	Medium	High
US_14	High	High	High
US_15	Medium	Medium	High
US_16	High	Medium	High
US_17	Medium	Low	High
US_18	Medium	Medium	High
US_19	High	Medium	High
US_20	High	Medium	High
US_21	High	High	High
US_22	High	Medium	High
US_23	High	Medium	High
US_24	Medium	Medium	High
US_25	Medium	Medium	High
US_26	High	High	High
US_27	High	High	High
US_28	Medium	Low	High
US_30	Medium	Medium	High
US_31	High	Medium	High
US_32	Medium	Low	High
US_33	High	Medium	Medium

US_34	High	High	High
US_35	High	Medium	Medium
US_37	Medium	Low	Medium
US_38	Medium	Low	Medium
US_39	Medium	Low	Medium
US_40	High	Medium	High
US_41	Medium	Medium	Medium
US_43	High	High	High

Table 3: Table of BSC 2 with the evaluation of the User Stories that correspond to this scenario

6.3.2. Conclusions on the User Stories evaluation of BSC 2

The results of the evaluation of the User Stories of BSC2 were further analyzed through a quantitative matrix approach, that allows overall for a qualitative categorization of the User Stories in terms of their importance from the perspective of the involved partner. The categorization is presented in the Table 4 below, using the Green (high importance), orange (medium importance) and red (low importance) color depiction.

Specifically, this evaluation indicated nineteen (19) User Stories of "High Importance", thirteen (13) User Stories of "Medium Importance" and a number of nine (9) User Stories as of "Low Importance" based on the need of the BSC2.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage	Matrix Scoring
US_1	3	2	3	18
US_2	3	2	3	18
US_3	3	2	3	18
US_4	2	1	3	6
US_5	2	2	2	8
US_6	2	2	2	8
US_7	2	2	3	12
US_8	3	3	3	27
US_9	3	3	3	27
US_10	2	2	3	12

US_11	2	2	3	12
US_12	3	2	3	18
US_13	2	2	3	12
US_14	3	3	3	27
US_15	2	2	3	12
US_16	3	2	3	18
US_17	2	1	3	6
US_18	2	2	3	12
US_19	3	2	3	18
US_20	3	2	3	18
US_21	3	3	3	27
US_22	3	2	3	18
US_23	3	2	3	18
US_24	2	2	3	12
US_25	2	2	3	12
US_26	3	3	3	27
US_27	3	3	3	27
US_28	2	1	3	6
US_30	2	2	3	12
US_31	3	2	3	18
US_32	2	1	3	6
US_33	3	2	3	18
US_34	3	3	3	27
US_35	3	2	2	12
US_37	2	1	2	4
US_38	2	1	2	4
US_39	2	1	2	4
US_40	3	2	3	18
US_41	2	2	2	8

Table 4: Table of BSC 2 with the matrix of evaluation of the User Stories

6.4. Business Scenario 3: Private Food Safety Standards Certification

6.4.1. Evaluation of the User Stories of BSC3

Based on the content and commentary of the BSC 3, "TUV AUSTRIA Romania and TUV AUSTRIA Cyprus" took over to evaluate thirteen (13) representative user stories based on their scenario, out of the total fifty one (51) User Stories developed. The results of this evaluation are presented below in Table 5.

The user stories that were evaluated, were relevant to needs addressed mainly by food processors, retailers, distributors and certification bodies.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_11	Medium	Low	Medium
US_26	Medium	Low	Low
US_27	High	Medium	Medium
US_31	High	Medium	Medium
US_32	High	Medium	Medium
US_33	High	Medium	Medium
US_34	High	Medium	Medium
US_35	Medium	Medium	Medium
US_36	High	Medium	Medium
US_37	High	Medium	High
US_38	High	Medium	High
US_39	High	Medium	Medium
US_40	Medium	Medium	High

Table 5: Table of BSC 3 with the evaluation of the User Stories that correspond to this scenario

6.4.2. Conclusions on the User Stories evaluation of BSC 3

The results of the evaluation of the User Stories of BSC3 were further analyzed through a quantitative matrix approach, that allows overall for a qualitative categorization of the User Stories in terms of their importance from the perspective of the involved partner. The categorization is presented in the Table 6 below, using the Green (high importance), orange (medium importance) and red (low importance) color depiction.

Specifically, this evaluation indicated two (2) User Stories of "High Importance", nine (9) User Stories of "Medium Importance" and a relevant number of nine (2) User Stories as of "Low Importance" based on the need of the BSC3.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	PRODUCT
US_11	2	1	2	4
US_26	2	1	1	2
US_27	3	2	2	12
US_31	3	2	2	12
US_32	3	2	2	12
US_33	3	2	2	12
US_34	3	2	2	12
US_35	2	2	2	8
US_36	3	2	2	12
US_37	3	2	3	18
US_38	3	2	3	18
US_39	3	2	2	12
US_40	2	2	3	12

Table 6: Table of BSC 3 with the matrix of evaluation of the User Stories

6.5. Business Scenario 4: Organic PDO wine certification: the certifier

6.5.1. Evaluation of the User Stories of BSC4

Based on the content and commentary of the BSC 4, "VALORITALIA" took over to evaluate six (6) representative user stories, out of the total fiftyone (51) User Stories developed. The results of this evaluation are presented below in Table 7.

The user stories that were evaluated, were relevant to needs addressed mainly by producers (farmers), food processors, and certification bodies.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_9	High	High	High
US_10	Medium	Medium	High
US_41	Medium	Medium	Medium
US_42	High	High	High
US_43	Low	Low	Medium
US_44	High	High	High

Table 7: Table of BSC 4 with the evaluation of the User Stories that correspond to this scenario

6.5.2. Conclusions on the User Stories evaluation of BSC 4

The results of the evaluation of the User Stories of BSC4 were further analyzed through a quantitative matrix approach, that allows overall for a qualitative categorization of the User Stories in terms of their importance from the perspective of the involved partner. The categorization is presented in the Table 8 below, using the Green (high importance), orange (medium importance) and red (low importance) color depiction.

Specifically, this evaluation indicated nineteen (19) User Stories of "High Importance", thirteen (13) User Stories of "Medium Importance" and a number of nine (9) User Stories as of "Low Importance" based on the need of the BSC4.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	Matrix Scoring
US_9	3	3	3	27
US_10	2	2	3	12
US_41	2	2	2	8
US_42	3	3	3	27
US_43	2	2	3	12
US_44	3	3	3	27

Table 8: Table of BSC 2 with the matrix of evaluation of the User Stories

6.6. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

6.6.1. Evaluation of the User Stories of BSC 5

Based on the content and commentary of the BSC 5, "STICHTING WAGENINGEN RESEARCH" took over to evaluate seven (7) representative user stories, out of the total fifty one (51) User Stories developed. The results of this evaluation are presented below in Table 9.

The user stories that were evaluated, were relevant to needs addressed mainly by Public Authorities and food industry.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_45	High	Medium	High
US_46	Medium	Medium	High
US_47	Low	Medium	Medium
US_48	High	Medium	High

US_49	Medium	Medium	Medium
US_50	Medium	Medium	Medium
US_51	Medium	Low	Low

Table 9: Table of BSC 5 with the evaluation of the User Stories that correspond to this scenario.

6.6.2. Conclusions on the User Stories evaluation of BSC 5

The results of the evaluation of the User Stories of BSC5 were further analyzed through a quantitative matrix approach, that allows overall for a qualitative categorization of the User Stories in terms of their importance from the perspective of the involved partner. The categorization is presented in the Table 10 below, using the Green (high importance), orange (medium importance) and red (low importance) color depiction.

Specifically, this evaluation indicated two (2) User Stories of "High Importance", three (3) User Stories of "Medium Importance" and two (2) User Stories as of "Low Importance" based on the need of the BSC5.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	Matrix Scoring
US_45	3	2	3	18
US_46	2	2	3	12
US_47	1	2	2	4
US_48	3	2	3	18
US_49	2	2	2	8
US_50	2	2	2	8
US_51	2	1	1	2

Table 10: Table of BSC 2 with the matrix of evaluation of the User Stories

7. VALIDATION METHOD OF USER STORIES

At the first version of D1.1., scenario leaders executed the first cycle of focus groups-interviews and focused mainly at the extraction of business needs and requirements while in the second cycle the main focus was the prioritization of the requirements and user stories which will be incorporated in the FSM Platform in terms of business maturity and feasibility, time urgency and business success and competitive advantage.

The focus groups within this project, are also targeting to serve as a continuous reference point throughout its lifetime, acting as the candidate pool of local innovation partners with whom pilots will take place (in WP6).

The validation method of the user stories had to addressed two main purposes. The first was to ensure, with the end user, the correctness of the user stories or / and making any significant adjustment and the second was the validation of the evaluation made by the relevant partners.

The process of the requirements validation attempts to verify that the relevant requirements recorded are complete. This process is very important in order to prevent errors from being made during software development by identifying them beforehand

The requirements validation process is the last phase of the requirements' elicitation stage, and aims to resolve issues with "ambiguous requirements".

The more precise the requirements are, the better the system will provide for the needs of the stakeholder. Requirements analysis as well as requirements validation helps to ensure the precision of the requirements. These processes thus ensure that the requirements are complete and correct, as well as consistent.

Through the implemented validation methods, each project team that identified the critical needs of the involved parties (stakeholders) determined at their Business Scenario, has aimed to validate, or to revise, to adjust or even reconsider and reformulate the requirements initially identified, during the initial consultation stage of the project, and formulate BRs based on the 'real world's' need, which are the expectations of the stakeholder at the certification food supply chain.

In order to achieve this, customized to the special characteristics of the food chain market and also to the existing global business and social conditions, validation tools and methodology have been set up.

Moreover, it has been recognized as of a high importance issue to maintain a harmonized approach between all the five different project teams, when implementing the individual validation tools, so that valuable conclusions could be extracted and shared throughout this project's task.
The Focus Groups consisted of a mix of stakeholders who come together to provide input on business needs.

In this direction, they were expected to provide useful input to the buildup and architecture of TheFSM solution.

7.1. Description of the procedure followed for the organization of the FGs

7.1.1. Business Scenario 1: The retailer

For the implementation of the focus groups and interviews, a brief presentation was prepared, based on the proposed agenda for this activity. This presentation was adapted in each case to the specific expertise of the focus group.

Participants were invited through email or phone communications, per case, and appointments were set up with members of the Agroknow team.

After a brief introduction to the project and its objectives, the Retailer scenario was presented, each time adapted to the perspective of the participants. The scenario was followed by the presentation of the relevant mock-ups, the FOODAKAI or Food Inspector, in the case of the auditor. Throughout the session, the participants were asked to provide their feedback and comment on all the aspects of the scenario, as well as the mock-ups, at the same time comparing theFSM proposed approach to their current workflow. The visuals offered by the mock-up helped participants reflect and comment on specific aspects of the proposed design and workflow.

7.1.2. Business Scenario 2: Food Processing

TUV Austria Hellas implemented 2 FGs, because of the different user stories needed to be evaluated by the relevant end-users and because of the different applications to be used by each end-user.

An informative letter was designed in order to give more specific details regarding the FSM Platform and the project to the participants

For the implementation of the focus groups, a presentation was designed with all the needed information relevant to the goals of the project and the user stories. Prior to that, the focus groups agenda was written with all the subjects that are needed to be answered during the procedure as the 2nd evaluation of the user stories.

Also, all the participants signed the Final Consent Form. Through this form, were asked if they consent to take part in a European project, which aims to provide all the necessary tools for adopting digital innovation in the food safety certification market.

Due to the difficulties because of the pandemic and the forbiddance of physical meetings, the implementation of the focus groups was held with digital platforms such as Microsoft teams and zoom.

7.1.3. Business Scenario 3: Private Food Safety Standards Certification

TUV Austria ROMANIA contacted potential end users. After evaluating if they have the necessary resources to attend the meeting, such as internet connection, short presentations were made by phone, describing the process and to those who showed interest, the consignment form was sent. After receiving the form signed, presentation days were organized according to the client's schedule. After the Zoom meetings, all the feedback and input requested was communicated via emails.

TUV Austria Cyprus met potential clients that would be interested to enrol in the project. The project and its objectives were descripted to the clients over the phone and a meeting was booked with those who showed interest. During the meeting, the FSM Project PowerPoint presentation was explained to them as well as the expectation from them to provide input on their business need. Those who decided to participate in the Focus Group signed the Consent Form.

7.1.4. Business Scenario 4: Organic PDO wine certification: the certifier

During the organization of the FGs, meaning the phone contacts and the initial requests of information from participants, it emerged that wine producers and wine companies were not so interested in the FSM platform due to several issues: 1) PDO wine production is already highly regulated and its traceability is already granted by law and reported on each PDO bottle; 2) wine processing involves practically no other ingredients besides grape that is often produced in the same farm processing it or in farms engaged in long term cooperation with the processors. This leads to very low risk from the supplier's side.

As a consequence, Valoritalia decided to broaden the scope of the scenario, including processors of organic products beyond wine. This will allow assessing the interest of other actor types while maintaining the same certifiers and related procedures.

Due to COVID 19, the FG meetings took place online and the organizers decided on smaller groups in order to enhance the degree of interaction and facilitate debate in smaller groups. As a consequence, 4 FG meetings were organized:

- only certifiers (Valoritalia and other Cbs),
- competent authorities (Ministry) + retailers
- organic PD wines together with other organic processors (bakery, processed vegetables and fruits).
- Few producers who could not participate in the meeting but declared their interest were contacted afterwards and their opinion and requests have been included in the FG outcomes.

7.1.5. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

WFSR organized two FGs. The first FG was with a branch organization representing the main actors (industries) in the poultry sector in the Netherlands. The second FG was with the inspection department of the Dutch food safety authority.

In the first FG, after the introduction round, a presentation was given providing information on TheFSM project participants, objectives, and infrastructure. In addition, the mockups of the applications FOODAKAI and Agrivi were shown.

In the second FG, a similar programme was given as for the 1st FG, except that in this case, mockups were available (and shown) for all three applications (i.e. FOODAKAI, FoodInspector, and Agrivi).

The FGs were organized online using Microsoft teams.

7.2. Method and rationale for the selection of participants in the FGs in relation to the theme of each BSC,

7.2.1. Business Scenario 1: The retailer

To validate Retailer business scenario, as presented in the first version of D1.1, Agroknow performed 5 focus groups with different Actors of the scenario. For the perspective of the retailer actor of this scenario a focus group with three FSQA (food safety quality assurance) experts, representatives of two retailers took place. For the supplier perspective, we organized focus groups with one processor and one producer. Lastly, for the certification body perspective, an interview with one auditor took place. All participants were selected because of their experience in their respective field as well as in the relevant workflows and processes in their company.

7.2.2. Business Scenario 2: Food Processing

The selection of participants in focus groups was based on four main criteria. Firstly, the representativeness of the participants according to the business scenario, in terms of the end-users who are farmers processors, retailers. Due to the difficulties arising from the pandemic representativeness was defined as the required number of participants in the pilot project under the GRAND AGREEMEND.

Secondly, all participants should have been certified under GFSI protocols or similar (GLOBALG.A.P., IFS, or ISO 22000), so that they have the technical background to understand the categorization of data as well as to validate user stories based on the criteria that have been analyzed above.

An additional important criterion was the potential capability of the end users to participate in the pilot program, since through focus groups a detailed presentation of the potential specifications and functionalities of the applications and how the data will be exchange through the FSM platform would have been major part of them.

Finally, the enthusiasm for participation in such a program and the willingness to include such a tool in the daily operations of businesses was an important criterion of choice.

7.2.3. Business Scenario 3: Private Food Safety Standards Certification

All focus groups participants had one or several certifications of their business activity and their needs were relevant to The FSM platform and the foreseen functionalities.

The selection of the participants in the FGs was decided according to various criteria such as their experience with private certification schemes and their scope of business (producers, retails, food processors). Participants who have experience being audited in Food Safety standards can easily understand the need of food safety, data collection/sharing and transparency as well as the easy and live access to these data.

7.2.4. Business Scenario 4: Organic PDO wine certification: the certifier

Valoritalia identified the invitees to the 4 FG meetings with the following criteria:

- Among certifiers - the persons in charge of the relationship with the certified companies for the organic scheme and for PDO scheme, IT managers, business development;
- Among PDO organic wines producers - cooperative cellars (as they process grape from different producers), exporters (as they could be interested as proof of reliability), small scale grape-wine producers (probably the less interested);
- Among authorities - Ministry of Agriculture, the persons in charge of organic producers database management, the persons in charge of certification bodies supervision, the persons participating to EU boards on organic farming;
- Among organic processors (no wine) - a contractor (processing products for other farms/companies) and a large-scale organic and conventional processor with an international dimension.
- Among retailers: a supermarket certified organic for certain processes, a member of HO.RE.CA.

In all cases, the interest for the project aims and tools was assessed before the meetings, as well as the will to share experiences and knowledge.

7.2.5. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

In this business scenario, the following selection criteria were set for the potential participants of the FGs:

The candidate should:

- Represent the target environment; the whole poultry sector (from farm to retail).
- Represent the target environment, Dutch food safety authority.
- Be able to derive tangible benefit from the tested TheFSM application.
- Be enthusiastic about the TheFSM project.

7.3. Description of participants

7.3.1. Business Scenario 1: The retailer

Five (5) companies participated in the focus groups. Details are presented in the following table.

Company/ organization	Participants	Description	Actor type
AB Vasilopoulos	FSQA team leader	AB Vassilopoulos (https://www.ab.gr/) is a major Greek super market chain with more than 500 stores in Greece.	Retailer

Wegmans	FSQA – consultant	Wegmans (https://www.wegmans.com/) is a major USA-based retailer, a regional supermarket chain with 105 stores: 48 in New York, 18 in Pennsylvania, 9 in New Jersey, 13 in Virginia, 8 in Maryland, 6 in Massachusetts, and three in North Carolina. It is one of the largest private companies in the U.S.	Retailer
Tuv Austria - Hellas	Auditor	TÜV AUSTRIA Hellas (https://tuvaustriahellas.gr/) has been operating in Greece since 1994 and is a 100% subsidiary of TÜV AUSTRIA, which has a presence in over 40 countries in Europe, the Middle East and Asia.	Certification body
Symbeeosis	5 participants, including product managers and FSQA experts	A Greek organic products company (https://symbeeosis.com/)	Supplier (Producer)
Conagra Brands	2 FSQA experts	Conagra Brands (https://www.conagrabrands.com/) is a major food processing company with more than 50 locations throughout the USA.	Supplier (Processor)

Table 11: Companies that participated in the focus groups

7.3.2. Business Scenario 2: Food Processing

FOTIS ZISIS, IOANNIS ZISIS: Producers of agricultural products located in North – West Greece, they are both certified under GLOBALGAP IFA for several years and they supply with their products, supermarkets in Greece and Europe.

ZISIS FARMS: Is the produce-handling unit of the farmers mentioned above. In this unit, the storage areas are located and the packaging process takes place. It is certified under HACCP and GLOBALGAP IFA Produce Handling Unit

Puratos is an international group offering a full range of innovative products, raw materials, and application experience in the bakery, confectionery, and chocolate sectors.

E - FRESH is the largest and most comprehensive online supermarket serving Attica.

The creation of an online supermarket rose from the need of modern consumers for quick, hassle-free, and secure purchases of groceries and necessities for their household.

e-fresh.gr was established to offer an innovative and user-friendly website, matched with an innovative solution for storing and delivering purchases to the customer, thus offering an integrated e-retailing service

7.3.3. Business Scenario 3: Private Food Safety Standards Certification

During the Focus Groups meeting TUV AUSTRIA ROMANIA had the following types of participants:

Producers: Two (2) vegetable farms. Holly-Wood SRL of approximative 300 ha growing cereals and oilseeds with a small traditional mill for flour and a press for cold-pressed vegetable oils. Biotopi Farminvest SRL is smaller with around 9 ha of Jerusalem artichoke. Both producers are organic certified.

Processors: Four (4) processors - Agrarhamdel GmbH is conditioning potatoes, the second Fangmeier SRL and is conditioning and storing cereals, the third Klaus SRL and is a dairy processor and the last one Golden Banana SRL is a fruit handling business.

Distributors/traders - Innovoris Labs SRL and Life Care SRL, both of them are selling finished products for human consumption and personal care products.

Focus Groups was a mix of brokers and food processor/retailers well experienced with food safety certification schemes.

7.3.4. Business Scenario 4: Organic PDO wine certification: the certifier

Italian wine distributor:

Interested in the distribution of wine to HO.RE.CA landscape and abroad

Italian Quality Manager of a supermarket (mass distribution):

This supermarket is also Organic Certified concerning food processing.

Ministerial Authority: 3 Participants working in the Organic Regulation Office specifically dealing with data, reports and SIB (Italian Organic Ministerial Database).

Certifiers: the participants came from 3 different CBs:1 Organic Standard Manager, 1 Senior Inspector, 2 Sales Manager, 1 General Manager, 1 IT manager

Organic and PDO processors: 1 Quality Manager – large company processing vegetables into sauces under their own brand and private labels. Included organic, BRC, IFS, Vegan and other quality schemes; 1 Owner – artisanal, organic fruit and vegetables processed foods; 1 quality manager - bakery industry, selling under different private labels, organic and conventional, several quality schemes; 1 Managing director of a large cooperative cellar, with an international market, organic and conventional, PDO wines; 1 Oenologist – of a private cellar producing organic PO wines; 1 Managing Director – large cellar, with an international market, organic and conventional, PDO wines

Retailers: Quality manager of a supermarket, also Organic Certified concerning food processing; 1 interested in the distribution of wine to HO.RE.CA landscape and abroad.

7.3.5. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

AVINED (https://www.avined.nl/) The foundations AVINED, OVONED, and PLUIMNED were founded at the end of 2013 by LTO / NOP, NVP, NEPLUVI, and ANEVEI to continue some activities of the Product Board for Poultry and Eggs (PPE). The board of these foundations is formed by representatives of these four organizations.Since May 2015, the COBK (Central Organization for Hatching Eggs and Chicks) has also been part of the AVINED board. AVINED also fulfills a role as an information provider, consultation platform for the sector, and spokesperson for the government.

KIWA (https://www.kiwa.com/nl/en/) Kiwa offers global certification, verification, and (production and equipment) control services to help retailers, supplier, producer, logistics partner or farmer, to build customer confidence. Working with them, the company designs, applies, audits, and monitors protocols that provide assurance throughout the entire international food supply chain - from farm to fork.

The Netherlands Food and Consumer Product Safety Authority (NVWA), Inspection department

The Netherlands Food and Consumer Product Safety Authority (NVWA) monitors animal and plant health, animal welfare, and the safety of food and consumer products, as well as enforcing nature legislation. The three main tasks of the Netherlands Food and Consumer Product Safety Authority are: supervision, risk assessment, and risk communication. Other important activities are incident and crisis management and policy advice for the Minister of Agriculture, Nature, and Food Quality. A significant part of its work involves liaising with other ministries. Maintaining international contacts is also of vital importance[1].

7.4. When and how the FGs took place

7.4.1. Business Scenario 1: The retailer

All focus groups and interviews took place remotely, through various teleconferencing systems.

Company/organization	Date	Actor type
AB Vasilopoulos	11/3/2021	Retailer
Wegmans	10/2/2021	Retailer
Tuv Austria - Hellas	4/2/2021	Certification body

[1] https://english.nvwa.nl/about-us/organisation

Symbeeosis S.A.	21/4/2021, 12/4/2021	Supplier (Producer)
Conagra Brands	2/4/2021	Supplier (Processor)

7.4.2. Business Scenario 2: Food Processing

The two FGs were, due to the restrictions opposed by COVID-19, organized online via Microsoft teams and Zoom:

- The first FG took place the 2th of February 2021
- The second FG took place the 28th of February 2021

7.4.3. Business Scenario 3: Private Food Safety Standards Certification

All three (3) FG took place online on Zoom Platform, two meetings were on 28.01.2021 and the third took place on 29.01.2021.

7.4.4. Business Scenario 4: Organic PDO wine certification: the certifier

All the Fg meetings took place online due to the pandemic, on the following dates:

- May 21st, 2020 Authorities, certifiers, and retailers
- March 4th, 2021 certifiers
- March 9th, 2021 organic and PO processors

During the month of March 2021, VALORITALIS had continuous contact by e-mail and by phone with some wine companies and Organic Processors.

Company/organization	Type of actor
Valoritalia	certification body (organic, PDO)
Associazione Suolo e Salute	certification body (organic, other quality schemes)
DNV GL	certification body (quality schemes)
Ministry for Agriculture- organic unit	public authority
Consorzio per la Tutela del Franciacorta	local public-private authority, including organic and PDO wine producers
Il vecchio forno	organic processor (bakery)
B73	organic small scale processor (vegetables)
Di Vita spa	organic large scale processor (vegetables)
Tre Secoli cooperative	large cooperative processing members grapes (organic, PDO)
La Raia	grape producers and wine processor (organic, PDO)
Araldica Vini	wine processor (organic, PDO)
Il Gigante	supermarket chain
HORECA representative	restaurants manager

7.4.5. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

The two FGs were, due to the restrictions opposed by COVID-19, organized online via Microsoft teams:

- The first FG took place on the 12th of November 2020
- The second FG took place on the 25th of February 2021

8. VALIDATION RESULTS

8.1. The validation objectives

One of the aims of the validation process was to set the User Stories' prioritization. The initial prioritization was estimated by each project partner, during the User's Stories evaluation, based on its background and expertise. This was then assessed and confirmed by the relevant stakeholders ("end users") with focus on their actual and practical importance for their day-to-day business, when facing food safety certification issues.

The validation was accomplished against the same critical factors (i.e. Business Maturity, Time Urgency, Business Success) that had been also used during the evaluation process, to have a harmonized approach towards reaching results that could be fully comparable between each other and get the real picture of the user stories that evidently engraves and validates the roadmap for the FSM architecture.

For each one of these critical factors, again the three qualitative levels of importance (High, Medium and Low) were used to rank the many different "User Stories" in terms of their importance for the stakeholders.

Additionally, in order to get meaningful qualitative values, each one of the critical factors were transformed into numeric multiplies and the same ranking escalation, as it had been used in the evaluation process of the "user stories", was applied.

To this end, after implementing a documented cross-check and comparison of the stated importance of each "user story", with reference to the corresponding evaluation and validation results that were recorded, we could come up with the real priorities in terms of the user stories per Business Scenario and if needed to modify them as deemed necessary.

This would consequently, define those functionalities of the FSM applications that would have been critical to support the stakeholders' needs and consequently assist the Technical Partners of the project to focus more precisely on the relevant functional specifications when developing the relevant FSM applications.

8.2. Insight of the Validation process

8.2.1. Qualitative Validation results for Business Scenario 1: The retailer

During the Focus Groups for BSC 1, nine (9) "User Stories" relevant to the commentary of this scenario were presented at the participants and were validated accordingly. The qualitative validation results delivered after the stakeholders thorough analysis of the nine "user stories" are presented in Table 12 below.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage
US 8	High	Medium	Medium

US_10	Medium	Medium	Medium
US_26	Medium	Low	Medium
US_27	Medium	High	High
US_28	High	Medium	Medium
US_29	High	High	High
US_30	High	High	High
US_31	High	Medium	Medium
US_40	High	High	High

Table 12: BSC 1 User Stories' validation

8.2.1.1. Quantitative validation results for BSC 1

Based on the quantitative analysis of the validation results of the BSC 1, four (4) User Stories were defined as of "High Importance", another four (4) User Stories as of "Medium Importance" and only one (1) User Story as of "Low Importance" for the involved stakeholders, based on the BSC1.

The results with the corresponding user stories as were classified are presented in Table 13 below.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage	Validation Matrix Scoring
US_8	3	2	2	12
US_10	2	2	2	8
US_26	2	1	2	4
US_27	2	3	3	18
US_28	3	2	2	12
US_29	3	3	3	27
US_30	3	3	3	27
US_31	3	2	2	12
US_40	3	3	3	27

Table 13: The results with the corresponding user stories as were classified

8.2.1.2. Integrated Ranking of BSC 1 User Stories

To come up with the overall ranking of the importance of the user stories related to BSC 1, a quantitative cross-assessment between the evaluation results of BSC 1 and the validation results of the above paragraph was implemented.

The final priorities in terms of the user stories assessed under BSC 1 reveal that they are completely similar to the results obtained from the validation process. That means that, four (4) User Stories were defined as of "High Importance", another four (4) User Stories as of "Medium Importance" and only one (1) User Story as of "Low Importance" for the involved stakeholders, based on the BSC1.

8.2.1.3. Focus Group recordings for BSC 1

Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers, ERP systems etc)

It is common for retailers to use SAP database systems or Oracle solutions like the Retail Brand Compliance Management Cloud Service.

In the past AB Vassilopoulos were using the TrackWise software tool, however its use has been discontinued because of its cost and the fact that it did not meet expectations.

The participants highlighted the importance of ensuring interoperability of the platform with their existing SAP ERP system.

Existing farm monitoring systems used by farmers in order to store, exchange data, or receiving technical advice.

No data recorded.

Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)

The participants mentioned that they keep their risk analysis data in pdf format, while using spreadsheet (Microsoft Excel) format for the suppliers. Audits are kept in Microsoft Word or pdf format.

The main issue that the participants focused on while presented with the FOODAKAI Supplier dashboard was the need to ensure confidentiality while sharing data with their suppliers and expressed security-related concerns. They mentioned that their suppliers probably share these concerns, and, to this end, special care should be made while developing the system so that a. only the relevant stakeholders will be able to see the data and b. it is clear in every case who has access to what data.

Examples of such sensitive data may include inspection results and laboratory tests.

Furthermore, an additional concern, again related to security and confidentiality, is that the retailer might be reluctant to offer to theFSM platform their supplier list and, more importantly, the list of their own label products. This was not considered a blocking issue to adopt theFSM approach, however they feel that any retailer would need to be convinced that theFSM has both the technology and the methodology to ensure confidentiality.

Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers; data sharing requirements and confidentiality requirements.)

No data recorded.

Business needs comparing to business processes as running today.

No changes discussed.

Existing resources (mainly infrastructures i.e. equipment, but also competencies of personnel) to support the participation in TheFSM platform-Main obstacles in providing data or participating as platform end-users (added value)

They consider the existing infrastructure of the company sufficient to deploy theFSM platform. However, the workflow of the company will need to be revised to include it. For example, at the moment there are still data stored in Excel or pdf format that will need to be imported in the platform.

In order to transform the current workflow, the main key steps will be to a. train the personnel, especially during the first period of use, b. follow an on-boarding process and c. provide support processes.

Obstacles

A relevant concern in terms of a possible obstacle expressed by the participants was the fact that they consider most of their suppliers very negative and reluctant to any process that will create overhead for them. For example, for the product information, the ideal would be that the suppliers themselves, the producers of products like tomatoes and olives, for example, would add it themselves in the platform, especially in the case of certificate information and laboratory tests. At the moment these are sent as scanned documents or Excel files. However, the participants doubted that most suppliers would agree to this change in their workflow.

Participants also mentioned that the important and radical changes taking place due to the COVID pandemic can become an obstacle to further additional changes.

Willing to participate in pilots -Any potential stakeholders for future focus groups or pilot

The participants are willing to participate in the piloting activities.

Overall conclusions on the total FG results regarding the validation of the BRs resulted from the evaluation of the user stories

The participants validated the business scenario, having no specific comments for proposed changes. They also confirmed the validity of the user stories and they need a fast and efficient way to help with decision making.

One minor comment made in relation to the scenario was that remote sensing data and IoT data (satellites, biomass growth, weather, pest risks) are not generally of interest to the Retailer. It would be nice to have but not must have.

In relation to product information the issue of traceability was discussed. If a company uses specific ingredients the retailers and manufacturers would normally need to know which is the supplier of the specific ingredient and acquire valid information from the depth of the supply chain.

They noted that the lack of an integrated way to assess which of their suppliers are more susceptible to risks is a cause for concern for unexpected new types of risk will appearing in their supply chain. So, they confirmed the need for a fast & efficient way of risk identification & predictions.

They mentioned that in their current workflow:

- It is difficult to have an aggregated view for each supplier/manufacturer data
- It becomes challenging to prioritize the audits for suppliers/manufacturers
- It becomes challenging to design an efficient lab test plan for the PL products
- Using all supplier's data stored in files and systems is not straightforward
- Retailers have their own manufacturers
- Food Safety & Quality teams, as well as Buyers make suppliers review & assessment

The participants confirmed the value of the approach: "The ideal solution would be to embrace technology to make our work easier and more effective."

FOODAKAI design presentation

The participants found the design "really interesting" and commented that:

The customised risk assessment dashboard "gives you a heads up on what is going on. It can be done first thing in the morning. It gives a reliable and comprehensive update from all around the world".

Risk and Hazards was characterized as "really good" and "valuable to be used for new product development".

Additional functionality proposed for FOODAKAI includes to be able to import their list of suppliers, possible through direct connection to their existing systems, including integration with Oracle.

In relation to the Supplier information and specifically the recalls, they commented that they would like the internal recalls to be presented as well, as added by the supplier.

Also, if the audits are already done by the certification body then as retailers they would like to be able to see them directly.

8.2.2. Qualitative Validation results for Business Scenario 2: Food Processing

To validate the user stories that correspond to BSC2, both food processors and farmers were invited and participated in focus groups that TUV AUSTRIA Hellas moderated.

During the Focus Groups for BSC 2, thirty nine (39) "User Stories" relevant to the commentary of this scenario were presented at the participants and were validated accordingly. The qualitative validation results delivered after the stakeholders thorough analysis of the nine "user stories" are presented in Table 14 below.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage
US_1	High	Medium	High
US_2	High	Medium	High
US_3	High	Medium	High
US_4	Medium	High	Low
US_5	Medium	Medium	Medium
US_6	Medium	Medium	Medium
US_7	Medium	Medium	High
US_8	Medium	Low	Medium
US_9	Medium	High	High
US_10	High	High	High
US_11	Low	Low	Medium
US_12	High	High	High
US_13	Medium	Low	Medium
US_14	High	High	High

US_15	Medium	Medium	Medium
US_16	Low	Low	Medium
US_17	Low	Low	Low
US_18	Medium	Medium	High
US_19	High	Medium	High
US_20	High	Medium	High
US_21	High	High	High
US_22	High	Medium	High
US_23	Medium	Medium	Medium
US_24	Medium	Medium	High
US_25	Medium	Medium	High
US_26	Medium	Medium	Medium
US_27	High	Medium	High
US_28	Medium	Medium	Medium
US_30	High	Medium	High
US_31	High	Medium	Medium
US_32	High	Medium	Medium
US_33	Medium	Low	Medium
US_34	Medium	Medium	Medium
US_35	Medium	Medium	Medium
US_37	Medium	Low	Medium
US_38	Medium	Low	Medium
US_39	Medium	Low	Medium
US_40	High	High	High
US_41	Medium	Medium	Medium

Table 14: BSC 2 User Stories' validation

8.2.2.1. Quantitative validation results for BSC 2

Based on the quantitative analysis of the validation results of the BSC 2, fourteen (14) User Stories were defined as of "High Importance", fifteen (15) User Stories defined as of "Medium Importance" and ten (10) User Story indicated as of "Low Importance" for the involved stakeholders, based on the BSC2.

The results with the corresponding user stories as were classified are presented in Table 15 below.

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage	Validation Matrix Scoring
US_1	3	2	3	18
US_2	3	2	3	18
US_3	3	2	3	18
US_4	2	3	1	6
US_5	2	2	2	8
US_6	2	2	2	8
US_7	2	2	3	12
US_8	2	1	2	4
US_9	2	3	3	18
US_10	3	3	3	27
US_11	1	1	2	2
US_12	3	3	3	27
US_13	2	1	2	4
US_14	3	3	3	27
US_15	2	2	2	8
US_16	1	1	2	2
US_17	1	1	1	1
US_18	2	2	3	12
US_19	3	2	3	18
US_20	3	2	3	18
US_21	3	3	3	27
US_22	3	2	3	18
US_23	2	2	2	8
US_24	2	2	3	12
US_25	2	2	3	12
US_26	2	2	2	8
US_27	3	2	3	18
US_28	2	2	2	8
US_30	3	2	3	18
US_31	3	2	2	12

ID	Business Maturity/Feasibility	Time Urgency	Critical to Business Success/ Competitive Advantage	Validation Matrix Scoring
US_32	3	2	2	12
US_33	2	1	2	4
US_34	2	2	2	8
US_35	2	2	2	8
US_37	2	1	2	4
US_38	2	1	2	4
US_39	2	1	2	4
US_40	3	3	3	27
US_41	2	2	2	8

Table 15: The results with the corresponding user stories as were classified

8.2.2.2. Integrated Ranking of BSC 2 User Stories

To come up with the overall ranking of the importance of the user stories related to BSC 2, a quantitative cross-assessment between the evaluation results of BSC 2 and the validation results of the above paragraph was implemented.

The final real priorities in terms of the user stories assessed under BSC 1 reveal that a number of eighteen (18) High importance user stories, a number of sixteen (16) Medium Importance and five (5) Low Importance user stories are binned to BSC 2. Specifically the integrated ranking gave a significant rise in the number of the user stories that are recognised as of High importance for the Stakeholders, and a significant reduction of the user stories of Low Importance, compared with the figures derived individually from the evaluation and the validation processes.

8.2.2.3. Focus Group recordings for BSC 2

Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers, ERP systems etc)

E-Mails e.g. requests, scheduling of actions such as internal audits, emergency notice etc.

ERP System e.g. for commercial actions

CRM System e.g. for uploading audit reports,

Existing farm monitoring systems used by farmers in order to store, exchange data, or receiving technical advice.

In order to be able to produce products that meet specific quality, safety, and sustainability standards (GlobalGAP), the producer has to manage a large amount of information that they receive as a result of the interaction of agricultural practices that they applies and their work environment (characteristics of agricultural parcels, climatic conditions, etc.). This information is obtained through configured data such as,

- chemical analysis of soil, water, leaves, etc., or
- processed data based on the evaluation of the previous ones, concerning information for obtaining specific cultivation practices (e.g. quantities of fertilizers, plant protection products, etc.),

The producer receives the data either through collaborating with chemical analysis laboratories or by agricultural advisors, etc., usually in non-editable, written, or electronic (pdf) formats.

Rarely, the processor can receive data on the characteristics of its plot, through satellite applications and systems (GIS apps.). Agricultural Geographic Information Systems using Geomatics Technology enable farmers to map and project current and future fluctuations in precipitation, temperature, crop output, etc.

Among the information received, data from competent authorities is included, regarding legalization documents of the plot (receipt of electronic files via e-mail), with approvals of agricultural application input for cultivation (obtaining information from the Ministry of Agriculture and the Ministry of Rural Development) as well as a number of stakeholders such as agronomists, agricultural supply stores, etc. who support the productive activity.

The producer, primarily, is the first link of the food chain, which is tasked to produce the first raw material from which the final product (packaged olive) will emerge in the next stages of preparation. The producer is not a simple data provider in the chain, but the one that essentially determines the identity of the whole food chain. That is, the data that characterizes and accompanies the product - based on the object of its certification under the GlobalGAP standard - throughout the path that follows "from the field to the fork of the consumer".

In particular, the data is related, on the one hand, to the quality and safety characteristics, and on the other hand to the traceability of the product. This data, therefore, constitutes the cornerstone of the data which the processor has to manage and maintain intact, throughout the certified safe manufacturing process (according to the requirements of the FSSC 22000 standard) for the packaging of the final product. As a result, if it is required by the food chain at any stage, it can be substantiated, both the quality claims and the origin of the product - in terms of its raw materials - easily, quickly, and efficiently.

Such information that may be available from the producer to the processor (if requested), and which he maintains in order to be taken into account, inter alia, during the inspection and certification process with GG, is indicative of data:

- analysis,
- batches of production,
- production agricultural codes,
- Dates of last plant protection applications before the harvest,

- harvest dates etc.

In fact, each of this information can be transferred to the processor, through different data communication channels. In particular, the production batches are the subject of reference in the documents or electronic documents of the sale-purchase of the product (ERP), while the other information depending on the type of archiving of their form printed or electronic, can be transferred through usually un-processable files (PDF, Image files, etc.).

Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)

PRODUCER

- ✔ DATABASES OF PUBLIC AUTHORITIES, access to these data is done through the website of each organization and the way of exporting the data is either through Excel file, PDF, or via Word file
- ✔ HARDCOPIES These are files such as input entries in a specific format that documents the requirements of the template, these physical files have a specific form and may come from corresponding electronics. Samples are checked by the Certification Body
- ✔ ELECTRONIC ARCHIVES (pdf, word, image file) these are files that can be provided either by the consultant, or the Certification Body, Foodplus, the laboratories, the authorities, the suppliers, or the next link in the chain which have a specific form and help to gather information and disseminate information (concerning VAT approvals, updates of regulations to the form of certification, laboratory analyzes, material specifications)
- ✔ BIBLIOGRAPHY (PHYSICAL / ELECTRONIC FORM) Through the bibliography and in combination with the results of the laboratories, plant protection, fertilization, irrigation, harvesting instructions are individualized to make the Agricultural Work of the Producer more efficient, regarding quality and quantity.

PROCESSORS / RETAILERS

The most common formats of data addressed in all cases where information exchange happens between the processor and each stakeholder or sub-actor involved in the food supply chain are:

- **Handwritten Documents** e.g. forms used for measurements and observation during processing, administrative documents, audit reports, etc.
- **Office documents** (word, excel, pdf, jpg files) e.g. data logger files, management review of the Food Safety Management System, technical specifications, manual of infrastructure, Certificates of Conformity, audit reports and inspection reports, files registered in the Cloud

- **E-Mails** e.g. requests, scheduling of actions such as internal audits, emergency notices, etc.
- **ERP System** e.g. for commercial actions
- **CRM System** e.g. for uploading audit reports,
- **Web Data** e.g. Certification info from databases of scheme owners etc.
- **Existing data flows (if any) and type of data (business data, sensitive etc)**

CERTIFICATION BODY – PRODUCER

Information transfer channels

The information received from the producer in the certification application concerns, in addition to his personal data, the cultivation data (agricultural parcels, area) which the Certification Body receives electronically in a file with a specific template in order to issue the financial offer and by accepting this, the data entry of the producer is uploaded in the GLOBALGAP database.

The producer's documentation managed by the certification body is obtained either through the on-site audit (physical file, recording of the information) or via e-mail. Additionally, during the on-site audit, all the documented information is collected as photographic material (printed copy or digital form).

After the audit, the certification body shall provide the producer with the Audit report stating the non-compliances, the corrective actions needed to be done, giving him the guidelines for the actions that have to be taken to fully harmonize with the requirements, as well as the time required to be able to obtain the certificate**.**

The certification body receives the corrective actions via email (either with photographic material regarding Plant Protection Products purchase invoices, or PDF files regarding analyzes or with a Microsoft Word Document file on system forms that require completion) and evaluates them.

Once everything is evaluated and there is no longer any non-compliance:

1. The data is uploaded on the certification data in the GLOBALGAP database
2. The certificate is issued and sent electronically to the producer
3. The printed form is sent by courier to the producer.

Frequency of information transfer

The information collected by the certification application is the first data collection and is used by the certification body after the acceptance of the financial offer and before the inspection/audit. Due to the annual validity of the certificate, the application is received 1 time per year with the updated data and is updated on the basis of GLOBALGAP, but without changing the GLOBALGAP NUMBER**.**

All certified information provided by the certification body is collected once a year and specifically during that time, however, the Certification Body may, on a regular basis, carry out unannounced audits with a frequency of 1 per cultivation period. All the data that come out of each audit are uploaded to the existing file on the database.

Size of information being circulated

The largest amount of information is collected during the inspection so that the Certification Body is able to evaluate the producer and note the findings in the audit report.

The Certification Body gathers all the information directly from the producer

The Certification body exclusively uploads & updates the info to the GLOBALGAP database with the details of the producer and its status of certification.

PRODUCER – PROCESSOR

Information transfer channels

The producer is the data receiver of the processor, as he receives information regarding the specifications of the products that the processor wants to procure as well as the required documentation that must accompany each batch. This information is transmitted via email.

Data that the processor receives from the producer is mainly via email in pdf format or printed files as accompanying upon delivery

Specifically

- Plot details from which the received products (hard copy or electronically) came and provide information about the date of harvest, quantities of harvest/plot as well as the application information in case it is requested (plant protection, fertilization, etc.) for traceability reasons.
- Laboratory analyzes (e.g. for pesticide residues) (pdf files).
- GLOBALGAP Certificate, which the GGN is required by the producer to indicate on the invoices, the specific number can be entered on the basis of GLOBALGAP by the processor in order to verify its validity. The producer may provide a copy of his certificate in a printed form when delivering the product, or sending it electronically via email.

Frequency of information transfer

- The specifications are declared once unless a requirement is differentiated mainly from the processor to the producer.
- The certificate is valid for one year, so it is updated once a year in terms of duration and changing however the GGN number remains the same throughout the whole certification collaboration.
- The GGN must be indicated on each certificate of distribution of a certified product, even if the certificate has been included in the first batch.

• Based on the standards implemented by both the producer and the processor, they must inform each other about the production details/information, in the context of the readiness for the Traceability process.

• In the event of a real incident, those involved must be able to provide any information in order to avoid the possibility of withdrawal or, in the worst case, termination of cooperation.

The processor can set specifications for the product they receive from the producer in terms of its characteristics (e.g. fruit size and color), the quantity it requires, the certifications that accompany it, and the relevant laboratory analysis. This incoming data informs the producer where they should aim and how to act in order to reach the required result of quality and quantity of production.

In turn, the producer adjusts their procedures so that the final product meets the above specifications and at the same time during the delivery of the certified product they inform, through relevant distribution forms (which indicate the 13numbered GGN), about the date of harvest, the quantity of harvest & delivery date.

Data Used by the Processor

From Producer:

- **Farm data on the traceability of a particular batch** such as files (hard copy or electronically) on the occurrence of plant enemies or diseases that may affect the quality characteristics of the olive fruit, the use of plant protection substances and biocides, and the use of fertilizers.
- **Product safety verification data**, such as laboratory analyses (e.g. for pesticide residues) (pdf files).
- **Food recall Data**, which are records for the sequence of actions to be taken in the event of a recall, such as the handling of recalled products.

From Retailer:

- **Retailer's requirements Data,** which are the recorded characteristics that the final product should meet prior to delivery to the retailer.
- **Data for Improvement**, which corresponds to the feedback that the processor receives relevant to its customer's satisfaction (word, excel, pdf questionnaire).

From Certification Body:

- **Certification Data**, meaning the certificates against the GLOBALGAP standard, issued by accredited certification bodies, as well as the lists of producers when the processor has to deal with an OPTION 2 GLOBALGAP certificate corresponding to a group of producers for olives. These data (pdf files) can be provided to the "The FSM" either directly by the supplier or through the GLOBALGAP web database.

  From Food Authorities:

- **Food recall Data**, which are emergency notifications aiming to ensure the flow of information to enabling swift reaction when risks to public health are detected in the food chain (including raw food, processed food, food additives, feed etc.) (web database)

From other Processors:

- **Supplementary Product Data**, which are critical info regarding food additives, and product contact materials (packages, etc.) for the identification and assessment of food safety hazards (pdf files).

Data Provided by the processor

To Producers

- **Raw Materials' Specifications**, describing the required characteristics that the provided olive fruits should maintain (pdf files).

To Retailer

- **Final product Specification**, describing the critical characteristics that the supplied packed olives maintain, including instructions regarding intended use, specific storage requirements, and, as appropriate, shelf life (pdf, word files).
- **Final product safety verification data**, such as internal audits for ensuring the effectiveness of the food safety management system, laboratory analyses (e.g. potential detection of chemical substances or microbiological agents) (pdf files)

To Certification Body

- **Compliance Data**, which evidently reveal conformity of the packaging process against the requirements of the food safety standards (FSSC22000, IFS) and area mainly provided to the Certification Body when auditing the processor. These indicatively include, verification data, measurements of critical safety parameters during preparation (regular temperature measurements, pH values at the product, etc.), control measures relevant to the infrastructure (cleaning efficiency, use of food-grade disinfectants on the surfaces in contact with the product), results of internal inspections, validation of equipment used for critical measurements (e.g. thermometer), operational licenses, etc. (ERP, hardcopies, excel, pdf data)

Certification Data, meaning the certificates with reference to FSSC 22000 and IFS standards, issued by the Certification Body (pdf files, FSSC, and IFS database).

Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers; data sharing requirements and confidentiality requirements.)

All contracts are kept both in a hardcopy and pdf archive to the companies. In the contracts, the following are mentioned:

1. The time frame of the cooperation
2. The requirements of the services or the product that both parties obliged to provide
3. Confidentiality of data protection in terms of using sensitive data
4. the cost of the service or the product
5. The annexes that both parties must sign (eg product or services requirements, confidentiality, a risk assessment that determines the needs and consequently the final cost of the service mostly)

Business needs comparing to business processes as running today

No new business needs were identified during the Focus Groups

Existing resources (mainly infrastructures i.e. equipment, but also competencies of personnel) to support the participation in TheFSM platform-Main obstacles in providing data or participating as platform end-users (added value)

All the participants except the producers have a Quality Management sector and the responsible persons they can support the participation in the FSM programme in terms of equipment (eg laptops), the main obstacle is the data providing and how secure it is.

Financial/commercial issues of the platform operation

There was a concern expressed by the participants on the maintenance of the infrastructure and services after the project ends. Also, another issue raised from the focus group meetings is the needed time in addition to the daily operation of the responsible persons. However, it is mentioned that the License fee of the user is part of the business plan.

Willing to participate in pilots

The majority of the participants are willing to participate in the pilot programme

Any potential stakeholders for future focus groups or pilot

All the participants are willing to participate in future focus groups, a big interest was expressed regarding the update of the FSM Platform

Overall conclusions on the total FG results regarding the validation of the BRs resulted from the evaluation of the user stories

The user stories are categorized as follows:

1. **Analytics** which contains the requirements of data evaluation, collection, and management
2. **Notifications** which contains the requirements of data update in terms of the information received by the relevant end-user
3. **Logging / Profiling which** contains all the personalized information that the end-users need in order to improve their daily operation
4. **Integration** Which contains all the interactive data between the end-users in the food supply chain.
5. **Data Certification** Which contains all the needed documentation that justifies the compliance criteria in every scheme that the end-users comply with.
6. **Decision Making** Which contains all the up to date data and requirements in order to improve the daily operations and the quality

8. **Traceability / Risk Estimation** Which contains all the required info regarding the product in terms of production, packaging and placing in the market.
9. **Monitoring / Certification** Which contains all the needed data that are going to improve the certification process and the internal audit.

Each category has to do with specific end users, in horizontal perspective and the prioritization made in terms of business maturity, time urgency and the value in terms of critical to business success/competitive advantage.

Through this prioritization it was important to ascertain the type of data per application and therefore per end user which is characterized as critical for the conformity against the requirements of the different schemes that each end user is certified with.

Since these type of data could be safely exchanged through the FSM Platform by using the three different applications (AGRIVI, Foodakai, Food Inspector), the whole certification procedure would be improved in terms of time and cost specifically for the desk review stage, by replacing physical documents with a complete digital collection which can be easily exchanged between the certification body and the inspected company, or between the producer and the processor, or between the processor and the retailer.

Remote audits also could be improved, if are applicable from each scheme owner, since these types of data can be easily exchanged through the FSM Platform.

8.2.3. Qualitative Validation results for Business Scenario 3: Private Food Safety Standards Certification

To validate the user stories that correspond to BSC3, different focus groups were organized both by TUV AUSTRIA Romania and TUV AUSTRIA Cyprus in their regions. Specifically, producers (Biotopi Farminvest and Holly-Wood) food processors (Fangmeier, Artesana, Golden Banana, Agrarhandel) and distributors (Innovoris Labs, Life Care) were invited and participated in the focus groups that the partners moderated.

In total during the Focus Groups for BSC 3 implemented in both regions, forty-three (43) "User Stories" relevant to the commentary of this scenario were presented at the participants and were validated accordingly. The qualitative validation results delivered after the stakeholders' thorough analysis of the forty three "user stories" are presented in Table 16 below.

ID	business maturity/ feasibility	time urgency	critical to business success/competitive advantage
US 1	Medium	Medium	Medium
US_2	Medium	Low	Low
US_3	High	Medium	High
US_4	High	Medium	Medium
US_5	High	Low	Low
US_6	High	Low	Low
US_7	High	Low	Low
US_8	High	Low	Low

US_9	High	Medium	Medium
US_10	High	Medium	Low
US_11	Medium	Medium	Medium
US_12	High	Medium	Low
US_13	High	High	Medium
US_14	High	Medium	High
US_15	Medium	Medium	Medium
US_16	High	Low	Low
US_17	Medium	Medium	Medium
US_18	High	Medium	Medium
US_19	High	Medium	Medium
US_20	Medium	Medium	Medium
US_21	High	Medium	Medium
US_22	Medium	Medium	Medium
US_23	Medium	Medium	High
US_24	High	Medium	High
US_25	High	Medium	High
US_26	Medium	High	High
US_27	Medium	High	High
US_28	Medium	Medium	Medium
US_29	Medium	Medium	Medium
US_30	Medium	Medium	Medium
US_31	High	Medium	Medium
US_32	High	Medium	Medium
US_33	Medium	Medium	Medium
US_34	High	Medium	Low
US_35	Medium	Medium	Low
US_36	Low	Low	Low
US_37	Medium	Low	Low
US_38	Medium	Low	Low
US_39	Medium	Low	Low
US_40	Medium	Medium	Medium
US_41	Low	Low	Low
US_42	High	Medium	Medium
US 43	Medium	High	High

Table 16: BSC 3 User Stories' validation

8.2.3.1. Quantitative validation results for BSC 3

Based on the quantitative analysis of the validation results of the BSC 3, thirteen (13) User Stories were defined as of "High Importance", ninteen (19) User Stories defined as of "Medium Importance" and eleven (11) User Story indicated as of "Low Importance" for the involved stakeholders, based on the BSC 3.

The results with the corresponding user stories as were classified are presented in Table 17 below. It is important to note that Table 17 presents the integrated total validation scoring of the individual matrix scoring relevant to each one of the two regions (Romania and Cyprus) where the Focus Groups were implemented.

ID	PRODUCT ROMANIA	PRODUCT CY1	PRODUCT CY2	TOTAL VALIDATION AVERAGE
US 1	8			8
US_2	2			2
US_3	18			18
US_4	12			12
US_5	3			3
US_6	3			3
US_7	3			3
US_8	3	6	6	5
US_9	12	12	12	12
US_10	6	6	12	8
US_11	8	8	8	8
US_12	6	4	4	5
US_13	18	12	12	14
US_14	18	18	12	16
US_15	8	8	8	8
US_16	3	3	3	3
US_17	8	4	4	5
US_18	12	12	12	12
US_19	12	12	27	17
US_20	8	12	27	16
US_21	12	18	27	19
US_22	8	4	18	10
US_23	12	18	27	19
US_24	18	18	27	21
US_25	18	18	27	21
US_26	18	18	18	18
US_27	18	18	27	21

US_28	8	12	12	11
US_29	8	8	8	8
US_30	8	8	8	8
US_31	12	12	8	11
US_32	12	18	27	19
US_33	8	8	8	8
US_34	6	6	18	10
US_35	4	12	18	11
US_36	1	2	8	4
US_37	2	4	8	5
US_38	2	8	8	6
US_39	2	8	12	7
US_40	8	8	12	9
US_41	1	8	12	7
US_42	12	12	12	12
US 43	18	18	27	21

Table 17: The integrated total validation scoring of the individual matrix scoring relevant to Romania and Cyprus

8.2.3.2. Integrated Ranking of BSC 3 User Stories

To come up with the overall ranking of the importance of the user stories related to BSC 3, a quantitative cross-assessment between the evaluation results of BSC 3 conducted by both project partners, as well as the validation results obtained from both regions (Romania and Cyprus) were assessed in parallel.

The final real priorities in terms of the user stories assessed under BSC 3 reveal that a number of twelve (12) High importance user stories, a number of twenty-two (22) Medium Importance and nine (9) Low Importance user stories are binned to BSC 3. Specifically, the integrated ranking gave a slight increase in the number of the user stories that are recognised as of Medium importance for the Stakeholders, and a marginal reduction of the user stories of High and Low Importance, compared with the figures derived individually from the evaluation and the validation processes.

8.2.3.3. Focus Group recordings for BSC 3

FOCUS GROUP ROMANIA

Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g., data storage from retailers regarding their suppliers/producers/farmers, ERP systems, etc)

Distributors involved in FG use ERP systems for planning, controlling and managing resources such as capital, personnel, operating resources, traceability.

Processors they use a mix between an accounting software and hand written list or generated by the implemented FSMS.

Farmers use only hand written forms for the entire production activity, accounting is externalized to a specialist.

Existing farm monitoring systems used by farmers in order to store, exchange data or receiving technical advices.

Farmers do not use a monitoring system. All of the records are kept in hand written forms.

Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)

Distributors involved in FG use ERP systems for planning, controlling and managing resources such as capital, personnel, operating resources, traceability (labels containing barcodes for each batch of product in storage and delivered). Using these system is easier to have a traceability exercise and flow of quantites.

Processors use a mix between an accounting software and hand written list generated by the implemented FSMS. All these records are made available in original form, during the audits.

Farmers use only hand written forms for the entire production activity, accounting is externalized to a specialist. All these records are made available in original form, during the audits.

Existing data flows (if any) and type of data (business data, sensitive etc)

No data flows are recorded by the participants.

Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers; data sharing requirements and confidentiality requirements.)

Certification process is done based on an existing contract agreed by both parts. Data sharing requirements and confidentiality are mandatory.

Data sharing is done both ways, from CB to client regarding the certification requirements and from client to CB, submitting all requested information with full transparency. Most of the information offered by the client is made available in original form, during the audit. A small amount of data is presented as an extract of an application or ERP. In some situations, based on the legal requirement of the certification the presented information is taken in hard copy from the clients and stored for at least 5 years.

Business needs comparing to business processes as running today

All clients identified the need of easy data transfer and easier certification process, compared to how they handle the certification process now. There are a lot of data collectors involved: certification body, competent authorities, Health authorities, third party audits. All these data collectors are asking same information but in different format and this generates additional work for our clients

Existing resources (mainly infrastructures i.e. equipment, but also competencies of personnel) to support the participation in TheFSM platform-Main obstacles in providing data or participating as platform end-users (added value)

Participants in the FG were chosen based on this request. All of them have the infrastructure and the competencies - all of them are speaking English and know how to operate the equipment and internet.

Other obstacles to discuss

Participants expressed their concern regarding cost of implementing these applications in their activity.

During the discussions participants had a lot of questions about the actual functionality of the presented apps, hence the need for a demo with an actual app.

Financial/commercial issues of the platform operation

Our clients raised the question about the cost of implementing these applications in their activity.

Willing to participate in pilots

All clients taking part in the FG were interested to take part also in the pilots, few of them even requested additional information regarding the cost and the obligations.

Any potential stakeholders for future focus groups or pilot

We can rely on the participants of the FG to continue to take part in future FG, offering them more information about the platform and also in the pilots, given that we will be able to offer them the training and the support to do so.

Overall conclusions on the total FG results regarding the validation of the BRs resulted by the evaluation of the user stories

Given the positive feed-back from the involved clients and the questions that they have addressed, trying to see in which manner the platform can help them we would say that the BRs are validated.

FOCUS GROUP CYPRUS

Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers, ERP systems etc)

FGs commented on the importance and the ability of the platform to integrate with software already used by the participants like their ERP systems and cloud storage systems. Participants existing IT systems used are emails, ERP systems, CRM systems and cloud storage systems.

Existing farm monitoring systems used by farmers in order to store, exchange data or receive technical advices.

Most of the farmers do not use a monitoring system to store, or exchange date. Most of the work is done through handwriting documents and if data exchange is needed this is done by scanning and email all necessary information.

Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)

Existing data samples by our FG (retailers/food processors) for storage and exchange relevant to certification process are: **electronic documents** (word, excel pdf files) **or handwritten documents** used as documented information for the compliance of their products/services safety, quality, legality and integrity. Most exchange data used are in the forms of **emails** from other contractors in the food supply chain, electronic invoices as well through **ERP** and **CRM systems**.

Existing data flows (if any) and type of data (business data, sensitive etc)

Data flow of **electronic documents** (word, excel pdf files, emails, specs, traceability information etc) **or handwritten documents** used as documented information for the compliance of their products/services safety, quality is easily accessible and shared to be verified. On the other hand, sensitive information such as personal information (GDPR), recipes, logistic and financial information is rather hard to be accessed.

Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers; data sharing requirements and confidentiality requirements.)

Contracts with auditors and clients involved in the certification process are undersigned confidentiality agreements. NDA agreements are signed by both parties to make sure any data reviewed through the audit is not shared. The certification process will not proceed if these contracts are not signed. Also, during the opening meeting of an audit, the auditor always makes a reminder and informs the client about the NDA agreement.

Business needs comparing to business processes as running today

No business needs identified within the participants.

Existing resources (mainly infrastructures i.e. equipment, but also competences of personnel) to support the participation in TheFSM platform-Main obstacles in providing data or participating as platform end users (added value)

All participants in the FGs have the resources (competent personnel and equipment) to support the participation in the FSM program.

Other obstacles to discuss

GDPR regulation, data sharing security and transparency

Software integration at minimum cost (time and complexicity)

Financial/commercial issues of the platform operation

Financial concerns expressed for the cost of implementation (working hours for training, infrastructure requirements, fees, license fees and updates, maintenance).

Willing to participate in pilots

Positive to participate from all participants.

Any potential stakeholders for future focus groups or pilot

All participants show willing to participate in future FGs

Overall conclusions on the total FG results regarding the validation of the BRs resulted by the evaluation of the user stories

Overall conclusion is that the FG have shown a positive feedback to the TheFSM project as a useful and transparent tool for quick and safe access to data they might need.

8.2.4. Qualitative Validation results for Business Scenario 4: Organic PDO wine certification

To validate the user stories that correspond to BSC4, different focus groups were organized by Valoritalia in its region. Specifically, producers and food processors of organic agriculture were invited and participated in the focus groups that the project partner moderated.

In total during the Focus Groups for BSC 4, seven (7) "User Stories" relevant to the commentary of this scenario were presented at the participants and were validated accordingly. The qualitative validation results delivered after the stakeholders' thorough analysis of the seven "user stories" are presented in Table 18 below.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_45	High	Medium	High
US_46	Medium	Medium	High
US_47	Low	Medium	Medium
US_48	High	Medium	High
US_49	Medium	Medium	Medium
US_50	Medium	Medium	Medium
US_51	Medium	Low	Low

Table 18: BSC 4 User Stories' validation

8.2.4.1. Quantitative validation results for BSC 4

Based on the quantitative analysis of the validation results of the BSC 4, two (2) User Stories were defined as of "High Importance", three (3) User Stories defined as of "Medium Importance" and two (2) User Story indicated as of "Low Importance" for the involved stakeholders, based on the BSC 4.

The results with the corresponding user stories as were classified are presented in Table 19 below.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	PRODUCT
US_45	3	2	3	18
US_46	2	2	3	12

US_47	1	2	2	4
US_48	3	2	3	18
US_49	2	2	2	8
US_50	2	2	2	8
US_51	2	1	1	2

Table 19: The results with the corresponding user stories as were classified

8.2.4.2. Integrated Ranking of BSC 4 User Stories

To come up with the overall ranking of the importance of the user stories related to BSC 4, a quantitative cross-assessment between the evaluation results of BSC 4 and the validation results obtained in the region were assessed in parallel.

The final real priorities in terms of the user stories assessed under BSC 4 reveal that they are similar to the results obtained from the validation process, since no significant changes occurred. That means that two (2) User Stories were defined as of "High Importance", another three (3) User Stories as of "Medium Importance" and two (2) User Story as of "Low Importance" for the involved stakeholders, based on the BSC 5.

8.2.4.3. Focus Group recordings for BSC 4

Existing farm monitoring systems used by farmers in order to store, exchange data or receiving technical advices.

Few farmers use farm data management systems (such as QdC, or X-farm or Enogis). For organic certification schemes the use of digital farm books is not compulsory but it is getting more and more frequent. Some systems can interface with pest and diseases DSS, so linking weather conditions with crop phenological stage, treatments and certification documents. Nevertheless, these potential uses are still "potential" and by far unexploited. Valoritalia is freely giving access to all Organic wine certified companies to ENOGIS (an application for data recording and georeferencing). The system allows as well a collective use of the data (i.e. cooperative advisers, cellar heading the supply chain etc.) and can be linked to cellar data recording system.

Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)

In the farming ecosystem the main data stored/exchanges for the certification process are: a) basic farm data, with tax data, cadastral data, CEO personal data; b) farming records; c) certification documents. Large companies have a dedicated digital system but large majority of farmers store them either on paper either digitally as PDF or Excell files. For exchange most often the e-mail is use.
For PDO wines certification data are recorded and stored on a dedicated system where certification bodies and competent authorities can interact.

Existing data flows (if any) and type of data (business data, sensitive etc)

For certification purposes, there is a checked and recorded flow of certification documents along the whole value chain. It is done either through a platform or via e-mail (PDF of certificate and Conformity document, in some cases, on request, also last audit report, crop rotation plan, or other). When it gets to packed products with their own specific authorized label, there is no longer the need (legally) for documents exchange, but in several cases (organic) buyers request them.

Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers; data sharing requirements and confidentiality requirements.)

For organic each actor in the value chain compulsory stores the suppliers' certification data. It can be done in a company system or, more simply, in the company data storage area (being it in the cloud or otherwise).

Business needs comparing to business processes as running today

Bureaucratic burden is requiring dysfunctional efforts. A system to simplify this would be very welcome but the main obstacle lies in the authorities' DBs that are diverse and often not interacting with one another (i.e. DB of health authority with BD of agriculture authority; regional DBs with National DBs …). Besides, for organic, a common platform for data sharing among certifiers could help in fraud prevention, but there are many concerns linked to privacy, competitiveness, etc.

Existing resources (mainly infrastructures i.e. equipment, but also competences of personnel) to support the participation in TheFSM platform-Main obstacles in providing data or participating as platform end users (added value)

All certifiers involved have their own digital system to manage audits, store data and issue certificates, but due to competition are not willing to share them.
Also farm data register system, can be available for interaction but ownership and privacy should be granted. Public authorities managing DBs (i.e. Ministry for Agriculture or Regional boards) are interested but data ownership should be considered.

Other obstacles to discuss

Mainly data ownership.

Financial/commercial issues of the platform operation

Not possible to assess the will to pay for services as they cannot be "tried out" yet. For farm data recording and management there is wide offer from other suppliers, so theFSM should be very competitive in terms of functionalities, services, side-functionalities and costs. Similarly, for Food Inspector, as there are already other tools in use. For FoodAkai platform, to become interesting for organic, the notification from TRACES should be included.

Willing to participate in pilots

Organic plant products processors showed interest.

Any potential stakeholders for future focus groups or pilot

Retailers and other actors in the trading phase of organic processed products.

Overall conclusions on the total FG results regarding the validation of the BRs resulted by the evaluation of the user stories

As explained above, it is more interesting and potentially rich in developments for the FSM platform to focus on organic processed products instead of limiting the case to organic PDO wines. Regarding the functionalities of Inspection Tool, Supplier Verification Tool and Farm Management System they were well received but it is still not clear enough: 1) what "more" are they offering compared to competitors; 2) for the Suppliers verification tool the organic informations are missing. 3) Foodakai doesn't have a good indexing, e.g. if I'm looking for a specific Supplier, I can find different "similar names", but this cannot help for good reports.

8.2.5. Qualitative Validation results for Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain

To validate the user stories that correspond to BSC 5, representatives of public authorities and the food industry were invited and participated in focus groups that the "Stichting Wageningen Research moderated.

During the Focus Groups for BSC 5, seven (7) "User Stories" relevant to the commentary of this scenario were presented at the participants and were validated accordingly. The qualitative validation results delivered after the stakeholders thorough analysis of the seven "user stories" are presented in Table 20 below.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage
US_45	High	high	High
US_46	Low	Low	Low
US_47	Medium	Medium	Medium
US_48	High	High	High
US_49	Medium	Medium	Medium
US_50	Medium	Medium	Medium
US_51	Medium	Low	Low

Table 20: BSC 2 User Stories' validation

8.2.5.1. Quantitative validation results for BSC 5

Based on the quantitative analysis of the validation results of the BSC 5, two (2) User Stories were defined as of "High Importance", three (3) User Stories defined as of "Medium Importance"

and two (2) User Story indicated as of "Low Importance" for the involved stakeholders, based on the BSC 5.
The results with the corresponding user stories as were classified are presented in Table 21 below.

ID	business maturity/feasibility	time urgency	critical to business success/competitive advantage	PRODUCT
US_45	3	3	3	27
US_46	1	1	1	1
US_47	2	2	2	8
US_48	3	3	3	27
US_49	2	2	2	8
US_50	2	2	2	8
US_51	2	1	1	2

Table 21: The results with the corresponding user stories as were classified

8.2.5.2. Integrated Ranking of BSC 5 User Stories

To come up with the overall ranking of the importance of the user stories related to BSC 5, a quantitative cross-assessment between the evaluation results of BSC 5 and the validation results of the above paragraph was implemented.

The final real priorities in terms of the user stories assessed under BSC 5 reveal that they are similar to the results obtained from the validation process, since no significant changes occurred. That means that, two (2) User Stories were defined as of "High Importance", another three (3) User Stories as of "Medium Importance" and two (2) User Story as of "Low Importance" for the involved stakeholders, based on the BSC 5.

8.2.5.3. Focus Group recordings for BSC 5

Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers, ERP systems, etc).

The food authority uses many IT systems, examples are:

- Data Management system (e.g. ERP etc.),
- Saas, SPIN,

The main data sources used by farmers and the industry are:

- Farm Management system (e.g. ERP)
- Certification bodies databases
- Industry management system (e.g. ERP)

Existing Data samples that are being used by participants in order to store exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging).

- It depends on the users or actors in the supply chain, they have different Data Management systems (e.g. ERP, etc.).
- For the food authority, they use Saas, SPIN a system developed by the food authority.

Existing data flows (if any) and type of data (business data, sensitive, etc)

Sensitive anonymized inspection data was provided by the NVWA as an example for this project. Business data and open data can be collected from five different sources: NVWA, Dutch Chamber of Commerce (KvK), CBS, Dutch association representing the broiler meat industry (NEPLUVI), and individual quality label institutions.

Business needs comparing to business processes as running today

No new business requirements.

Existing resources (mainly infrastructures i.e. equipment, but also competencies of personnel) to support the participation in TheFSM platform - Main obstacles in providing data or participating as platform end-users (added value)

Data confidentiality and privacy.

Other obstacles to discuss

The participants in the FGs had several questions that could not be answered by WFSR. These questions were sent to TheFSM overall coordinator and the answers were forwarded to the FG participants

Question	Agroknow's answer
1. If a farmer wants to apply cleaning agents from his/ her farm is it safe to use? Can FOODAKAI deliver an answer?	They can search in FOODAKAI if the specific agent was previously linked to recalls that are reported by National Authorities and EFSA
2. It was questioned whether FoOODAKAI could be of use for the farmer.	Yes, it can be used by the farmer. The main use case scenario can be to check which biological and chemical hazards are found frequently in poultry meat. This can help them to set up preventive measures.
3. All certifying bodies will have their own infrastructure and formats; can this be solved with TheFSM? The ambition of AVINED and the farmers is that all products being used on poultry farms are safe and legal	This is a requirement for the platform for a distributed and safe exchange of information and available formats.

4. There was also a question, who will benefit from the infrastructure and tools?	The actors of the food supply chain that are covered by the use case scenarios.
5. Main question that the farmer wants to have an answer to: is it allowed to use the specific product that is available on the market?	How the product is defined? Is it about the compliance of the finished product or the chemicals and cleaning agents that are used in the supply chain?
6. There was also a concern expressed on the maintenance of the infrastructure and services after the project end.	This is why we have companies in the project. They will take over and maintain the infrastructure and services.
7. It was difficult to see how small farmers can benefit from this. Farmers are nowadays reluctant to share information. There must be a clear benefit in return. What is their benefit?	Consumers request transparency in the supply chain. They want to know more about the food they eat. By sharing information about the safety and quality of the products the farmers can both enhance the trust of their clients and of consumers. This will help them to sell more.
8. There are already several systems/ platforms in the field of tracking and tracing. What will this system bring extra?	
9. What is new compared to what is already in the market?	

Financial/commercial issues of the platform operation

There was also a concern expressed on the maintenance of the infrastructure and services after the project end. We replied that this is also part of the project and that products already on the market are improved and integrated into the FSM. License fee of the user is part of the business plan.

Willing to participate in pilots

Yes: The NVWA

The discussions are ongoing with the other stakeholders.

All participants are willing to participate in future FGs

Overall conclusions on the total FG results regarding the validation of the BRs resulted from the evaluation of the user stories.

Regarding the functionalities of Inspection Tool, Supplier Verification Tool and Farm Management System, the following points appeared during the discussion:

a. When showing FOODAKAI it was mentioned that their need was to obtain an answer to the question: if a farmer wants to apply cleaning agents from his/ her farm is it safe to use? Can FOODAKAI deliver an answer?

b. It was questioned whether FOODAKAI could be of use for the farmer.
c. All certifying bodies will have their own infrastructure and formats; can this be solved with TheFSM? The ambition is that all products being used on a poultry farm are safe and legal.
d. There was also a question, who will benefit from the infrastructure and tools. We answered all actors in the food supply chain.
e. Farmers have to check on the products they use the impact on food safety, climate and costs.
f. Main question that the farmer wants to have an answer to: is it allowed to use a specific product that is available on the market.
g. There was also a concern expressed on the maintenance of the infrastructure and services after the project end. We replied that this is also part of the project and that products already on the market are improved and integrated into the FSM. License fee of the user is part of the business plan.
h. It was difficult to see how small farmers can benefit from this. Farmers are nowadays reluctant to share information. There must be a clear benefit in return.
i. It is clear that big companies having a large group of people dedicated to QA and food safety will have an interest in this platform. These organizations are doing this kind of work and this may save them a lot of time.
j. NVWA: The problem with the criminal/fraud organization they change often their names and suppliers.
k. NVWA: Inspectors need further assessment, the results should be transferred to NVWA digital environment and Insure confidentiality, sensitivity regarding the legal part- court. We use spin developed by NVWA, all the questions of the inspection are there, sometimes there are paper inspections, but they are under digitalization.
l. NVWA: Specific at the company level, they have their system for that SPIN. The inspectors get for every company questions and products to check. The historical data is used in the risk-based monitoring
m. NVWA: Be able to assess the performance of the producers in complying with the certification standards (*This is the second line of inspection to see if companies complied with the certification standards, this is a part of the risk-based monitoring).*

Conclusion: it sounds very interesting and the next step is consultation with their stakeholders for the decision to engage within the pilots with TheFSM.

9. INTEGRATION OF THE INDIVIDUAL "USER STORIES" PRIORITIZATION

Through the individual assessment (evaluation and validation process) of the "User Stories" based on each one of the five high-end Business Scenarios, we achieved (i) to confirm the adequacy of the identification of the main Business Requirements that address the critical day-to-day needs of the stakeholders in each specific food supply chain and (ii) to prioritize these Business Requirements based on the corresponding needs that each Business Scenario addresses, from the perspective of exchanging necessary info for some basic food safety certification processes.

The results which obtained through the quantitative method used for prioritizing the "User Stories" of the individual Business Scenarios, allow us to come up with a generic prioritization of all the recognized "User Stories", regardless the Business Scenario. The expected overall results from such an action will reveal the needed sequence to lead the development of the appropriate technical functions (Applications) to be incorporated in the FSM platform, which respectively will provide the critical solutions to each stakeholder of the supply chain who consequently constitute the main end user of the FSM platform.

To this end, all the individual final prioritization results of each one of the five Business Scenarios for the User Stories assessed through the combined evaluation and validation process, were assembled.

For those "User Stories" that were assessed (evaluated and validated) in more than one Business Scenarios, their total scoring per BSC was aggregated and an average value estimated per each one of the fifty-one (51) User Stories. Each average value per User Story was classified based on the scoring scale that had been used for the qualitative analysis of the user stories during the validation process.

As a result, each user story categorized against its importance, under the same criteria used for the evaluation and validation of the individual user stories.

Therefore, the final prioritization of the User Stories, and consequently of the Business Requirements identified and validated through all the Business Scenarios, are presented in the following Table 22.

ID	FINAL PRIORATATIZATION US/BS food processor	FINAL PRIORATATIZATION US/BS the Retailer	FINAL PRIORATATIZATION US/BS WFSR	FINAL PRIORATATIZATION US/BS TAR-TAC	FINAL PRIORATATIZATION US/BS VALORITALIA	TOTAL FINAL PRIORATATIZATION US/BS
US_1	18	N/A	N/A	8	N/A	**13**
US_2	18	N/A	N/A	2	N/A	**10**

US_3	18	N/A	N/A	18	N/A	**18**
US_4	6	N/A	N/A	12	N/A	**9**
US_5	8	N/A	N/A	3	N/A	**6**
US_6	8	N/A	N/A	3	N/A	**6**
US_7	12	N/A	N/A	3	N/A	**8**
US_8	16	12	N/A	5	N/A	**11**
US_9	22,5	N/A	N/A	12	27	**21**
US_10	19,5	8	N/A	8	12	**12**
US_11	7	N/A	N/A	6	N/A	**7**
US_12	22,5	N/A	N/A	5	N/A	**14**
US_13	8	N/A	N/A	14	N/A	**11**
US_14	27	N/A	N/A	16	N/A	**21,5**
US_15	10	N/A	N/A	8	N/A	**9**
US_16	10	N/A	N/A	3	N/A	**7**
US_17	3,5	N/A	N/A	5	N/A	**4**
US_18	12	N/A	N/A	12	N/A	**12**
US_19	18	N/A	N/A	17	N/A	**18**
US_20	18	N/A	N/A	16	N/A	**17**
US_21	27	N/A	N/A	19	N/A	**23**
US_22	18	N/A	N/A	10	N/A	**14**
US_23	13	N/A	N/A	19	N/A	**16**
US_24	12	N/A	N/A	21	N/A	**17**
US_25	12	N/A	N/A	21	N/A	**17**
US_26	17,5	3	N/A	8	N/A	**10**
US_27	22,5	18	N/A	21	N/A	**20,5**
US_28	7	12	N/A	11	N/A	**10**
US_29	N/A	27	N/A	8	N/A	**17,5**
US_30	15	27	N/A	8	N/A	**16,6**
US_31	15	12	N/A	12	N/A	**13**
US_32	9	N/A	N/A	16	N/A	**13**
US_33	11	N/A	N/A	10	N/A	**10,5**
US_34	17,5	N/A	N/A	11	N/A	**14,2**
US_35	10	N/A	N/A	10	N/A	**10**
US_36	N/A	N/A	N/A	8	N/A	**8**
US_37	4	N/A	N/A	11	N/A	**7,5**
US_38	4	N/A	N/A	12	N/A	**8**
US_39	4	N/A	N/A	10	N/A	**7**
US_40	22,5	27	N/A	11	N/A	**20,2**
US_41	8	N/A	N/A	7	8	**7,5**

US_42	N/A	N/A	N/A	12	27	**19**
US_43	N/A	N/A	N/A	21	12	**17**
US_44	N/A	N/A	N/A	N/A	27	**27**
US_45	N/A	N/A	22,5	N/A	N/A	**22,5**
US_46	N/A	N/A	7	N/A	12	**8**
US_47	N/A	N/A	6	N/A	4	**5**
US_48	N/A	N/A	22,5	N/A	18	**20,2**
US_49	N/A	N/A	8	N/A	8	**8**
US_50	N/A	N/A	8	N/A	8	**8**
US_51	N/A	N/A	2	N/A	2	**2**

Table 22: Overall "User Stories'" Prioratization

9.1. High Importance Business Requirements

Based on this quantitative overall evaluation process, twenty-three (23) User Stories were prioritized as of High Importance, that correspond to fifty-three (53) distinct Business Requirements related with the needs of the food supply chain stakeholder.

These "High Importance" User Stories and the relative Business Requirements, are presented in the below Table 23.

USER STORY ID	BUSINESS REQUIREMENT ID	STAKEHOLDER	Representative Application for "TheFSM" Platform
US_3	BR_nr2_3	Producer	*Agrivi*
US_9	BR_nr2_14, BR_nr5_10, BR_nr4_1, BR_nr4_5, BR_nr4_8, BR_nr4_12, BR_nr4_18, BR_nr4_21, BR_nr5_2	Producer, Food processor, Industry, Inspector/auditor	*Agrivi* *FoodAkai* *Food Inspector*
US_12	BR_nr2_21	Food Processor	*FoodAkai*
US_14	BR_nr2_24	Food Processor	*FoodAkai*
US_19	BR_nr2_37	Certification Body	*Food Inspector*
US_20	BR_nr2_39	Certification Body	*Food Inspector*

US_21	BR_nr2_40	Certification Body	*Food Inspector*
US_22	BR_nr2_45, BR_nr4_2	Certification Body, Inspector/auditor	*Food Inspector*
US_23	BR_nr2_46, BR_nr3_6, BR_nr3_14	Certification Body, Producer, Food processor	*Agrivi* *FoodAkai* *Food Inspector*
US_24	BR_nr2_48	Certification Body	*Food Inspector*
US_25	BR_nr2_50	Certification Body	*Food Inspector*
US_27	BR_nr3_8, BR_nr3_16, BR_nr3_22, BR_nr3_24, BR_nr3_32, BR_nr2_53	Retailer, Producer, Certification Body, Distributor, Food processor	*Agrivi* *FoodAkai* *Food Inspector*
US_29	BR_nr1_1	Retailer	*FoodAkai*
US_30	BR_nr1_2	Retailer	*FoodAkai*
US_31	BR_nr1_3	Retailer	*FoodAkai*
US_32	BR_nr3_2, BR_nr3_10, BR_nr3_18	Producer, Food processor, Distributor	*Agrivi* *FoodAkai*
US_34	BR_nr3_4, BR_nr3_12, BR_nr3_20, BR_nr3_30	Producer, Distributor, Certification Body, Food processor	*Agrivi* *FoodAkai* *Food Inspector*
US_40	BR_nr3_35, BR_nr3_36	Retailer	*FoodAkai*
US_42	BR_nr4_5	Certification Committee	*Food Inspector*
US_43	BR_nr4_9, BR_nr4_10, BR_nr4_13, BR_nr4_14, BR_nr4_16, BR_nr4_17, BR_nr4_19, BR_nr4_20, BR_nr4_22	Farmer/Producer, Distributor	*Agrivi* *FoodAkai*
US_44	BR_nr4_23	Public authorities	*Food Inspector*
US_45	BR_nr5_1	Public Authorities	*Food Inspector*

US_48	BR_nr5_4	Public Authorities	*Food Inspector*

Table 23: High Importance Business Requirements

9.2. Medium Importance Business Requirements

Based on this quantitative overall evaluation process, twenty-two (22) User Stories were prioritized as of Medium Importance, that correspond to therty-three (33) distinct Business Requirements related with the needs of the food supply chain stakeholder.

These "Medium Importance" User Stories and the relative Business Requirements, are presented in the below Table 24.

USER STORY ID	BUSINESS REQUIREMENT ID	STAKEHOLDER	Representative Application for "TheFSM" Platform
US_1	BR_nr2_1	Producer	*Agrivi*
US_4	BR_nr2_4	Producer	*Agrivi*
US_7	BR_nr2_8	Producer	*Agrivi*
US_8	BR_nr2_12	All	*Agrivi* *FoodAkai* *Food Inspector*
US_10	BR_nr2_16, BR_nr4_11, BR_nr4_15	All	*Agrivi* *FoodAkai* *Food Inspector*
US_11	BR_nr2_20	Food Processor	*FoodAkai*
US_13	BR_nr2_22, BR_nr2_35	Food Processor, Certification Body	*FoodAkai* *Food Inspector*
US_15	BR_nr2_25	Food Processor	*FoodAkai*
US_16	BR_nr2_27	Food Processor	*FoodAkai*
US_18	BR_nr2_36	Certification Body	*Food Inspector*
US_26	BR_nr2_51, BR_nr3_5, BR_nr3_13, BR_nr3_21	Retailer, Producer, Food processor, Distributor	*Agrivi* *FoodAkai*

US_28	BR_nr2_55	Retailer	*FoodAkai*
US_33	BR_nr3_3, BR_nr3_11, BR_nr3_19	Producer, Food processor	*Agrivi* *FoodAkai*
US_35	BR_nr3_7, BR_nr3_15, BR_nr3_23, BR_nr3_31	Producer, Distributor, Certification Body, Food processor	*Agrivi* *FoodAkai* *Food Inspector*
US_36	BR_nr3_21	Distributor	*FoodAkai*
US_37	BR_nr3_26	Certification Body	*Food Inspector*
US_38	BR_nr3_27	Certification Body	*Food Inspector*
US_39	BR_nr3_33	Certification Body	*Food Inspector*
US_41	BR_nr4_4, BR_nr4_7	Inspector/Auditor	*Food Inspector*
US_46	BR_nr5_2	Public Authorities	*Food Inspector*
US_49	BR_nr5_8	Public authorities	*Food Inspector*
US_50	BR_nr5_12	Industry	*FoodAkai*

Table 24: Medium Importance Business Requirements

9.3. Low Importance Business Requirements

Based on this quantitative overall evaluation process, six (6) User Stories were prioritized as of Low Importance, that correspond to six (6) distinct Business Requirements related with the needs of the food supply chain stakeholder.

These "Low Importance" User Stories and the relative Business Requirements, are presented in the below Table 25.

Table 25: Low Importance Business Requirements

USER STORY ID	BUSINESS REQUIREMENT ID	STAKEHOLDER	Representative Application for "TheFSM" Platform

US_2	BR_nr2_2	Producer	*Agrivi*
US_5	BR_nr2_6	Producer	*Agrivi*
US_6	BR_nr2_7	Producer	*Agrivi*
US_17	BR_nr2_33	Food Processor	*FoodAkai*
US_47	BR_nr5_3	Public Authorities	*Food Inspector*
US_51	BR_nr5_13	Industry	*FoodAkai*

10. UPDATE OF LEGAL REQUIREMENTS

10.1. OUTLINING THE LEGAL FRAMEWORK AND CURRENT LEGAL DOCUMENTS (CONTRACTS, AGREEMENTS, DECLARATIONS ETC) APPLICABLE TO THE USE OF THEFSM PLATFORM

The legal requirements applicable to TheFSM Platform are divided into four broad categories namely:

1. Processing of personal data;
2. Governance of non-personal data;
3. Commercial exploitation of databases;
4. Applicable food safety regulations.

10.1.1. Processing of Personal Data

The General Data Protection Regulation[2] (GDPR) governs the lawful processing of personal data. Article 4(1), GDPR defines 'personal data' as information relating to an identified or identifiable natural person ('data subject') both directly and indirectly. Personal data includes identities such as "names, identification numbers, location data, online identifiers".[3] Furthermore, personal data includes "one or more factors specific to the physical, physiological, generic, mental, economic, cultural or social identity of a natural person".[4] Although the GDPR excludes data related to non-human legal entities ("legal persons''), some member states may still protect personal data of legal persons under national data protection law (e.g. Austria).[5]

In the User Scenarios and on the TheFSM Platform, personal data of natural persons affiliated with business actors will be processed. Such personal data may include contact data, location data, online identifiers and certification data which could be used to identify a natural person.[6]

A legal basis for the processing of personal data must be established beforehand to ensure the lawfulness of processing. Article 6 GDPR outlines the legal basis recognised by the Regulation. In the context of TheFSM platform and based on the information derived from the Focus Groups, the following legal basis are applicable:

- processing is necessary for the performance of a contract to which the data subject is party or in order to take steps at the request of the data subject prior to entering into a contract (Article 6 (1)(b)).
- processing is necessary for compliance with a legal obligation to which the controller is subject (Article 6(1) (c)). However, please note that obligation to process personal data must be established by statutory law (self-commitment or contractual obligation is not sufficient).

[2] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).
[3] Art. 4, GDPR.
[4] Art. 4(1), GDPR.
[5] Recital 14 S 2 GDPR; https://gdprhub.eu/index.php?title=Category:Country_Overview (12.5.2021).
[6] Recital 26, GDPR.

- processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller (Article 6 (1)(e)).
- processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party (Article 6 (1)(f)).

Please note that the basis for the processing referred to in Article 6(1) (c) and (e) must be laid down by Union law or Member State law to which the controller is subject.[7]Processing of personal data on TheFSM platform will be outlined in the platform's Privacy Policy which is developed under Work Package 5.

10.1.2. Governance of Non-Personal Data

In the context of TheFSM, the exchange of non-personal data is governed by contract. This includes data sharing agreements entered into between Actors in each User Scenario as well as the contractual framework governing the use of TheFSM platform.[8] Establishing data usage and sharing requirements between Actors in each business scenario is an important legal requirement which may be achieved through the review of existing standard contracts and terms of service. Governance of non-personal data on TheFSM platform will be established in the platforms Terms of Use and data sharing agreement, which are developed in Work Package 5.

10.1.3. Commercial Exploitation of Databases

In the context of theFSM public and open data are mainly collected through public authorities and public certification bodies' databases and include laboratories accreditations, approvals and operational licenses. The FOODAKAI application also retrieves information from the databases of public authorities, certification bodies as well as laboratory management systems, CRM/ERP systems and audit systems. Access to these public databases are governed by terms of use and specific licenses. Directive 2003/98/EC outlines minimum rules for the reuse of public sector information throughout the European Union ("PSI Directive").[9] In its recitals it encourages Member States to go beyond these minimum rules and to adopt open data policies, allowing a broad use of documents held by public sector bodies. By 17 July 2021 Member States have to transpose Directive (EU) 2019/1024 on open data and the re-use of public sector information, which repeals PSI Directive, into national law ("Open Data Directive").[10]

Based on the Business Scenarios, TheFSM will seek to exploit private databases such as that of GlobalGap. Legal protection of databases is governed by national law transposing Directive

7 Art. 6 para. 3 (and para 2) GDPR, Recital 45.
8 See e.g. Guidance on sharing private sector data in the European data economy, SWD/2018/125 final, 6f, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018SC0125 (12.5.2021) and ICO, Data sharing: a code of practice, https://ico.org.uk/for-organisations/data-sharing-a-code-of-practice/ (12.5.2021).
9 Consolidated version from 27.6.2013, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02003L0098-20130717 (12.5.2021).
10 Art 19 Open Date Directive, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L1024#d1e1727-56-1 (12.5.2021).

96/9/EC ("Database Directive").[11] Private databases are protected by a sui generis right of the maker of a database if qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents was made. In these cases, the maker of a database may prevent extraction and/or re-utilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database.[12]

Furthermore, there is no Regulatory mandate on private databases to adopt open data policies. Access to private databases is governed by the terms of use and specific license agreements. Therefore, establishing whether there are any restrictions to their intended use constitutes a legal requirement in each business scenario.

UNIVIE has reviewed the Terms of Use of certain private databases, specially GlobalGap. This initial review has indicated that the use of the GlobalGap database is restricted to internal operation of the Customer`s organisations only.[13] Furthermore, there is a general prohibition on making information derived from databases publicly available.[14] Based on these terms, the project will face a challenge in its attempt to integrate data from the GlobalGap database and potentially from other private databases. In light of these obstacles, alternative avenues will be investigated by project organizers and responsible technical partners.

10.1.4. Applicable Food Safety Regulations

The Regulation (EC) No 178/2002 sets out an overarching framework for the development of food and food safety legislation. The Regulation outlines general principles, requirements and procedures of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (General Food Law Regulation) at all stages of production and distribution. It is complemented by the Regulation (EC) No 852/2004 on the Hygiene of Foodstuffs.
Regarding Pest control, EU Regulation (EU) No 852/2004 requires food business operators to prevent animals and pests from causing contamination by taking the adequate measures.

The following Regulations apply specifically to Business Scenario 4 dealing with Organic Certification._Regulation (EC) No 834/2007, the Organic Regulation sets out the general principles, aims and overarching rules of organic production and organic labelling. EU Organic Certification is required by statue for organic farming, production, distribution, marketing and the use of organic labelling. Regulation (EC) No 510/2006 governs the protection of geographical indications and designations of origin for agricultural products and foodstuffs. This Regulation sets out the broad framework for EU quality standards aimed at protecting the

11 Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, Consolidated version from 17.5.2019, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01996L0009-20190606 (12.5.2021).
12 Art 7 Database Directive.
13 Sec 8 of Terms and Conditions for the Use of the GLOBALG.A.P. Database, https://database.globalgap.org/globalgap/TermsAndConditions.faces (12.5.2021).
14 Sec 2 of Terms and Conditions for the Use of the GLOBALG.A.P. Database.

names and unique characteristics of specific products, linked to their geographical origin and traditional know-how.

Food Safety Standards are also applicable and shall be taken into consideration for each specific Business Scenario. Data sharing requirements and provisions on confidentiality shall be analysed according to the applicable standards.

Business Scenarios				
BS1	BS2	BS3	BS4	BS5
None	1. FSSC22000 (GFSI) Standard 2. IFS Food Standards 3. GLOBALGAP version 5.2 certification standard.	1. GlobalGap Standards 2. The QS Qualität und Sicherheit 3. IFS certification 4. BRC Global Standard for Food Safety 5. ISO 22000 6. FSSC 7. GMP+ 8. Organic food 9. HG 10. RSPO Certification	1. EU regulation 889/2008 on rules governing organic production, labeling and control 2. Protected Designation Origin (PDO) standards 3. Protected Geographical Indication (PGI) standards	1. BLK product label 2. Organic label 3. ISO certification 4. EKO label 5. HALAL certification 6. BRC certification 7. IFS certification 8. FSSC 22000 9. The QS Qualität und Sicherheit 10. IKB certification

10.1.5. Map existing legal requirements with user stories

10.1.5.1. Business Scenario 1: The retailer

	Producer	Food Processor	Retailer
Processing of Personal data	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). Ø **LR2**: Risk profiles on FOODAKAI 2.0 may be created by automated processing of personal data. If so, data protection roles and suitable legal basis for profiling will be analysed. In order to mitigate the risks for suppliers as data subjects technical and organisational measures should be identified and implemented, including - if necessary - conducting a Data Protection Impact Assessment (DPIA), drafting data processing or joint controllership agreements. Ø **LR3:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). Ø **LR2:** Risk profiles on FOODAKAI 2.0 may be created by automated processing of personal data. If so, data protection roles and suitable legal basis for profiling will be analysed. In order to mitigate the risks for suppliers as data subjects technical and organisational measures should be identified and implemented, including - if necessary - conducting a Data Protection Impact Assessment (DPIA), drafting data processing or joint controllership agreements. Ø **LR3:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5).	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). Ø **LR2:** Risk profiles on FOODAKAI 2.0 may be created by automated processing of personal data. If so, data protection roles and suitable legal basis for profiling will be analysed. In order to mitigate the risks for suppliers as data subjects technical and organisational measures should be identified and implemented, including - if necessary - conducting a Data Protection Impact Assessment (DPIA), drafting data processing or joint controllership agreements. Ø **LR3:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5).

Governance of non-personal Data	Ø **LR4:** Analyse Terms of use of the FOODAKAI 2.0 platform and separate standard contract templates to establish existing data sharing requirements between Actors. Ø **LR5**: Establish data governance framework which regulates the sharing of data, access to data and traceability of data on TheFSM platform in the Terms of Use and data sharing agreement (developed in WP5)	Ø **LR4:** Analyse Terms of use of the FOODAKA 2.0 I platform and separate standard contract templates to establish existing data sharing requirements between Actors. Ø **LR5**: Establish data governance framework which regulates the sharing of data, access to data and traceability of data on TheFSM platform in the Terms of Use and data sharing agreement (developed in WP5)	Ø **LR4:** Analyse Terms of use of the FOODAKAI 2.0 platform and separate standard contract templates to establish existing data sharing requirements between Actors. Ø **LR5**: Establish data governance framework which regulates the sharing of data, access to data and traceability of data on TheFSM platform in the Terms of Use and data sharing agreement (developed in WP5)
Commercial Exploitation of Databases	Ø **LR6:** Analyse database terms of use (licenses).	Ø **LR6:** Analyse database terms of use (licenses).	Ø **LR6:** Analyse database terms of use (licenses).

10.1.5.2. Business Scenario 2: Food Processing

	Producer	**Processor/Retailer**
Processing of Personal data	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). Ø **LR2:** Analyse existing contractual agreements and/or templates between producers and processor/retailer to identify confidentiality and data protection requirements. Ø **LR3:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). Ø **LR2:** Analyse existing contractual agreements and/or templates between producers and processor/retailer to identify confidentiality and data protection requirements. Ø **LR3:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)

Governance of non-personal Data	Ø **LR4:** Establish data governance framework which regulates the sharing of data, access to data and traceability of data on TheFSM platform in the Terms of Use and data sharing agreement (developed in WP5) Ø **LR5**: Analyse existing contractual agreement and/or templates between producers and processors/retailers as well as any Ø **LR6:** Analyse contractual and certification terms of the GLOBALGAP ver 5.2 certification standard.	Ø **LR4:** Establish data governance framework which regulates the sharing of data, access to data and traceability of data on TheFSM platform in the Terms of Use and data sharing agreement (developed in WP5) Ø **LR5**: Analyse existing contractual agreement and/or templates between producers and processors/retailers as well as any. Ø **LR6**: Analyse contractual and certification terms of the GLOBALGAP ver 5.2 certification standard
Commercial Exploitation of Databases	Ø **LR7**: Analysis of the GLOBALGAP Terms of Use indicates a prohibition against the commercial exploitation of this private database. As such, legal requirements may include: - Entering into a licensing agreement for the exchange of data with GlobalGap. - Communicate with GlobalGap in order to establish an exemption to these provisions in the context of scientific research. - Exploring the possibility for decompilation in accordance with Article 6 of the Directive 2009/24/EC on the legal protection of computer programs for the purpose of achieving interoperability Ø **LR8**: Analyse database terms of use (licences) of public and open databases provided by public and international bodies or authorities: Ministry of Agriculture Greece Database, EC EUROPA Databases, Databases of approved plant protection products of the Ministry of Rural Development and Food	Ø **LR7**: Analysis of the GLOBALGAP Terms of Use indicates a prohibition against the commercial exploitation of this private database. As such, legal requirements may include: - Entering into a licensing agreement for the exchange of data with GlobalGap. - Communicate with GlobalGap in order to establish an exemption to these provisions in the context of scientific research. - Exploring the possibility for decompilation in accordance with Article 6 of the Directive 2009/24/EC on the legal protection of computer programs for the purpose of achieving interoperability Ø **LR8**: Analyse database terms of use (licences) of public and open databases provided by public and international bodies or authorities: Ministry of Agriculture Greece Database, EC EUROPA Databases, Databases of approved plant protection products of the Ministry of Rural Development and Food

10.1.5.3. Business Scenario 3: Private Food Safety Standards Certification

	Producer	Food processor	Retailer
Processing of Personal data	**Ø LR1: Non statutory certification** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). **Ø LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	**ØLR1: Non statutory certification** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). **Ø LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	**Ø LR1: Non statutory certification** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR). **Ø LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)
Governance of non-personal Data	**Ø LR3:** Analyze technical and organisational measures (TOM), including non-disclosure agreement (NDA) and confidentiality clauses. **Ø LR4:**Analyse existing contractual agreements and/or templates between producers and processors to identify confidentiality and data protection requirements. **Ø LR5*:*** Analyse existing contractual agreements and/or templates between producers and retailers to identify confidentiality and data protection requirements. **Ø LR6*:*** Analyse existing contractual agreements and/or templates between producers and distributors to identify confidentiality and data protection requirements. **Ø LR7*:*** Analyse existing contractual agreements and/or templates between producers and certification bodies to identify confidentiality and data protection requirements. **Ø LR8**: Analyze the legal bases and contractual terms for	**Ø LR3:** Analyze technical and organisational measures (TOM), including non-disclosure agreement (NDA) and confidentiality clauses. **Ø LR4:**Analyse existing contractual agreements and/or templates between processors and producers to identify confidentiality and data protection requirements. **Ø LR5:**Analyse existing contractual agreements and/or templates between processors and retailers to identify confidentiality and data protection requirements. **ØLR6*:*** Analyse existing contractual agreements and/or templates between processors and distributors to identify confidentiality and data protection requirements. **Ø LR7*:*** Analyse existing contractual agreements and/or templates between processors and certification bodies to identify confidentiality and data protection requirements. **Ø LR8**: Analyze the legal bases and contractual terms for participation in the platform by the various sub-actors.	**ØLR3:** Analyse existing contractual agreements and/or templates between retailers and relevant main actors to identify confidentiality and data protection requirements. **ØLR4:** Analyse the legal basis for the exchange of data between the retailer and the sub-actors and its relevance for theFSM platform **ØLR5:** Establish if there are any restrictions on sharing information received directly from competent authorities with third parties

	participation in the platform by the various sub-actors. **ØLR8**: Establish if there are any restrictions on sharing information received directly from competent authorities with third parties	**ØLR8**: Establish if there are any restrictions on sharing information received directly from competent authorities with third parties	
Commercial Exploitation of Databases	**Ø LR9:** Analyse database terms of use (licences) of public and open databases provided by public authorities	**Ø LR9**: Analysis of the GLOBALGAP Terms of Use indicates a prohibition against the commercial exploitation of this private database. As such, legal requirements may include: - Entering into a licensing agreement for the exchange of data with GlobalGap. - Communicate with GlobalGap in order to establish an exemption to these provisions in the context of scientific research. - Explore the possibility of decompilation in accordance with Article 6 of the Directive 2009/24/EC on the legal protection of computer programs for the purpose of achieving interoperability	**Ø LR6:** Analyse database terms of use (licences) of public and open databases provided by public and international bodies or authorities

10.1.5.4. Business Scenario 4: Organic PDO wine certification: the certifier

	Certification Body (CB) Consisting of Auditors and Certification Committee	**Farmer-Producer**	**Processor**
Processing of Personal data	Ø **LR1:** Analyse the legal basis for processing, with a distinction between statutory (required by law) and non-statutory certification. Statutory certification: "processing is necessary for compliance with a legal obligation to which the controller is subject" (Art 6(1)(c), GDPR). Non-statutory certification: "processing is necessary for the performance of a contract to which the data subject is party or in order to take steps at the request of the	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR).	Ø **LR1:** legal basis for processing: performance of a contract (Art 6 (1) (b), GDPR). If there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1)(f), GDPR).

	data subject prior to entering into a contract" (Art 6 (1) (b), GDPR); if there is no (direct) contract between controller and data subject, legitimate interests pursued by the controller (Art 6 (1) (f) GDPR). Ø **LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)		
Governance of non-personal Data	**Ø LR3:** Statutory certification is governed by Regulations governing organic certification determining which non-personal data has to be provided to the certification body, data collection, storage, confidentiality etc. EU Analyse the Regulations governing organic certification. **Ø LR4:** Non-Statutory Certification is performed on contractual basis. The governing standards specify which non-personal data has to be provided to the certification body, data collection during audits, data storage, and access to data, data exchange and confidentiality. Analyse the applicable certification standards and standard contractual templates.	Ø **LR2:** As there is no statutory protection of non-personal data ("data ownership"), collected data will be protected through contract. Analyse contractual terms for the data exchange , NDA and confidentiality clauses between farmer, processor and CB. **Ø LR6**: Analyse the legal framework of the certification process governing the data exchange (permission by the food authority to gather, store and share data) **Ø LR8**: Establish if there are any restrictions on sharing information received directly from food authorities with third parties.	Ø **LR2:** Analyse contractual terms for the data exchange , NDA and confidentiality clauses between farmer, processor and CB. **ØLR3:** Statutory certification is governed by Regulations governing organic certification determining which non-personal data has to be provided to the certification body, data collection, storage, confidentiality etc. EU Analyse the Regulations governing organic certification. **Ø LR4:** Non-Statutory Certification is performed on contractual basis. Analyse the applicable certification standards and standard contractual templates. **ØLR5**: Establish if there are any restrictions on sharing information received directly from food authorities with third parties **ØLR6:** Provide a data governance framework that regulates sharing of data between the actors (terms of use of the platform or separate standard contract template).
Commercial Exploitation of Databases	**Ø LR5:** Analyse national/regional database terms of use (licences), (SIAN - Italian National Register).	**Ø LR6:** Analyse national/regional database terms of use (licences), (SIAN - Italian National Register).	**Ø LR7:** Analyse national/regional database terms of use (licences), (SIAN - Italian National Register; Regional Database, Certification Bodies Databases (Dioniso)).

10.1.5.5. Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain.

	Dutch Food Safety Authority	**Farmers**	**Industry**
Processing of Personal data	Ø **LR1:** Legal basis for processing: Art 6(1) (c) GDPR (legal obligation) or Art 6(1) (e) GDPR (exercise of official authority). Ø **LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	Ø **LR1:** Legal basis for processing: Art 6(1)(b) GDPR performance of a contract. If there is no (direct) contract between controller and data subject , legitimate interests pursued by the controller (Art 6(1) (f) GDPR) Ø **LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)	Ø **LR1:** Legal basis for processing: Art 6(1)(b) GDPR performance of a contract.If there is no (direct) contract between controller and data subject , legitimate interests pursued by the controller (Art 6(1) (f) GDPR). Ø **LR2:** Develop Privacy Policy to govern personal data processing on TheFSM platform (to be developed in WP5)
Governance of non-personal data	Ø **LR3**: Analyse national or EU regulation with special regard to the platform and to the use, collection and disclosure of business sensitive and anonymised data provided by the NVWA. Ø **LR4**: Analyse national or EU regulations regarding Data sharing with public authorities	Ø **LR3**: Analyse technical and organisational measures (TOM), including non-disclosure agreement (NDA) and confidentiality clauses. Ø **LR4**: Analyse contractual basis for the data exchange between farmers and producers, slaughterhouses, industry, processors. Ø **LR5**: Analyse contractual terms for the data exchange between farmer and certification body. Ø **LR6**: Analyse the legal framework of the certification process governing the data exchange (permission by the food authority to gather, store and share data) Ø **LR7**: Analyse contractual terms for participation in the platform by the various sub-actors. Ø **LR8**: Establish if there are	Ø **LR3**: Analyse technical and organisational measures (TOM), including non-disclosure agreement (NDA) and confidentiality clauses. Ø **LR4:** Analyse contractual basis for the exchange of business sensitive data and confidential data between the Industry and the Retailer Ø **LR5:** Analyse contractual basis for the exchange of business sensitive data and confidential data between Industry and Slaughterhouses. Ø **LR6**: Analyse the legal framework of the certification standard governing the exchange of data between the Industry and the Food Authority Ø **LR7**: Analyse contractual terms of the certification standard Ø **LR8**: Analyse the contractual terms for participation in the platform by the various sub-actors.

		any restrictions on sharing information received directly from food authorities with third parties.	
Commercial exploitation of Databases	Ø **LR5**: Analyse database terms of use (licences)provided by the Dutch Food Safety Authority (NWA)	Ø **LR9**: Analysis of the GLOBALGAP Terms of Use indicates a prohibition against the commercial exploitation of this private database. As such, legal requirements may include: - Entering into a licensing agreement for the exchange of data with GlobalGap. - Communicate with GlobalGap in order to establish an exemption to these provisions in the context of scientific research. - Explore the possibility of decompilation in accordance with Article 6 of the Directive 2009/24/EC on the legal protection of computer program for the purpose of achieving interoperability	Ø **LR9**: Analyse database terms of use (licences)) of public and open databases provided by public authorities (the Dutch Chamber of Commerce (KvK), CBS) and business databases (Dutch association representing the broiler meat industry (NEPLUVI). Analysis of the GLOBALGAP Terms of Use indicates a prohibition against the commercial exploitation of this private database. As such, legal requirements may include: - Entering into a licensing agreement for the exchange of data with GlobalGap. - Communicate with GlobalGap in order to establish an exemption to these provisions in the context of scientific research. - Explore the possibility of decompilation in accordance with Article 6 of the Directive 2009/24/EC on the legal protection of computer program for the purpose of achieving interoperability

11. UPDATE OF TECHNICAL REQUIREMENTS

The objective of Technical Requirements (task 1.2 DoA) is to analyze the current technical landscape of systems and processes being used within the business scenarios from the perspective of connectivity, interoperability, standardization, security and data accessibility.

The preliminary analysis presented in first version of D1.1. provided the initial set of technical requirements that would further be developed iteratively during the project based on direct learnings through analysis and pilot implementation, and in accordance with the legal, data and business requirementsIn the second version of D1.1. the main activities of this task focused on mapping the existing technical requirements with the user stories created during this second version, presentation of technical requirements based on v1 of the FSM platform architecture and partners feedback and finalization of technical requirements in accordance with the respective functionalities of the applications. All the technical requirements have been thoroughly reviewed with technical partners and through the process of mapping with functional requirements, non-functional requirements, business requirements and user stories produced the more detailed second version and mappings with final user stories.

The following table lists all the technical requirements that are connected with the above activities.

11.1. Present draft v1 of technical requirements based on v1 of FSM platform architecture

Reference ID	**Functional requirement ID**	**Technical requirement**
TR_1	FR_1	Create user account
TR_2	FR_2	Create company profile
TR_3	FR_3	Upload certification info
TR_4	FR_4	Upload laboratory analysis test info
TR_5	FR_5	Estimate risk
TR_6	FR_6	Request an audit by third party
TR_7	FR_7	Receive audit request
TR_8	FR_8	Submit audit results
TR_9	FR_9	Upload lab results

TR_10	FR_10	New audit notification
TR_11	FR_11	New test results notification
TR_12	FR_12	View tracebility report for a cultivation
TR_13	FR_13	View IoT data (from farm, production) of a specific product
TR_14	FR_14	Provide IoT data (from farm, production) of a specific product
TR_15	FR_15	View findings of the inspection of suppliers in the food chain
TR_16	FR_16	Select specific suppliers/professionals of interest to monitor their status
TR_17	FR_17	Show product history based on traceability unit id (LOT number)
TR_18	FR_18	Predict an increasing risk for a supplier
TR_19	FR_19	View specific certification for a producer
TR_20	FR_20	View tracebility history for cultivation
TR_21	FR_21	View lab results and the certification of analysis for a specific producer
TR_22	FR_22	View information for a supplier (Name, products, location)
TR_23	FR_23	View information about audits and inspections for a specific producer/grower
TR_24	FR_24	View information for the food recalls ,border rejections and inspections for a specific supplier
TR_25	FR_25	Access to Producer-entered data (production plans, progress, practices, risks, deliveries)
TR_26	FR_26	Access to Retail-entered data (production plans, progress, practices, risks, deliveries)
TR_27	FR_27	View real-time data related to cultivation conditions
TR_28	FR_28	View additional data related to cultivation conditions
TR_29	FR_29	View characteristics of plots (plots' distribution and their topographic features)
TR_30	FR_30	Collect data related to characteristics relevant to the agricultural plots (soil), to the plantation etc., before implementing agricultural practices

TR_31	FR_31	Extract insights about the plots status
TR_32	FR_32	Get notified about potential risks
TR_33	FR_33	Provide/view available resources of producer's business
TR_34	FR_34	Share measurement of the concentration (residues) of Plant Protection Substances in the final
TR_35	FR_35	Share measurements of characteristics relevant to the agricultural plots (soil), to the plantation etc., before implementing agricultural practices
TR_36	FR_36	Share data from all correlation stages with the food processor
TR_37	FR_37	Share certificate history of a specific product
TR_38	FR_38	Validate certificate from GLOBALGAP database
TR_39	FR_39	Support negotiation with food processor about the characteristics of the product
TR_40	FR_40	Share directly production data related to the traceability units with processor
TR_41	FR_41	Share of the GlobalGAP Number (GGN) with the processor for certificate validation
TR_42	FR_42	Correlate the certification with tracking batches
TR_43	FR_43	Share production data with the Certification Body
TR_44	FR_44	View production data of producer
TR_45	FR_45	Support negotiation with certification body about the financial offer
TR_46	FR_46	Receive an alert that my company is uploaded in the GLOBALGAP database
TR_47	FR_47	Request an audit by third party
TR_48	FR_48	Receive audit request
TR_49	FR_49	Upload and manage audit data and files
TR_50	FR_50	Create audit report
TR_51	FR_51	Share audit report with producer

TR_52	FR_52	Upload final audit data in the GLOBALGAP database
TR_53	FR_53	Issue a certification for producer
TR_54	FR_54	View/access farm data on the traceability of a particular batch from producer
TR_55	FR_55	View/access product safety verification data from producer
TR_56	FR_56	View/access food recall data from producer
TR_57	FR_57	View/access retailer's requirements Data from retailer
TR_58	FR_58	Define product data requirements to food processor
TR_59	FR_59	Provide feedback about a specific product to food processor
TR_60	FR_60	View feedback about a specific product from retailer
TR_61	FR_61	Access to certificates generated in previous phases
TR_62	FR_62	View suppliers who hold a specific certificate
TR_63	FR_63	View food recall data and recieve alerts
TR_64	FR_64	View supplementary product data
TR_65	FR_65	Share raw materials specifications to producer
TR_66	FR_66	Share final product safety verification data to retailer
TR_67	FR_67	Share compliance Data, which evidently reveal conformity of the packaging process against the requirements of the food safety standards (FSSC22000, IFS) to the Certification Body
TR_68	FR_68	Share certification data with the Certification Body
TR_69	FR_69	To monitor data from all stages of food processing
TR_70	FR_70	To receive/view/access data from producer, processor, retailer in order to check if the stakeholder complies with the certification schemes
TR_71	FR_71	To receive/view/access laboratory analysis reports
TR_72	FR_72	Share of the GlobalGAP Number (GGN) and relevant valid certificate
TR_73	FR_73	Have access on a the FSSC certification checklist

TR_74	FR_74	Share my evaluation data from the National Accreditation Council
TR_75	FR_75	Provide relevant data to the planned comprehensive database (FSM)
TR_76	FR_76	Retailer provides specific requirements regarding certification and seals of approval
TR_77	FR_77	CB provides detailed information regarding standards, seals of approval and certification process
TR_78	FR_78	Data exchange between orgs
TR_79	FR_79	Find all necessary information for planning and realizing the certification process
TR_80	FR_80	Provide specific customer requirements, standards, seals of approval to producers
TR_81	FR_81	Determine which standards and seals of approval should be implemented to meet all customer requirements to raise competitiveness
TR_82	FR_82	Notify producer on prerequisites to fulfill the specific requirements and which resources must be allocated
TR_83	FR_83	Provide a way for producers to determine which certification body can certify which elected standards
TR_84	FR_84	Manage high amounts of data, from heterogenous sources
TR_85	FR_85	Regular data exchange between producer and food processor
TR_86	FR_86	Regular data exchange between producer and retailer
TR_87	FR_87	Presale data of producer and company
TR_88	FR_88	Search and request certification from distributor
TR_89	FR_89	Request certification data from certification body
TR_90	FR_90	Producer send requirements to food processor, or food processor directly contacting producer
TR_91	FR_91	Producer send requirements to retailer, or retailer directly contacting producer
TR_92	FR_92	Regular publication of distributor certificates

TR_93	FR_93	CB provide audit reports to producer
TR_94	FR_94	Allow consulants to collect data, conduct internal audits, for decision support
TR_95	FR_95	Enable labs to post certificates after lab tests
TR_96	FR_96	Allow public authorities to extract information, ensure the legality of the procedures, as also utilize traceability data and analytics
TR_97	FR_97	Regular data exchange between food processor and food processor
TR_98	FR_98	Regular data exchange between food processor and retailer
TR_99	FR_99	Presale data of distributor and company
TR_100	FR_100	Request certification data from certification body
TR_101	FR_101	Food processor send requirements to retailer, or retailer directly contacting food processor
TR_102	FR_102	Search and request certification from distributor
TR_103	FR_103	CB provide audit reports to food processor
TR_104	FR_104	Distributor send requirements to retailer, or retailer directly contacting distributor
TR_105	FR_105	Provide impartial certification processes, procedures and practices
TR_106	FR_106	Provide competent audits by certification scheme owners
TR_107	FR_107	Support independent decision-making on certification issuing
TR_108	FR_108	Provide certification data, requirements, standards, to: producer, food processor, distributor
TR_109	FR_109	Interact with consultants
TR_110	FR_110	Interact with companies
TR_111	FR_111	Search and request certification from distributor
TR_112	FR_112	Producer send requirements to retailer, or retailer directly contacting producer
TR_113	FR_113	Interact with certification body to obtain audit reports, certificates and

		seals of approval
TR_114	FR_114	Provide traceability data to consumers
TR_115	FR_115	Receive regular updates on certifications and product specifications
TR_116	FR_116	Cooperate with consultants for audits
TR_117	FR_117	(optional) provide detailed risk analysis for products
TR_118	FR_118	Provide samples to labs for testing
TR_119	FR_119	Make available the auditing reports and/or non-compliances found
TR_120	FR_120	Integration with national DBs like SIAN (it is a registry), to allow wine cellars to collect data about every wine movement
TR_121	FR_121	Enable auditors to fill in reports in digital form
TR_122	FR_122	Integrate legal requirements, lab certifications, specific parameters for auditor
TR_123	FR_123	Evaluate inspector reports
TR_124	FR_124	Issue certification
TR_125	FR_125	Send digital certification to winegrower/winemaker/bottler (producer?)
TR_126	FR_126	Enable communication between Certification Body and inspector if doubting information
TR_127	FR_127	Issue measure of non-compliance/irregularity if Operator (producer?) doesn't meet requirements
TR_128	FR_128	Periodically check traceability and status of products by checking inspection reports
TR_129	FR_129	Verify integrity of digital report
TR_130	FR_130	Notify producers about regulations to be fulfilled
TR_131	FR_131	Ensure producer has up to date status on buying and selling, farm files
TR_132	FR_132	Interaction with auditors for farm inspection
TR_133	FR_133	Provide timelines, products or techniques suggestions, certification information

TR_134	FR_134	Update vineyard info if not in touch with consultant
TR_136	FR_136	Receive producer's data about harvest period of certified product, certification validity and report
TR_137	FR_137	Reach retailers to communicate the value of the certified product.
TR_138	FR_138	Receive certificate from producer
TR_139	FR_139	User certification data for marketing purposes
TR_140	FR_140	Populate official databases with farm data and food health data from operators, as well as their certifications
TR_141	FR_141	Provide remote control, monitoring and traceability capabilities
TR_142	FR_142	Collect data, inspections on-site at all actors, issue results and upload to db
TR_143	FR_143	Schedule inspections
TR_144	FR_144	Notify concerned actors about upcoming inspection/auditing
TR_145	FR_145	Ability to evaluate inspectors against EU regulations (such as (EG) nr. 178/2002)
TR_146	FR_146	Get product analysis to verify compliance towards certifications
TR_147	FR_147	Communicate complaints - accusations for certified producers or processors
TR_148	FR_148	View reports of inspection, audits reports, combined data collected from all actors in the supply chain such as declared volumes/quantities/prices
TR_149	FR_149	Fill forms for inspection, report volumes, prices and food safety results to authorities, exchange reports with the certification bodies
TR_150	FR_150	Trade certified processed products in the market
TR_151	FR_151	Accept inspections by food authorities and certification bodies for compliance
TR_152	FR_152	Set product specifications for products it sends to the market to retailers
TR_153	FR_153	View reports of inspection, audits reports, combined data collected from all actors in the supply chain such as declared volumes/quantities/prices

TR_154	FR_154	Fill forms for inspection, report volumes, prices and food safety results to authorities, exchange reports with the certification bodies
TR_155	FR_155	Contact consultants for audits, guide implementation of best practices against certification standards
TR_156	FR_156	Verify compliance by submitting data to labs

11.2. Mapping of existing technical requirements with user stories

Technical Requirements	Title	Related user stories
TR_1	TheFSM platform shall allow data to be imported from external sources and systems	US_4, US_6, US_7, US_10, US_13, US_18, US_21, US_22, US_28
TR_2	TheFSM platform shall allow the user to upload and download files	US_7, US_9, US_30, US_18, US_21, US_28
TR_3	TheFSM platform shall allow the data ingestion of stream data	US_7, US_9, US_10, US_13, US_18, US_21, US_22, US_28
TR_4	TheFSM platform shall allow the data ingestion of batched data	US_4, US_6, US_9, US_10, US_13, US_18, US_21, US_22, US_28
TR_5	TheFSM platform should provide data curation services	US_11, US_13, US_18, US_28
TR_6	TheFSM platform should provide data enrichment services for data deriving from internal and external datasources using a RESTful API	US_40,US_19,US_41,US_20,US_42,US_21,US_43,US_22,US_1,US_44,US_23,US_2,US_45,US_24,US_3,US_46,US_25,US_4,US_47,US_26,US_5,US_48,US_27,US_6,US_49,US_28,US_7,US_50,US_29,US_8,US_51,US_30,US_9,US_31,US_10,US_32,US_11,US_33,US_12,US_34,US_13,US_35,US_14,US_36,US_15,US_37,US_16,US_17,US_39,US_18
TR_7	TheFSM platform should should offer a well-defined API for data export	US_18,US_40,US_19,US_41,US_20,US_42,US_21,US_43,US_22,US_1,US_44,US_23,US_2,US_45,US_24,US_3,US_46,US_25,US_4,US_47,US_26,US_5,US_48,US_27,US_6,US_49,US_28,US_7,US_50,US_29,US_8,US_51,US_30,US_9,US_31,US_10,US_32,US_11,US_33,US_12,US_34,US_13,US_35,US_14,US_36,US_15,US_37,US_16,US_38,US_17,US_39
TR_8	TheFSM platform should develop and maintain a semantic model for food safety and certification data enrichment	US_6, US_7, US_11, US_22

TR_9	TheFSM platform should support updating and maintaining uploaded datasets	US_7, US_9, US_10, US_22, US_26, US_30
TR_10	TheFSM platform should support data representation using well established standards (GS1, EPCIS, WoT)	US_7, US_10, US_13, US_15, US_26, US_29, US_34, US_41, US_43
TR_11	TheFSM platform should offer a secure big data infrastructure	
TR_12	TheFSM platform should offer access control to data based specific parameters	US_7, US_16, US_39
TR_13	TheFSM platform should offer anonymization/pseudonymization services	
TR_14	TheFSM platform should encrypt data files	US_16
TR_15	TheFSM platform should provide a controlled and secure way to decrypt data files	US_16
TR_16	TheFSM platform should provide robust identity management for user authorization	US_5, US_15, US_16
TR_17	TheFSM platform shall provide a secure and controlled registration process for new users	US_16
TR_18	TheFSM platform should offer an IPR management service to data providers	
TR_19	TheFSM platform shall store the data sharing contracts in a DLT-based repository for non-repudiation purposes.	US_13, US_29, US_31, US_41
TR_20	TheFSM platform shall use widely established standards (EPCIS) for traceability data	US_7, US_26, US_27, US_29, US_34, US_41, US_43
TR_21	TheFSM platform should capture the certification and auditing event in tracebility data	US_9, US_22, US_25, US_29, US_30, US_34, US_41,
TR_22	TheFSM platform should use DLT for trust and transparency in traceability	US_5, US_7, US_12, US_15, US_23, US_26, US_27, US_28, US_31, US_34, US_35, US_42, US_43, US_44, US_47
TR_23	TheFSM platform should offer services for risk assessment and prediction	US_14, US_24, US_30, US_40, US_48
TR_24	TheFSM platform should offer query services for data asset exploration	US_11, US_13, US_17, US_19, US_20, US_23, US_24, US_25, US_26, US_27, US_28, US_29, US_30, US_32, US_34, US_35, US_36, US_37, US_39, US_40, US_41, US_43, US_44, US_47
TR_25	TheFSM platform shall retrieve and show the datasets that are relevant to a dataset that is returned as a query result.	US_1, US_11, US_13, US_14, US_17, US_19, US_20, US_23, US_25, US_26, US_27, US_28, US_29, US_30, US_32, US_34, US_35, US_36, US_37, US_39, US_40, US_41, US_43, US_44, US_47

TR_26	TheFSM platform shall enable the integration and combined analysis over multiple datasets	US_1, US_2, US_11, US_12, US_19, US_23, US_26, US_27, US_28, US_30, US_36, US_43, US_45
TR_27	TheFSM platform shall enable the application of predefined data analysis algorithms on datasets	US_12, US_14, US_26, US_30, US_33, US_43, US_45
TR_28	TheFSM platform shall provide tools and services to apply machine learning algorithms	US_30, US_31, US_45
TR_29	TheFSM platform shall provide tools and services to apply deep learning algorithms	US_30, US_31, US_45
TR_30	TheFSM platform shall provide tools and services to apply basic analytics and statistics	US_12, US_19, US_26, US_30, US_31, US_33, US_36, US_40
TR_31	TheFSM platform should inform users with active contracts on a dataset that the dataset has been updated	US_3, US_9, US_12, US_14,
TR_32	TheFSM platform should provide data usage analytics to the users for the datasets they own.	US_2
TR_33	TheFSM platform shall ensure that access control over datasets is applied according to the data provider's policies and the terms of relevant active valid data sharing contracts	US_2, US_28, US_30, US_32, US_34, US_47
TR_34	TheFSM platform shall enable the certification data exchange among the parties through intuitive UIs	US_5, US_15, US_17, US_18, US_20, US_21, US_22, US_24,US_25, US_29, US_30, US_32, US_34, US_35, US_39, US_41, US_44, US_47, US_49
TR_35	TheFSM platform shall provide certification data to food safety stakeholders through intuitive UIs	US_15, US_17, US_18, US_20, US_21, US_22, US_24, US_25, US_29, US_32, US_34, US_35, US_39, US_41, US_47, US_49
TR_36	TheFSM platform shall integrate with the application using RESTful APIs exchnaging data in json format	US_7
TR_37	TheFSM platform shall have well-define overall terms, conditions and data categories	US_29, US_41
TR_38	TheFSM platform shall provide a services registry for the incorporation of third-party services	US_7
TR_39	TheFSM platform shall allow data consumers to sample the data they are going to buy to ensure they are satisfied with their purchase	US_34, US_47, US_50
TR_40	TheFSM platform shall ensure consistent high data quality	US_5, US_17, US_28, US_32, US_34, US_35, US_39, US_41, US_42, US_46, US_49
TR_41	TheFSM platform shall allow users to monetize	US_31, US_38, US_46, US_47, US_50

	their data	

11.3. Final presantationof technical requirements

Category	Sub-category	ID	Title	Related non-functional requirement	Related functional requirement
Data curation	Data collection, integration	TR_1	TheFSM platform shall allow data to be imported from external sources and systems	NFR_26	FR_14,FR_25,FR_26,FR_36,FR_40,FR_43,FR_47,FR_50,FR_64,FR_65,FR_66
	Data collection, integration	TR_2	TheFSM platform shall allow the user to upload and download files	NFR_26	FR_3,FR_4,FR_8,FR_9,FR_14,FR_25,FR_26,FR_36,FR_40,FR_43,FR_47,FR_50,FR_64,FR_65,FR_66
	Data collection, integration	TR_3	TheFSM platfrom shall allow the data ingestion of stream data	NFR_15,NFR_17,NFR_24,NFR_25,NFR_26	FR_14,FR_25,FR_26,FR_36,FR_40,FR_43,FR_47,FR_50,FR_64,FR_65,FR_66
	Data collection, integration	TR_4	TheFSM platfrom shall allow the data ingestion of batched data	NFR_15,NFR_17,NFR_24,NFR_25,NFR_26	FR_14,FR_25,FR_26,FR_36,FR_40,FR_43,FR_47,FR_50,FR_64,FR_65,FR_66
	Data management, intergration	TR_5	TheFSM platfrom should provide data curation services	NFR_15,NFR_17,NFR_24,NFR_25,NFR_26	FR_76,FR_83,FR_84,FR_95,FR_96
	Data enrichment, integration	TR_6	TheFSM platfrom should provide data enrichment services for data deriving from internal and external datasources using a RESTful API	NFR_15,NFR_17,NFR_24,NFR_25,NFR_26	FR_7,FR_68,FR_69,FR_88,FR_89,FR_99,FR_102,FR_110,FR_123,FR_133,FR_135,FR_149
	Data management, intergration	TR_7	TheFSM platfrom should should offer a well-defined API for data export	NFR_15,NFR_17,NFR_24,NFR_25,NFR_26	FR_7,FR_68,FR_69,FR_88,FR_89,FR_99,FR_102,FR_110,FR_123,FR_133,FR_135,FR_149
	Data enrichment, integration	TR_8	TheFSM platfrom should develop and maintain a semantic model for food safety and certification data enrichment	NFR_15	FR_34,FR_35,FR_37,FR_38,FR_47,FR_73,FR_119
	Data management, integation, cloud infrastructure	TR_9	TheFSM platfrom should support updating and maintaining uploaded datasets	NFR_3,NFR_15,NFR_17,NFR_25	FR_3,FR_4,FR_8,FR_9,FR_34,FR_35,FR_37,FR_38,FR_47,FR_73,FR_119

	Data management, Integration	TR_10	TheFSM platform should support data representation using well established standards (GS1, EPCIS, WoT)	NFR_26, NFR_32	FR_12, FR_17, FR_20, FR_21, FR_36, FR_39, FR_40, FR_42, FR_52, FR_53, FR_54,FR_65,FR_75,FR_78 ,FR_79,FR_94, FR_106,FR_112, FR_126, FR_133,FR_150
	Scalability, integration	TR_11	TheFSM platfrom should offer a secure big data infrastructure	NFR_6,NFR_19 ,NFR_23,NFR_ 27	FR_82
Security and privacy	Access control, Search engine	TR_12	TheFSM platfrom should offer access control to data based specific parameters	NFR_8,NFR_14	FR_86,FR_100,FR_109
	Anonymization	TR_13	TheFSM platfrom should offer anonymization/pseudon ymization services	NFR_1	
	Encryption, Access control	TR_14	TheFSM platfrom should encrypt data files	NFR_1, NFR_31	
	Authorization	TR_15	TheFSM platfrom should provide a controlled and secure way to decrypt data files	NFR_2	
	Authorization	TR_16	TheFSM platfrom should provide robust identity management for user authorization	NFR_1, NFR_2	
	Authorization	TR_17	TheFSM platform shall provide a secure and controlled registration process for new users	NFR_1, NFR_2	FR_1,FR_2
Licencing	Access control	TR_18	TheFSM platfrom should offer an IPR management service to data providers	NFR_30	FR_50,FR_73,FR_137
	Access control	TR_19	TheFSM platform shall store the data sharing contracts in a DLT-based repository for non-repudiation purposes.	NFR_30, NFR_31	FR_12, FR_17, FR_20, FR_21, FR_36, FR_39, FR_40, FR_42, FR_52, FR_53, FR_54, FR_55,FR_56,FR_57,FR_58 , FR_94, FR_112, FR_126, FR_133

Traceability	Integration	TR_20	TheFSM platform shall use widely established standards (EPCIS) for traceability data	NFR_32	FR_12, FR_17, FR_20, FR_21, FR_36, FR_39, FR_40, FR_42, FR_52, FR_53, FR_54,FR_55,FR_56,FR_57,FR_58,FR_65,FR_75,FR_78,FR_79,FR_94, FR_106,FR_112, FR_126, FR_133,FR_150
	Traceability, monitoring, notifications	TR_21	TheFSM platform should capture the certification and auditing event in tracebility data	NFR_14,NFR_16,NFR_20	FR_6,FR_7,FR_8,FR_12, FR_17, FR_20, FR_21, FR_22,FR_23,FR_24,FR_36, FR_39, FR_40, FR_42, FR_44,FR_45,FR_46,FR_47,FR_48,FR_49,FR_50,FR_52, FR_53, FR_54, FR_55,FR_56,FR_57,FR_58,FR_91,FR_92,FR_94,FR_101,FR_104,FR_107,FR_111, FR_112, FR_114,FR_117,FR_126, FR_130,FR_133,FR_140,FR_148
	Access control, Traceability	TR_22	TheFSM platform should use DLT for trust and transparency in traceability	NFR_30, NFR_31	FR_12, FR_17, FR_20, FR_21, FR_36, FR_39, FR_40, FR_42, FR_52, FR_53, FR_54,FR_55,FR_56,FR_57,FR_58, FR_94, FR_112, FR_126, FR_133
Data processing	Decision Support, Risk assessment	TR_23	TheFSM platform should offer services for risk assessment and prediction	NFR_10, NFR_11,NFR_21	FR_5,FR_18,FR_115
	Search engine, asset exporation	TR_24	TheFSM platform should offer query services for data asset exploration	NFR_8,NFR_12, NFR_14	FR_77,FR_86,FR_100,FR_109
	Search engine, asset exporation	TR_25	TheFSM platform shall retrieve and show the datasets that are relevant to a dataset that is returned as a query result.	NFR_8,NFR_12, NFR_14	FR_86,FR_100,FR_109

	Decision Support, Risk assessment	TR_26	TheFSM platform shall enable the integration and combined analysis over multiple datasets	NFR_8,NFR_10, NFR_11, NFR_12, NFR_14,NFR_21	FR_5,FR_18,FR_115
	Decision Support, Risk assessment	TR_27	TheFSM platform shall enable the application of predefined data analysis algorithms on datasets	NFR_10, NFR_11,NFR_21	FR_5,FR_18,FR_115
	Decision Support, Risk assessment	TR_28	TheFSM platform shall provide tools and services to apply machine learning algorithms	NFR_10, NFR_11,NFR_21	FR_5,FR_18,FR_115
	Decision Support, Risk assessment	TR_29	TheFSM platform shall provide tools and services to apply deep learning algorithms	NFR_10, NFR_11,NFR_21	FR_5,FR_18,FR_115
	Decision Support, Risk assessment	TR_30	TheFSM platform shall provide tools and services to apply basic analytics and statistics	NFR_10, NFR_11,NFR_21	FR_5,FR_18,FR_115
Added value services	Notifications	TR_31	TheFSM platform should inform users with active contracts on a dataset that the dataset has been updated	NFR_4,NFR_7, NFR_16,NFR_18	FR_10,FR_11,FR_32,FR_80,FR_128,FR_141
	Monitoring	TR_32	TheFSM platform should provide data usage analytics to the users for the datasets they own.	NFR_4, NFR_16	FR_16,FR_27,FR_28,FR_29,FR_30,FR_31,FR_33,FR_67,FR_138
	Access control, authorization, authentication	TR_33	TheFSM platform shall ensure that access control over datasets is applied according to the data provider's policies and the terms of relevant active valid data sharing contracts	NFR_2	FR_94,FR_146,FR_148

Applications	Data views	TR_34	TheFSM platform shall enable the certification data exchange among the parties through intuitive UIs	NFR_9,NFR_13,NFR_31	FR_13,FR_19,FR_21,FR_41,FR_59,FR_60,FR_61,FR_62,FR_63,FR_71,FR_77,FR_81
	Data views	TR_35	TheFSM platform shall provide certification data to food safety stakeholders through intuitive UIs	NFR_9,NFR_13,NFR_31	FR_13,FR_19,FR_21,FR_41,FR_59,FR_60,FR_61,FR_62,FR_63,FR_71,FR_77,FR_81
	API integration, data processing	TR_36	TheFSM platfrom shall integrate with the application using RESTful APIs exchnaging data in json format	NFR_9,NFR_13,NFR_17,NFR_24,NFR_25,NFR_26,NFR_31	FR_34,FR_35,FR_37,FR_38,FR_47,FR_73,FR_119
Licensing	Asset exploration, data views	TR_37	TheFSM platform shall have well-define overall terms, conditions and data categories	NFR_32, NFR_34, NFR_35, NFR_36	FR_12, FR_17, FR_20, FR_21, FR_36, FR_39, FR_40, FR_42, FR_52, FR_53, FR_54,FR_65,FR_75,FR_78,FR_79,FR_94, FR_106,FR_112, FR_126, FR_133,FR_150
Added value services	Access control, authorization, authentication, integration, API integration	TR_38	TheFSM platform shall provide a services registry for the incorporation of third-party services	NFR_36, NFR_37	FR_34,FR_35,FR_37,FR_38,FR_47,FR_73,FR_119
Data curation	Data views	TR_39	TheFSM platform shall allow data consumers to sample the data they are going to buy to ensure they are satisfied with their purchase	NFR_12	
Data curation	Data enrichment, data processing	TR_40	TheFSM platform shall ensure consistent high data quality	NFR_26, NFR_29, NFR_32, NFR_33, NFR_35	FR_65
Licensing	Data management	TR_41	TheFSM platform shall allow users to monetize their data	NFR_9, NFR_30, NFR_31	

12. UPDATE OF DATA REQUIREMENTS

12.1. Introduction

The main goal of T1.4 is to analyse and document important data flows within each business scenario. The focus is on understanding existing workflows for sharing critical information, either through software systems or through other channels. Then, for each business scenario the corresponding data is also to be documented and analysed - focusing on both primary data sources that are being collected or measured across the supply chain, as well as processed or secondary data that is being generated from the original sources. Representative samples of data have been collected from all partners, to better understand their format, types and sources. Challenges and obstacles are identified in this report in terms of combining different and heterogeneous data sources or transforming data from one format to another. A list of detailed and concrete data exchange requirements is created and presented in this report.

These requirements will be revisited and updated during the lifetime of the project to ensure that we will capture and meet the data requirements of the business scenarios.

12.2. Data analysis for each business scenario

During the first year of the project, we created a catalogue of all the datasets that are linked to the business scenarios and data samples were provided by the data providers. This is a live catalogue that is continuously updated within the lifetime of the project.

The following table lists all the datasets that were provided by the partners of TheFSM project.

Data source	Dataset	Owner	Use Case scenario
RASFF	Poultry meat	EU	Food Safety
Eurostat	Price, volumes, production	EU	Food Safety
NVWA Mangement system	Inspection data	Food Safety Authority (NVWA)	Food Safety
Farmers management system	Chikens data	Farmers	Food Safety
Industry (feed, processing, waste (RENDAC)) management systems	Boiler meat data	Industry (feed, processing, waste (RENDAC))	Food Safety
Slaughterhouse management system	Boiler meat data	Slaughterhouses	Food Safety
Retail management system	Boiler meat data	Retail	Food Safety
Certification Bodies management system	Boiler meat data	Certification Bodies	Food Safety
FDA Enforcement Reports	Food recalls data	Food and Drug Administration of US	Retailer Business Scenario
Food pillory	Food recalls data	Czech agriculture and food inspection authority	Retailer Business Scenario
HELLENIC MINISTRY OF AGRICULTURAL DEVELOPMENT & FOOD	Agricultural Warnings	hellenic republic	TAHBusinessScenario
HELLENIC MINISTRY OF AGRICULTURAL DEVELOPMENT & FOOD	approved pecticide database	hellenic republic	TAHBusinessScenario
EUROPEAN UNION	Plant Pesticides	EU	TAHBusinessScenario
EUROPEAN UNION	Maximum Residue Level	EU	TAHBusinessScenario
meteofarm	wheather forecast	cooperation with National Observatory Of Athens	TAHBusinessScenario
Hellenic Accreditation Council	Certification Body / Laboratories accreditations	hellenic republic	TAHBusinessScenario
globalgap data base	Information about certificates	foodplus	TAHBusinessScenario
globagap documentation	scheme requirments and documantetion	foodplus	TAHBusinessScenario

Data source	Dataset	Owner	Use Case scenario
globalgap approved certification bodies	certification body data	foodplus	TAHBusinessScenario
FSSC PORTAL	Information about certificates	FCCS	TAHBusinessScenario
fssc official website	Information about certificates	FCCS	TAHBusinessScenario
IFS Official website	Information about certificates	IFS	TAHBusinessScenario
Eurostat	Poultry production Statistics	WSFR	Food Safety
Safety Authority	Inspection Data	WSFR	Food Safety
FOODAKAI	Incidents	AGROKNOW	Retailer Business Scenario
TAH	Analysis reports (pdf),	TAH	TAHBusinessScenario
TAH	Producer sample,	TAH	TAHBusinessScenario
TAH	Supplier evaluation sample for processors,	TAH	TAHBusinessScenario
TAH	FSSC Scheme,	TAH	TAHBusinessScenario
TAH	Globalgap Scheme,	TAH	TAHBusinessScenario
TAH	IFS Scheme,	TAH	TAHBusinessScenario
TAH	food safety audit docs	TAR	TARBuisnessScenario
TAH	organic certification docs	TAR	TARBuisnessScenario
TAH	PDO wines 1	Valoritalia	Scenario4Valoritalia
AGRIVI API	Fields records	AGRIVI	Food Safety
AGROKNOW	Raw materials-suppliers	SYMBEEOSIS S.A.	Food Safety
AGROKNOW	Materials-suppliers(ΠΟΥΔΡΕΣ - ΕΚΧΥΛΙΣΜΑΤΑ)	SYMBEEOSIS S.A.	Food Safety
AGROKNOW	Raw materials, Αγία Παρασκευή- Καρυά Ολύμπου.	SYMBEEOSIS S.A.	Food Safety
AGROKNOW	Inspection-audit-report-Agrodiasthalisi	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab1	Alpha Beta Vassilopoulos SA	Retailer Business Scenario

Data source	Dataset	Owner	Use Case scenario
AGROKNOW	Certificate of analysis example-Lab2	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab3	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab4	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab5	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab6	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab7	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab8	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate of analysis example-Lab9	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Certificate-Status-PL-Supplier	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	Lab-test-results-for-a-supplier	Alpha Beta Vassilopoulos SA	Retailer Business Scenario
AGROKNOW	ΠΡΟΔΙΑΓΡΑΦΗ ΡΒ ΠΡΟΪΟΝΤΟΣ_ΤΑΧΙΝΙ ΜΕ ΜΕΛΙ	Alpha Beta Vassilopoulos SA	Retailer Business Scenario

12.3. Challenges in data processing and data modeling

In this section we report the challenges and obstacles in terms of combining different and heterogeneous data sources or transforming data from one format to another.

Business Scenario 1: The retailer supplier verification scenario

Challenge	**Details**
Metadata generation for documents	Documents added to the system should be described by the user.
Access to certification databases	GlobalGapp API access is restricted only to producers
Extraction and mapping of lab test results tables	• Domain expertise required to analyse the data • Table extraction, OCR tasks • Ad-hoc formats in the data
Companies' GLN database access (GEPIR)	Still unclear if we could gain bulk access
FOODAKAI ontology to WebVoc and FoodEx2 mapping	Manual effort to map FOODAKAI ontology to GS1 WebVoc and Foodex2

Business Scenario 2 : Food Processing

Challenge	**Details**
Metadata generation for documents	Documents added to the system should be described by the user.
Information extraction requirements	The information extraction requirements is not clear and content analysis of documents is needed by the data owners

Business Scenario 3: Private Food Safety Standards Certification

Challenge	**Details**
Metadata generation for documents	Documents added to the system should be described by the user.

Information extraction requirements	The information extraction requirements are not clear and content analysis of documents is needed by the data owners (do we need content analysis of documents, if yes which, how?, which fields?)

Business Scenario 4: Organic PDO wine certification: the certifier

Challenge	**Details**
Limited data samples	The available data samples are not sufficient for data requirements definition
AGRIVI API access	AGRIVI API access issue still pending (as of M12)
Entity reconciliation	Entity reconciliation issue. Its important to define which vocabulary will be used for the wine sector

Business Scenario 5: Dutch food safety authority (NVWA) Inspection / The Dutch broiler meat supply chain

Challenge	**Details**
Data Relevance	2 out of 3 data samples not related to the scenario use case. For the statistical data its important to have supply chain information
Language	Inspection data sample is in dutch with over 400 columns and no identifiers for the companies (e.g. GLN).
Mapping and interpretation	Substantial mapping and interpretation effort is needed.

12.4. Important data flows to share critical information within each business scenario

Using as an input the requirements defined in WP1, we worked on understanding existing workflows for sharing critical information, either through software systems or through other channels. At this stage of the project the focus was on identifying the data exchange scenarios that are of high priority based on the business requirements as they were reported in D1.1. We defined a template for the analysis of each scenario. The outcomes of this analysis is presented in the following table. Using this template additional data exchange scenarios will be analysed.

Business scenario	Application (s)	Priority based on D1.1	Data type	Format	From	To	Properties	Data integration Scenario
Business Scenario 1: The retailer	FOODAKAI 2.0	**High**	Laboratory testing results	Excel	Laboratory	Retailer	Product, Hazard, Analytical Results, Date, company	Agroknow receives the excel with the laboratory testing results of the last week. Data curator uses a tool for the mapping of the columns to the standard properties of the TheFSM data model and mapping the values of some columns to the company, product and hazard ontology. For the numerical results column we also keep the information of unit and method used. All the rows of the excel are integrated in the Agroknow's data platform (db) linked to a specific private data source.

Business scenario	Application (s)	Priority based on D1.1	Data type	Format	From	To	Properties	Data integration Scenario
Business Scenario 1: The retailer	FOODAKAI 2.0, Agrivi 2.0	**High**	Certificate of analysis	Pdf	Producer	Retailer	Certificate text, date, company, laboratory, product, parameters tested (hazards), testing results	Producer who uses Agrivi 2.0 uploads the Certificate of Analysis on Agrivi 2.0 and selects with whom the certificate should be shared aka specific retailer or a specific manufacturer that is registered in TheFSM platform. The pdf file is parsed and transformed to JSON file that follows the TheFSM data model. Entities like product, hazard, numerical result are identified and stored in structure format. Both pdf and json files are stored in the TheFSM platform and associate to the specific GLN. The report is then available in FOODAKAI and can be accessed by retailer in the profile of the producer. The results of analysis are aggregated and analytics are provided in the profile page. Producer can access his certificate of analysis in Agrivi 2.0.
Business Scenario 1: The retailer	FOODAKAI 2.0, Food Inspector	**High**	Certificate of analysis	pdf, doc	Manufacturer	Retailer Auditor/Inspector	Certificate text, date, company, lab	Manufacturer uses FOODAKAI 2.0 to upload the pdf file and selects with whom the certificate should be shared, Retailer or Auditor. The pdf file is parsed and transformed to JSON file. Entities like product, hazard, numerical result are identified and stored in structure format. Both pdf and json files are stored in the TheFSM platform and associate to the specific GLN and GTIN to enable the mining of the

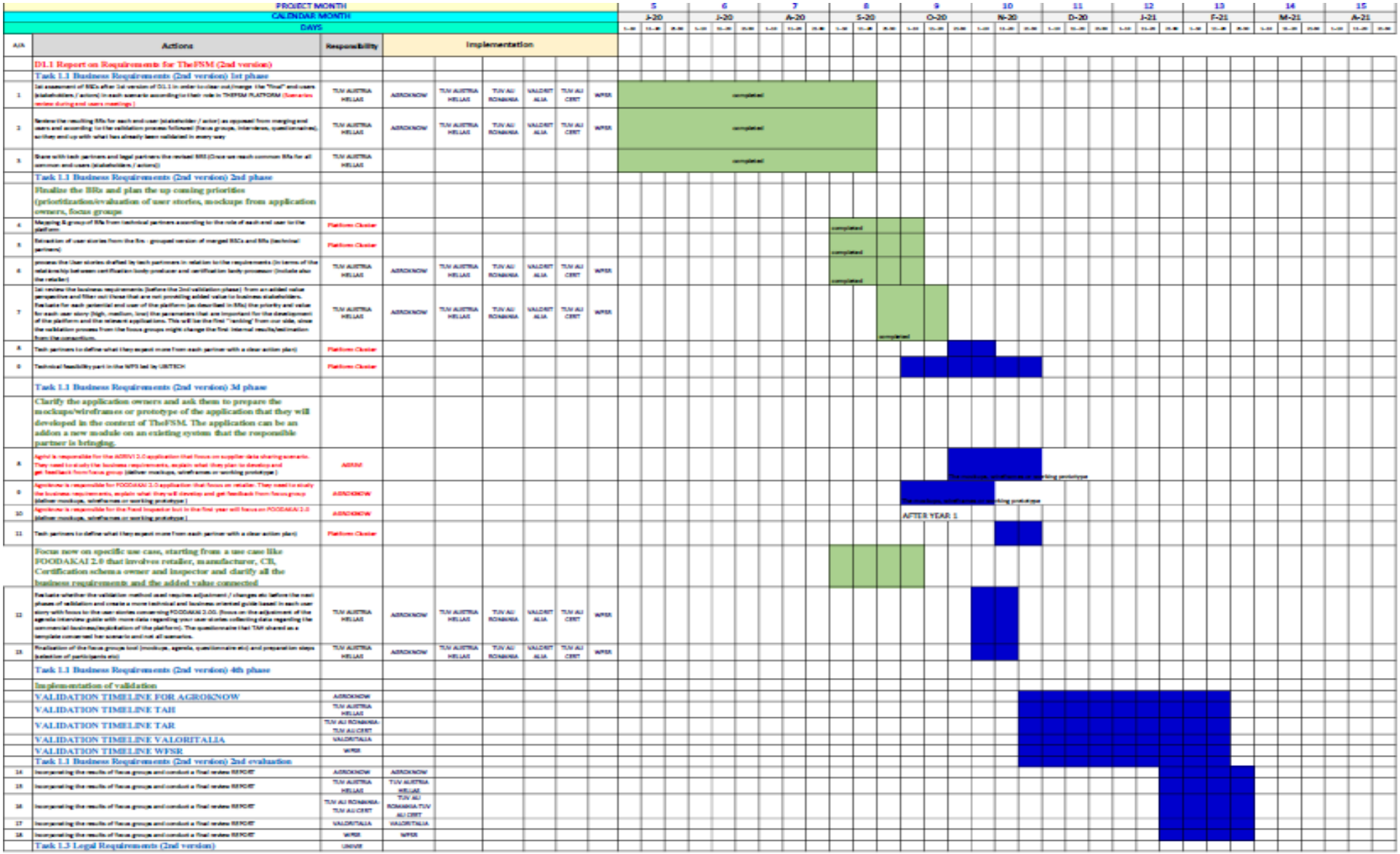
Business scenario	Application (s)	Priority based on D1.1	Data type	Format	From	To	Properties	Data integration Scenario
								information. The report is available to retailer in the manufacturer's profile page in FOODAKAI 2.0 and Food Inspector application.
Business Scenario 1: The retailer	FOODAKAI 2.0	**High**	Audit report	pdf, doc, excel	Manufacturer	Retailer Auditor/Inspector	Report text, CB, company, auditor, date	Manufacturer uses FOODAKAI 2.0 to upload the pdf file and selects with whom the audit report should be shared. The pdf file is parsed and transformed to JSON file that follows TheFSM data model. Both pdf and json files are stored in the TheFSM platform and associated to the specific GLN. The report is available to retailer in FOODAKAI 2.0.
Business Scenario 1: The retailer	FOODAKAI 2.0	**High**	Certificate (IFS, GG, BRC, FSSC 22000)	pdf, API, excel	Manufacturer	Retailer	Certificate text, date, company, valid until, audit score	Two cases need to be covered a) manufacturer uses a form and enters information for each certificate and uploads the pdf of the certificate b) the API of the schema owners and Certificates dbs is used to get the information (e.g. GlobalGap Database API). In case (b) the system needs to check first with the schema owner if we are authorized to get the certificate info for this company. Retailer has access to certificate information through manufacturer's profile page in FOODAKAI 2.0

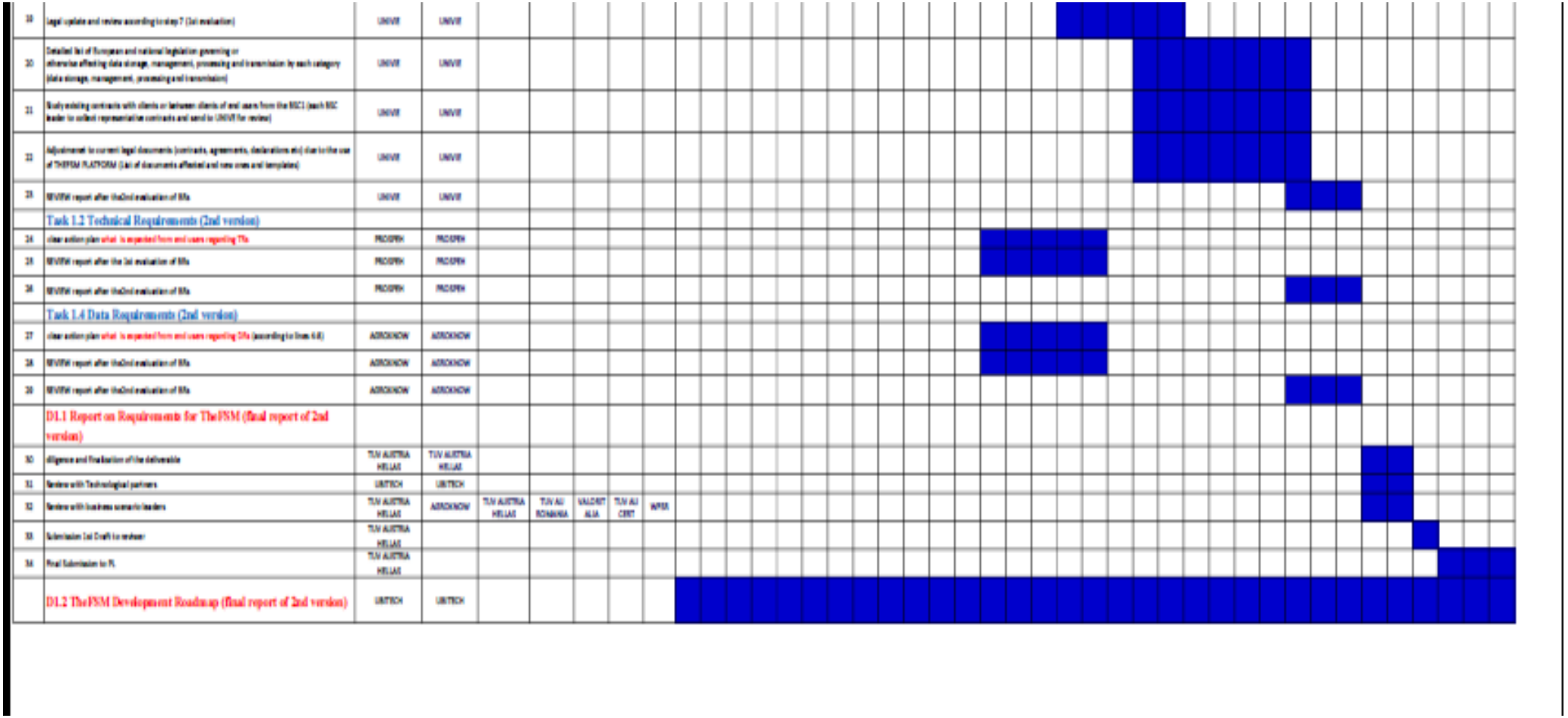
13. NEXT STEPS OF D1.1

The next steps regarding the requirements elicitation process presented in this deliverable D1.1. include:

1. Feedback from Platform Cluster regarding technical feasibility and prioritization of updated BRs
2. Incorporation of updated requirements to the application prototypes-decision regarding the certification standards which will be included in inspection tool.
3. Presentation of updated mock-ups/prototypes to End User clusters that will be demonstrated during the first cycle of the pilots (4th trimester 2021)
4. Connection of focus groups with the implementation of the first cycle of pilots
5. Creation of monitoring methodology/tool regarding the fulfilment of BRs, TRs, LRs & DRs through the functionalities of the platform & applications
6. Continuous update of the requirements according technical requirements of the platform and legal issues
7. Further specification of legal, technical & data requirements according to business requirements
8. Preparation steps on market research

ANNEX I TIMELINE OF THE WORKING METHODOLOGY FOLLOWED IN D1.1 (2ND VERSION)





19	Legal update and review according to step 7 (1st evaluation)	UNIVE	UNIVE						
20	Detailed list of European and national legislation governing or otherwise affecting data storage, management, processing and transmission by each category (data storage, management, processing and transmission)	UNIVE	UNIVE						
21	Study existing contracts with clients or between clients of end users from the REC1 (each REC leader to collect representative contracts and send to UNIVE for review)	UNIVE	UNIVE						
22	Adjustment to current legal documents (contracts, agreements, declarations etc) due to the use of THEFSM PLATFORM (List of documents affected and new ones and templates)	UNIVE	UNIVE						
23	REVIEW report after the2nd evaluation of RRs	UNIVE	UNIVE						
	Task 1.2 Technical Requirements (2nd version)								
24	close action plan what is expected from end users regarding TRs	PROOFPOINT	PROOFPOINT						
25	REVIEW report after the 1st evaluation of RRs	PROOFPOINT	PROOFPOINT						
26	REVIEW report after the2nd evaluation of RRs	PROOFPOINT	PROOFPOINT						
	Task 1.4 Data Requirements (2nd version)								
27	close action plan what is expected from end users regarding DRs (according to Item 4.8)	ADROKNOW	ADROKNOW						
28	REVIEW report after the1st evaluation of RRs	ADROKNOW	ADROKNOW						
29	REVIEW report after the2nd evaluation of RRs	ADROKNOW	ADROKNOW						
	D1.1 Report on Requirements for TheFSM (final report of 2nd version)								
30	diligence and finalization of the deliverable	TUV AUSTRIA HELLAS	TUV AUSTRIA HELLAS						
31	Review with Technological partners	UBITECH	UBITECH						
32	Review with business scenario leaders	TUV AUSTRIA HELLAS	ADROKNOW	TUV AUSTRIA HELLAS	TUV AU ROMANIA	VALDRIT ALIA	TUV AU CERT	WMSA	
33	Submission 1st Draft to reviewer	TUV AUSTRIA HELLAS							
34	Final Submission to PL	TUV AUSTRIA HELLAS							
	D1.2 TheFSM Development Roadmap (final report of 2nd version)	UBITECH	UBITECH						

ANNEX II FOCUS GROUP AGENDA

The Food Safety Market: An SME-powered industrial data platform to boost the competitiveness of European food certification

Focus group meetings with third parties that are already working with partners in each country where pilots are going to take place in order to validate their needs

DELIVERABLE NUMBER	D1.1 (2nd version)
DELIVERABLE TITLE	Report on Requirements for TheFSM
RESPONSIBLE PERSON	KONSTANTINOS MAVROPOULOS (TAH)

Project Title	**The Food Safety Market: an SME-powered industrial data platform to boost the competitiveness of European food certification (TheFSM)**		
WP / DELIVERABLE/TASK	**WP1 – Requirements/ D1.1 Report on Requirements for TheFSM/ Task 1.1 Business Requirements [M1-M27]**	**Implementation Country**	**Greece**
Implementation Partner:	**TUV AU HELLAS**		
DATE	**……**	**MEETING LOCATION**	**……**
Group of Stakeholders (producer, certification body, retailer, processor)	**……**		
BSc	**……**		

Focus group meeting Agenda

1. Short description of TheFSM project and platform (goals, activities, provided services, results etc)
2. Presentation of the Business Scenario and the main goals-Short description of the business processes as running today and main Food Supply Chain activities (validation – modification if necessary)
3. Existing IT systems that are being used by participants in order to store, exchange information/data relevant to production processes (part of which is the certification process) or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers, ERP systems etc)
4. Existing farm monitoring systems used by farmers in order to store, exchange data or receiving technical advices.
5. Existing Data samples that are being used by participants in order to store, exchange information/data relevant to certification process or data access from other actors in the food supply chain, or traceability system (e.g. data storage from retailers regarding their suppliers/producers/farmers, invoices, use of GS1 ID Keys (e.g. barcodes) on product packaging)
6. Existing data flows (if any) and type of data (business data, sensitive etc)
7. Existing contracts with suppliers, auditors, clients involved in certification process or data access from other actors in the food supply chain (e.g. data storage from retailers regarding their suppliers/producers/farmers)
8. Business needs comparing to business processes as running today
9. Validation of user stories by participants and modification/adjustment if necessary if some of stories do not meet the real needs

10. Existing resources (mainly infrastructures i.e. equipment, but also competences of personnel) to support the participation in FSM platform-Main obstacles in providing data or participating as platform end users (added value
11. Other obstacles to discuss
12. Presentation of mockups - Presentation of the FSMS platform and main applications (functionalities of Inspection Tool, Foodakai v.2.0, Farm Management System) and value proposition. **Feedback results from participants on main operations presented.**
13. Financial/commercial issues of the platform operation
14. Willing to participate in pilots
15. Any potential stakeholders for future focus groups or pilot

Comments –Conclusions

**** The results should be presented officially on each subject stated below in details by each focus group organizer (scenario leader) and will be included in 2nd version of D1.1***

List of participants

Nr.	DATE	Name of participant	email	phone number	Company Name	Country	Signature
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

ANNEX III FOCUS GROUPS USER STORIES EVALUATION TABLES

BSC1

ID	Business requirement no	Category	User Story			Criteria			
			As a	I want to <user>	So that	**Application Connection**	**Business Maturity/Feasibility**	**Time Urgency**	**Critical to Business Success/ Competitive Advantage**
US_8	BR_nr2_12	Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience	Foodakai V2	High	Medium	Medium
US_10	BR_nr2_16, BR_nr4_11, BR_nr4_15	Decision making	All	Use real-time data	Reduce decision-making time	Foodakai V2	Medium	Medium	Medium
US_26	BR_nr2_51, BR_nr3_5, BR_nr3_13, BR_nr3_21	Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently recall products, should the need arise	Foodakai V2	Medium	Low	**Medium**
US_27	BR_nr3_8, BR_nr3_16, BR_nr3_22, BR_nr3_24, BR_nr3_32, BR_nr2_53	Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access fully traced information	I can have transparency and ensure no unfair trade practices affect consumers	Foodakai V2	Medium	High	High
US_28	BR_nr2_55	Profiling	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust in my brand name	Foodakai V2	High	Medium	Medium
US_29	BR_nr1_1	Decision making	Retailer	Be able to access information regarding findings of the inspection of suppliers in the food	I can make better decisions based on evidence	Foodakai V2	High	High	High

				chain					
US_30	BR_nr1_2	Certification	Retailer	Be able to access the current status of food supply actors, as far as audit results of certification organizations are concerned	I can validate their credibility for cooperation	Foodakai V2	High	High	High
US_31	BR_nr1_3	Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities	Foodakai V2	High	Medium	Medium
US_40	BR_nr3_35, BR_nr3_36	Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency	Foodakai V2	High	High	High

BSC2

E FRESH

Category	**User Story**			**Criteria**		
	As a	**I want to <user>**	**So that**	**business maturity/feasibility**	**time urgency**	**critical to business success/competitive advantage**
Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience	Medium	Low	Medium
Data, Certification	Producer, Food processor, Industry, Inspector/auditor	Replace physical documents with a complete digital collection	I can organize daily work faster and more efficiently	Medium	Medium	High
Decision making	All	Use real-time data	Reduce decision - making time	High	High	High
Decision making	Food Processor	Be able to segregate critical control points data (regarding product safety) from functional control points data	I can better assess both	Low	Low	Medium
Monitoring	Food Processor	Be constantly updated about information	I can ensure better quality for the product	High	High	High

		that directly or indirectly affects food safety				
Data, Traceability, Certification	Food Processor, Certification Body	Be able to easily access aggregated data from various sources (e.g., suppliers)	I can assess compliance with food safety standards and with the requirements of certified schemes	Medium	Low	Medium
Monitoring	Food Processor	Be immediately notified about any non-conformity raised for the producer and their certified product	I can take proper action	High	High	High
Certification	Food Processor	Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding the accreditation of different kind of labs	I can validate my working collaborators and verify the effectiveness of the FSMS	High	High	High
Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe	Low	Low	Medium
Monitoring	Food Processor	Have the ability to find new partnerships and cooperation, via accessing information relevant to the current market needs	I can produce products which will cover the above needs	Low	Low	Low
Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency, I can ensure that I have all the needed documentation in order to make the certification decision.	Medium	Low	Medium
Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	Low	Medium	Medium

Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	High	Medium	High
Profiling	Retailer	Be able to access fully traced information	I can have transparency and ensure no unfair trade practices affect consumers	Medium	Low	Medium
Decision making	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust in my brand name	High	Medium	High
Certification	Retailer	Be able to access information regarding findings of the inspection of suppliers (the ones that I collaborate with) in the food chain	I can make better decisions/evaluation based on evidence	High	Medium	High
Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities	High	Medium	Medium
Certification	Producer, Food processor, Distributor	Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer	I can speed up certification and validation	Medium	Low	Low
Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process	Have more information when considering	Low	Low	Low
Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations / be able to make all the procedures according to the guidelines that have to do with remote audits.	Medium	Medium	Medium
Decision making, certification	Producer, Distributor, Certification Body, Food	Have access to validated data of all stakeholders	I can support decision-making processes	Medium	Medium	Medium

	processor					
	Distributor	assess data	I can conduct fact-driven management	Medium	Medium	Medium
Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency	High	High	High

ZISIS FARMS

Category	**User Story**			**Criteria**		
	As a	**I want to <user>**	**So that**	**business maturity/feasibility**	**time urgency**	**critical to business success/competitive advantage**
Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience	Medium	Medium	Medium
Data, Certification	Producer, Food processor, Industry, Inspector/auditor	Replace physical documents with a complete digital collection	I can organize daily work faster and more efficiently	Medium	High	High
Decision making	All	Use real-time data	Reduce decision-making time	Medium	Medium	High
Decision making	Food Processor	Be able to segregate critical control points data (regarding product safety) from functional control points data	I can better assess both	Medium	Low	Medium
Monitoring	Food Processor	Be constantly updated about information that directly or indirectly affects food safety	I can ensure better quality for the product	High	High	High
Data, Traceability, Certification	Food Processor, Certification Body	Be able to easily access aggregated data from various sources (e.g., suppliers)	I can assess compliance with food safety standards and with the requirements of certified schemes	Medium	Medium	Medium
Monitoring	Food Processor	Be immediately notified about any non-conformity raised for the producer and their certified product	I can take proper action	Medium	High	High
Certification	Food Processor	Be able to easily access valid info	I can validate my working	Low	Low	Low

		to operational licenses for actors I interact with, as well as info regarding the accreditation of different kind of labs	collaborators and verify the effectiveness of the FSMS			
Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe	High	High	High
Monitoring	Food Processor	Have the ability to find new partnerships and cooperation, via accessing information relevant to the current market needs	I can produce products which will cover the above needs	Medium	Low	Low
Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency, I can ensure that I have all the needed documentation in order to make the certification decision.	Medium	Medium	Medium
Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	Medium	Low	Low
Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	High	Medium	Medium
Profiling	Retailer	Be able to access fully traced information	I can have transparency and ensure no unfair trade practices affect consumers	High	High	High
Decision making	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust in my brand name	Low	Low	Low

Certification	Retailer	Be able to access information regarding findings of the inspection of suppliers (the ones that I collaborate with) in the food chain	I can make better decisions/evaluation based on evidence	Medium	Medium	Medium
Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities	High	Medium	Medium
Certification	Producer, Food processor, Distributor	Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer	I can speed up certification and validation	High	Medium	Medium
Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process	Have more information when considering	High	Medium	Medium
Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations / be able to make all the procedures according to the guidelines that have to do with remote audits.	High	Medium	Medium
Decision making, certification	Producer, Distributor, Certification Body, Food processor	Have access to validated data of all stakeholders	I can support decision-making processes	Low	Low	Low
	Distributor	assess data	I can conduct fact-driven management	High	Medium	Medium
Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency	Medium	Medium	High

PURATOS

Category	User Story			Criteria		
	As a	I want to <user>	So that	business maturity/feasibility	time urgency	critical to business success/competitive advantage
Profiling	All	Be able to personalize the data I will use in my daily operations	I can have a more personalized experience	Medium	Low	Medium
Data, Certification	Producer, Food processor, Industry, Inspector/auditor	Replace physical documents with a complete digital collection	I can organize daily work faster and more efficiently	Medium	Medium	High
Decision making	All	Use real-time data	Reduce decision-making time	High	High	High
Decision making	Food Processor	Be able to segregate critical control points data (regarding product safety) from functional control points data	I can better assess both	Low	Low	Medium
Monitoring	Food Processor	Be constantly updated about information that directly or indirectly affects food safety	I can ensure better quality for the product	High	High	High
Data, Traceability, Certification	Food Processor, Certification Body	Be able to easily access aggregated data from various sources (e.g., suppliers)	I can assess compliance with food safety standards and with the requirements of certified schemes	Medium	Low	Medium
Monitoring	Food Processor	Be immediately notified about any non-conformity raised for the producer and their certified product	I can take proper action	High	High	High
Certification	Food Processor	Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding the accreditation of different kind of labs	I can validate my working collaborators and verify the effectiveness of the FSMS	High	High	High

Profiling	Food Processor	Be able to categorize, modify and transfer my data in a common point of protected and controlled access	I can ensure my data is safe	Low	Low	Medium
Monitoring	Food Processor	Have the ability to find new partnerships and cooperation, via accessing information relevant to the current market needs	I can produce products that will cover above needs	Low	Low	Low
Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency, I can ensure that I have all the needed documentation in order to make the certification decision.	Medium	Low	Medium
Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	Low	Medium	Medium
Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	High	Medium	High
Profiling	Retailer	Be able to access fully traced information	I can have transparency and ensure no unfair trade practices affect consumers	Medium	Low	Medium
Decision making	Retailer	Be able to present important data relevant to QA actions taken by my company	I can enhance customer's trust in my brand name	High	Medium	High
Certification	Retailer	Be able to access information regarding findings of the inspection of suppliers (the ones that I collaborate	I can make better decisions/evaluation based on evidence	High	Medium	High

		with) in the food chain				
Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities	High	Medium	Medium
Certification	Producer, Food processor, Distributor	Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer	I can speed up certification and validation	Medium	Low	Low
Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process	Have more information when considering	Low	Low	Low
Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations / be able to make all the procedures according to the guidelines that have to do with remote audits.	Medium	Medium	Medium
Decision making, certification	Producer, Distributor, Certification Body, Food processor	Have access to validated data of all stakeholders	I can support decision-making processes	Medium	Medium	Medium
	Distributor	assess data	I can conduct fact-driven management	Medium	Medium	Medium
Risk estimation	Retailer	Reduce the number of product recalls	I can improve efficiency	High	High	High

ZISIS FOTIOS / ZISIS IOANNIS

Category	**User Story**			**Criteria**		
	As a	**I want to <user>**	**So that**	**business maturity/feasibility**	**time urgency**	**critical to business success/competitive advantage**
Analytics	Producer	Collect different data related to business characteristics and the final product	I can have a better view of products I am interested in / I can confirm (reveal) that my production process conforms with the certification	High	Medium	High

			requirements			
Analytics	Producer	Be able to manage and evaluate data from different heterogeneous sources	I can draw conclusions for analysis, legislative requirements, etc.	High	Medium	High
Notifications	Producer	Be constantly updated about the information shown to me	I can make valid decisions / I have access to up-to-date info regarding my production process, in order to make the appropriate decisions and implementations.	High	Medium	High
Logging	Producer	Record up to date data assets for exploitation	I can catalog data that is of interest to me / recording systems, in terms of critical product data (dates of recent applications of phytosanitary preparations before harvest, harvest dates), tracking per batch and its connection with corresponding Certificates of Conformity.	Medium	High	Low
Certification	Producer	Be able to validate GLOBALGAP certificates	I can be certain about the credibility of the certificates I am viewing	Medium	Medium	Medium
Logging	Producer	Archive agreed on specifications on the delivered product	I can make cooperation easier / to achieve long-term and beneficial partnerships and opportunities for new collaborations	Medium	Medium	Medium
Integration	Producer	Be able to interconnect with the food processor's recording system	I can view terms of critical product data, tracking per batch, and certificates of conformity	Medium	Medium	High
Profiling	All	Be able to personalize the data I will use in my daily	I can have a more personalized experience / I	High	High	High

		operations	can have all the specific details regarding my production process and reduce the time for searching any information			
Data, Certification	All	Replace physical documents with a complete digital collection	I can organize daily work faster and more efficiently / I can have a full archive of my daily operations in order to improve the traceability of my products	High	High	High
Decision making	All	Use real-time data	Reduce decision-making time	Medium	Medium	High
Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency, I can ensure that I have all the needed documentation in order to make the certification decision.	High	Medium	High
Traceability	Retailer, Producer, Food processor, Distributor	Be able to access detailed information about final shelf product, as well as correlation with critical factors	I can maintain robust traceability and be able to efficiently withdraw products, should the need arise	High	High	High
Traceability	Retailer, Producer, Certification Body, Distributor, Food processor	Be able to access fully traced information	I can have transparency and ensure no unfair trade practices affect consumers	Medium	Low	Medium
Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process	Have more information when considering	Low	Low	Low
Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations / be able to make all the procedures according to the guidelines that have to do with remote audits.	Medium	Medium	Medium
Decision making,	Producer, Distributor,	Have access to validated data of	I can support decision-making	Medium	Medium	Medium

certification	Certification Body, Food processor	all stakeholders	processes			

BSC3

FOCUS GROUP ROMANIA

Producers: Biotopi Farminvest and Holly-Wood
Processors: Fangmeier, Artesana, Golden Banana, Agrarhandel
Distribuitors: Innovoris Labs, Life Care

				Criteria		
Category	**User Story**			**business maturity/ feasibility**	**time urgency**	**critical to business success/competitive advantage**
	As a	**I want to <user>**	**So that**			
Analytics	**Producer**	**Collect different data related to business characteristics and the final product**	**I can have a better view of products I am interested in / i can confirm (reveal) that my production process conforms with the certification requirements**	**Medium**	**Medium**	**Medium**
Analytics	**Producer**	**Be able to manage and evaluate data from different heterogeneous sources**	**I can draw conclusions for analysis, legislative requirements, etc.**	**Medium**	**Low**	**Low**
Notifications	**Producer**	**Be constantly updated about information shown to me**	**I can make valid decisions**	**High**	**Medium**	**High**
Logging	**Producer**	**Record up to date data assets for exploitation**	**I can catalogue data which is of interest to me**	**High**	**Medium**	**Medium**
Certification	**Producer**	**Be able to validate GLOBALGAP certificates**	**I can be certain about the credibility of the certificates I am viewing**	**High**	**Low**	**Low**

Logging	**Producer**	**Archive agreed specifications on the delivered product**	**I can make cooperation easier**	**High**	**Low**	**Low**
Integration	**Producer**	**Be able to interconnect with the food processor's recording system**	**I can view terms of critical product data, tracking per batch and certificates of conformity**	**High**	**Low**	**Low**
Profiling	**All**	**Be able to personalize the data I will use in my daily operations**	**I can have a more personalized experience**	**High**	**Low**	**Low**
Data, Certification	**Producer, Food processor, Industry, Inspector/auditor**	**Replace physical documents with a complete digital collection**	**I can organize daily work faster and more efficiently**	**High**	**Medium**	**Medium**
Decision making	**All**	**Use real-time data**	**Reduce decision-making time**	**High**	**Medium**	**Low**
Decision making	**Food Processor**	**Be able to segregate critical control points data (regarding product safety) from functional control points data**	**I can better assess both**	**Medium**	**Medium**	**Medium**
Monitoring	**Food Processor**	**Be constantly updated about information that directly or indirectly affects food safety**	**I can ensure better quality for the product**	**High**	**Medium**	**Low**
Data, Traceability, Certification	**Food Processor, Certification Body**	**Be able to easily access aggregated data from various sources (e.g., suppliers)**	**I can assess compliance with food safety standards and with the requirements of certified schemes**	**High**	**High**	**Medium**
Monitoring	**Food Processor**	**Be immediately notified about any non-conformity raised for the**	**I can take proper action**	**High**	**Medium**	**High**

		producer and their certified product				
Certification	**Food Processor**	**Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding the accrediation of different kind of labs**	**I can validate my working collaborators and verify the effectiveness of the FSMS**	**Medium**	**Medium**	**Medium**
Profiling	**Food Processor**	**Be able to categorize, modify and transfer my data in a common point of protected and controlled access**	**I can ensure my data is safe**	**High**	**Low**	**Low**
Monitoring	**Food Processor**	**Have the ability of finding new partnerships and cooperation, via accessing information relevant to the current market needs**	**I can produce products which will cover above needs**	**Medium**	**Medium**	**Medium**
Certification	**Certification Body**	**Be able to access up-to-date data from different sources and access to new and amended legislation**	**I can ensure the transparency of the certification process**	**High**	**Medium**	**Medium**
Certification	**Certification Body**	**Be able to use a representative sample of the processed data**	**I can evaluate compliance with product specifications**	**High**	**Medium**	**Medium**
Certification	**Certification Body**	**Be able to collect needed documentation prior to the certification decision**	**The decision can be properly certified**	**Medium**	**Medium**	**Medium**
Certification	**Certification Body**	**Have different methods of**	**I can collect documentation**	**High**	**Medium**	**Medium**

		sending and receiving information	**during the certification process**			
Monitoring, Certification	**Certification Body, Inspector/auditor**	**Have direct and official information on findings of the National Audit Authorities in certified Producers, Food processors and Retailers**	**I can consult this information for decision making**	**Medium**	**Medium**	**Medium**
Certification	**Certification Body, Producer, Food processor**	**Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising**	**I can ensure transparency**	**Medium**	**Medium**	**High**
Auditing, Certification	**Certification Body**	**Be able to obtain on-demand immediate stakeholder profile in terms of certification history**	**I can easier analyze the audit risk and for control/validation**	**High**	**Medium**	**High**
Risk estimation, Auditing	**Certification Body**	**Be able to use and re-examine previous customers' audit findings, grouped into certain categories**	**I can highlight areas of high risk for subsequent audits**	**High**	**Medium**	**High**
Traceability	**Retailer, Producer, Food processor, Distributor**	**Be able to access detailed information about final shelf product, as well as correlation with critical factors**	**I can maintain a robust traceability and be able to efficiently withdraw products, should the need arise**	**Medium**	**High**	**High**
Traceability	**Retailer, Producer, Certification Body, Distributor, Food processor**	**Be able to access fully traced information**	**I can have transparency and ensure no unfrair trade practices effect consumers**	**Medium**	**High**	**High**

Profiling	**Retailer**	**Be able to present important data relevant to QA actions taken by my company**	**I can enhance customer's trust on my brand name**	**Medium**	**Medium**	**Medium**
Decision making	**Retailer**	**Be able to access information regarding findings of the inspection of suppliers in the food chain**	**I can make better decisions based on evidence**	**Medium**	**Medium**	**Medium**
Certification	**Retailer**	**Be able to access current status of food supply actors, as far as audit results of certify organizations are concerned**	**I can validate their credibility for cooperation**	**Medium**	**Medium**	**Medium**
Risk estimation	**Retailer**	**Have access to innovative tools**	**I can have enhanced risk monitoring capabilities**	**High**	**Medium**	**Medium**
Certification	**Producer, Food processor, Distributor**	**Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer/ Be able to access detailed information regarding certificate validity and scope of certification**	**I can speed up certification and validation**	**High**	**Medium**	**Medium**
Decision making	**Producer, Food processor**	**Have a way to view an estimation of costs and expenditures regarding the certification process/Be able to chose appropiate certificate scheme**	**Have more information when considering/ I can meet the requirements of different organizations (retailers, distributor, processors)**	**Medium**	**Medium**	**Medium**

Decision making, Auditing	**Producer, Distributor, Certification Body, Food processor**	**Be able to support remote audits**	**I can reduce decision-making under difficult situations**	**High**	**Medium**	**Low**
Decision making, certification	**Producer, Distributor, Certification Body, Food processor**	**Have access to validated data of all stakeholders**	**I can support decision-making processes**	**Medium**	**Medium**	**Low**
	Distributor	**assess data**	**I Can conduct fact driven management**	**Low**	**Low**	**Low**
Certification	**Certification Body**	**Be able to understand the specific requirements of an organization**	**I can speed up the certification process without grey areas**	**Medium**	**Low**	**Low**
Certification	**Certification Body**	**Be able to directly interact with organizations requesting certification**	**To speed up the certification process**	**Medium**	**Low**	**Low**
Certification, Auditing	**Certification Body**	**Be able to have a better overall view of the ability of an audited organization**	**I can have better audit results**	**Medium**	**Low**	**Low**
Risk estimation	**Retailer**	**Reduce the number of product recalls/Reduce the evaluation time of the suppliers**	**I can improve efficiency**	**Medium**	**Medium**	**Medium**
Monitoring	**Inspector/Auditor**	**Be able to interact with data of different Certification Bodies**	**The data has increased reliability**	**Low**	**Low**	**Low**
Certification	**Certification Committee**	**Be able to verify a digital report**		**High**	**Medium**	**Medium**

Traceability	**Farmer/ Producer, Distributor**	**Be able to trace input suppliers**	**Ensure the quality of my product**	**Medium**	**High**	**High**

FOCUS GROUP CYPRUS

Food processor/ Retailer: Charilaos pastry ltd

				Criteria		
Category	**User Story**			**business maturity/ feasibility**	**time urgency**	**critical to business success/competitive advantage**
	As a	**I want to <user>**	**So that**			
Analytics	**Producer**	**Collect different data related to business characteristics and the final product**	**I can have a better view of products I am interested in / i can confirm (reveal) that my production process conforms with the certification requirements**	**Medium**	**low**	**Medium**
Analytics	**Producer**	**Be able to manage and evaluate data from different heterogeneous sources**	**I can draw conclusions for analysis, legislative requirements, etc.**	**Medium**	**Low**	**Low**
Notifications	**Producer**	**Be constantly updated about information shown to me**	**I can make valid decisions**	**High**	**Medium**	**High**
Logging	**Producer**	**Record up to date data assets for exploitation**	**I can catalogue data which is of interest to me**	**High**	**Medium**	**Medium**

Certification	**Producer**	**Be able to validate GLOBALGAP certificates**	**I can be certain about the credibility of the certificates I am viewing**	**High**	**Medium**	**Low**
Logging	**Producer**	**Archive agreed specifications on the delivered product**	**I can make cooperation easier**	**High**	**Low**	**Low**
Integration	**Producer**	**Be able to interconnect with the food processor's recording system**	**I can view terms of critical product data, tracking per batch and certificates of conformity**	**High**	**Medium**	**Low**
Profiling	**All**	**Be able to personalize the data I will use in my daily operations**	**I can have a more personalized experience**	**High**	**Medium**	**Low**
Data, Certification	**Producer, Food processor, Industry, Inspector/auditor**	**Replace physical documents with a complete digital collection**	**I can organize daily work faster and more efficiently**	**High**	**Medium**	**Medium**
Decision making	**All**	**Use real-time data**	**Reduce decision-making time**	**High**	**Medium**	**Low**
Decision making	**Food Processor**	**Be able to segregate critical control points data (regarding product safety) from functional control points data**	**I can better assess both**	**Medium**	**Medium**	**Medium**
Monitoring	**Food Processor**	**Be constantly updated about information that directly or indirectly affects food safety**	**I can ensure better quality for the product**	**Medium**	**Medium**	**Low**

Data, Traceability, Certification	**Food Processor, Certification Body**	**Be able to easily access aggregated data from various sources (e.g., suppliers)**	**I can assess compliance with food safety standards and with the requirements of certified schemes**	**High**	**Medium**	**Medium**
Monitoring	**Food Processor**	**Be immediately notified about any non-conformity raised for the producer and their certified product**	**I can take proper action**	**High**	**Medium**	**High**
Certification	**Food Processor**	**Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding the accrediation of different kind of labs**	**I can validate my working collaborators and verify the effectiveness of the FSMS**	**Medium**	**Medium**	**Medium**
Profiling	**Food Processor**	**Be able to categorize, modify and transfer my data in a common point of protected and controlled access**	**I can ensure my data is safe**	**High**	**Low**	**Low**
Monitoring	**Food Processor**	**Have the ability of finding new partnerships and cooperation, via accessing information relevant to the current market needs**	**I can produce products which will cover above needs**	**Medium**	**Low**	**Medium**
Certification	**Certification Body**	**Be able to access up-to-date data from different sources and access to new and amended**	**I can ensure the transparency of the certification process**	**High**	**Medium**	**Medium**

		legislation				
Certification	Certification Body	Be able to use a representative sample of the processed data	I can evaluate compliance with product specifications	High	Medium	Medium
Certification	Certification Body	Be able to collect needed documentation prior to the certification decision	The decision can be properly certified	Medium	Medium	High
Certification	Certification Body	Have different methods of sending and receiving information	I can collect documentation during the certification process	High	Medium	High
Monitoring, Certification	Certification Body, Inspector/auditor	Have direct and official information on findings of the National Audit Authorities in certified Producers, Food processors and Retailers	I can consult this information for decision making	Medium	Low	Medium
Certification	Certification Body, Producer, Food processor	Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising	I can ensure transparency	Medium	High	High
Auditing, Certification	Certification Body	Be able to obtain on-demand immediate stakeholder profile in terms of certification history	I can easier analyze the audit risk and for control/validation	High	Medium	High
Risk estimation,	Certification Body	Be able to use and re-examine	I can highlight areas of high risk for	High	Medium	High

Auditing		**previous customers' audit findings, grouped into certain categories**	**subsequent audits**			
Traceability	**Retailer, Producer, Food processor, Distributor**	**Be able to access detailed information about final shelf product, as well as correlation with critical factors**	**I can maintain a robust traceability and be able to efficiently withdraw products, should the need arise**	**Medium**	**High**	**High**
Traceability	**Retailer, Producer, Certification Body, Distributor, Food processor**	**Be able to access fully traced information**	**I can have transparency and ensure no unfrair trade practices effect consumers**	**Medium**	**High**	**High**
Profiling	**Retailer**	**Be able to present important data relevant to QA actions taken by my company**	**I can enhance customer's trust on my brand name**	**High**	**Medium**	**Medium**
Decision making	**Retailer**	**Be able to access information regarding findings of the inspection of suppliers in the food chain**	**I can make better decisions based on evidence**	**Medium**	**Medium**	**Medium**
Certification	**Retailer**	**Be able to access current status of food supply actors, as far as audit results of certify organizations are concerned**	**I can validate their credibility for cooperation**	**Medium**	**Medium**	**Medium**
Risk estimation	**Retailer**	**Have access to innovative tools**	**I can have enhanced risk monitoring capabilities**	**High**	**Medium**	**Medium**

Certification	**Producer, Food processor, Distributor**	**Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer/ Be able to access detailed information regarding certificate validity and scope of certification**	**I can speed up certification and validation**	**High**	**High**	**Medium**
Decision making	**Producer, Food processor**	**Have a way to view an estimation of costs and expenditures regarding the certification process/Be able to chose appropiate certificate scheme**	**Have more information when considering/ I can meet the requirements of different organizations (retailers, distributor, processors)**	**Medium**	**Medium**	**Medium**
Decision making, Auditing	**Producer, Distributor, Certification Body, Food processor**	**Be able to support remote audits**	**I can reduce decision-making under difficult situations**	**High**	**Medium**	**Low**
Decision making, certification	**Producer, Distributor, Certification Body, Food processor**	**Have access to validated data of all stakeholders**	**I can support decision-making processes**	**Medium**	**High**	**Medium**
	Distributor	**assess data**	**I Can conduct fact driven management**	**Low**	**Low**	**Medium**
Certification	**Certification Body**	**Be able to understand the specific requirements of an organization**	**I can speed up the certification process without grey areas**	**Medium**	**Medium**	**Low**

Certification	**Certification Body**	**Be able to directly interact with organizations requesting certification**	**To speed up the certification process**	**Medium**	**Medium**	**Medium**
Certification, Auditing	**Certification Body**	**Be able to have a better overall view of the ability of an audited organization**	**I can have better audit results**	**Medium**	**Medium**	**Medium**
Risk estimation	**Retailer**	**Reduce the number of product recalls/Reduce the evaluation time of the suppliers**	**I can improve efficiency**	**Medium**	**Medium**	**Medium**
Monitoring	**Inspector/Auditor**	**Be able to interact with data of different Certification Bodies**	**The data has increased reliability**	**Medium**	**Medium**	**Medium**
Certification	**Certification Committee**	**Be able to verify a digital report**		**High**	**Medium**	**Medium**
Traceability	**Farmer/ Producer, Distributor**	**Be able to trace input suppliers**	**Ensure the quality of my product**	**Medium**	**High**	**High**

Broker/ Retailer: Y&P Fresca ltd

		Criteria		
Category	**User Story**	**business maturity/ feasibility**	**time urgency**	**critical to business success/competitive advantage**

	As a	I want to <user>	So that			
Analytics	**Producer**	**Collect different data related to business characteristics and the final product**	**I can have a better view of products I am interested in / i can confirm (reveal) that my production process conforms with the certification requirements**	**Medium**	**Medium**	**Medium**
Analytics	**Producer**	**Be able to manage and evaluate data from different heterogeneous sources**	**I can draw conclusions for analysis, legislative requirements, etc.**	**High**	**Medium**	**Medium**
Notifications	**Producer**	**Be constantly updated about information shown to me**	**I can make valid decisions**	**High**	**Medium**	**High**
Logging	**Producer**	**Record up to date data assets for exploitation**	**I can catalogue data which is of interest to me**	**High**	**Medium**	**Medium**
Certification	**Producer**	**Be able to validate GLOBALGAP certificates**	**I can be certain about the credibility of the certificates I am viewing**	**High**	**Medium**	**Medium**
Logging	**Producer**	**Archive agreed specifications on the delivered product**	**I can make cooperation easier**	**High**	**Medium**	**Medium**
Integration	**Producer**	**Be able to interconnect with the food processor's recording system**	**I can view terms of critical product data, tracking per batch and certificates of conformity**	**High**	**Medium**	**Medium**
Profiling	**All**	**Be able to personalize the data I will use in**	**I can have a more personalized**	**High**	**Medium**	**Low**

		my daily operations	**experience**			
Data, Certification	**Producer, Food processor, Industry, Inspector/auditor**	**Replace physical documents with a complete digital collection**	**I can organize daily work faster and more efficiently**	**High**	**Medium**	**Medium**
Decision making	**All**	**Use real-time data**	**Reduce decision-making time**	**High**	**Medium**	**Medium**
Decision making	**Food Processor**	**Be able to segregate critical control points data (regarding product safety) from functional control points data**	**I can better assess both**	**Medium**	**Medium**	**Medium**
Monitoring	**Food Processor**	**Be constantly updated about information that directly or indirectly affects food safety**	**I can ensure better quality for the product**	**Medium**	**Medium**	**Low**
Data, Traceability, Certification	**Food Processor, Certification Body**	**Be able to easily access aggregated data from various sources (e.g., suppliers)**	**I can assess compliance with food safety standards and with the requirements of certified schemes**	**High**	**Medium**	**Medium**
Monitoring	**Food Processor**	**Be immediately notified about any non-conformity raised for the producer and their certified product**	**I can take proper action**	**High**	**Medium**	**Medium**
Certification	**Food Processor**	**Be able to easily access valid info to operational licenses for actors I interact with, as well as info regarding**	**I can validate my working collaborators and verify the effectiveness of the FSMS**	**Medium**	**Medium**	**Medium**

		the accrediation of different kind of labs				
Profiling	**Food Processor**	**Be able to categorize, modify and transfer my data in a common point of protected and controlled access**	**I can ensure my data is safe**	**High**	**Low**	**Low**
Monitoring	**Food Processor**	**Have the ability of finding new partnerships and cooperation, via accessing information relevant to the current market needs**	**I can produce products which will cover above needs**	**Medium**	**Low**	**Medium**
Certification	**Certification Body**	**Be able to access up-to-date data from different sources and access to new and amended legislation**	**I can ensure the transparency of the certification process**	**High**	**Medium**	**Medium**
Certification	**Certification Body**	**Be able to use a representative sample of the processed data**	**I can evaluate compliance with product specifications**	**High**	**High**	**High**
Certification	**Certification Body**	**Be able to collect needed documentation prior to the certification decision**	**The decision can be properly certified**	**High**	**High**	**High**
Certification	**Certification Body**	**Have different methods of sending and receiving information**	**I can collect documentation during the certification process**	**High**	**High**	**High**
Monitoring,	**Certification**	**Have direct and**	**I can consult this**	**High**	**High**	**Medium**

Certification	**Body, Inspector/auditor**	**official information on findings of the National Audit Authorities in certified Producers, Food processors and Retailers**	**information for decision making**			
Certification	**Certification Body, Producer, Food processor**	**Be able to easily obtain evidence for the justification of compliance criteria for the actors I am supervising**	**I can ensure transparency**	**High**	**High**	**High**
Auditing, Certification	**Certification Body**	**Be able to obtain on-demand immediate stakeholder profile in terms of certification history**	**I can easier analyze the audit risk and for control/validation**	**High**	**High**	**High**
Risk estimation, Auditing	**Certification Body**	**Be able to use and re-examine previous customers' audit findings, grouped into certain categories**	**I can highlight areas of high risk for subsequent audits**	**High**	**High**	**High**
Traceability	**Retailer, Producer, Food processor, Distributor**	**Be able to access detailed information about final shelf product, as well as correlation with critical factors**	**I can maintain a robust traceability and be able to efficiently withdraw products, should the need arise**	**Medium**	**High**	**High**
Traceability	**Retailer, Producer, Certification Body, Distributor, Food processor**	**Be able to access fully traced information**	**I can have transparency and ensure no unfrair trade practices effect consumers**	**High**	**High**	**High**
Profiling	**Retailer**	**Be able to**	**I can enhance**	**High**	**Medium**	**Medium**

		present important data relevant to QA actions taken by my company	customer's trust on my brand name			
Decision making	Retailer	Be able to access information regarding findings of the inspection of suppliers in the food chain	I can make better decisions based on evidence	Medium	Medium	Medium
Certification	Retailer	Be able to access current status of food supply actors, as far as audit results of certify organizations are concerned	I can validate their credibility for cooperation	Medium	Medium	Medium
Risk estimation	Retailer	Have access to innovative tools	I can have enhanced risk monitoring capabilities	Medium	Medium	Medium
Certification	Producer, Food processor, Distributor	Be able to locate with precise criteria required certificates and seals of approval, as requested by a customer/ Be able to access detailed information regarding certificate validity and scope of certification	I can speed up certification and validation	High	High	High
Decision making	Producer, Food processor	Have a way to view an estimation of costs and expenditures regarding the certification process/Be able to chose appropiate	Have more information when considering/ I can meet the requirements of different organizations (retailers, distributor,	Medium	Medium	Medium

		certificate scheme	processors)			
Decision making, Auditing	Producer, Distributor, Certification Body, Food processor	Be able to support remote audits	I can reduce decision-making under difficult situations	High	Medium	High
Decision making, certification	Producer, Distributor, Certification Body, Food processor	Have access to validated data of all stakeholders	I can support decision-making processes	High	High	Medium
	Distributor	assess data	I Can conduct fact driven management	Medium	Medium	Medium
Certification	Certification Body	Be able to understand the specific requirements of an organization	I can speed up the certification process without grey areas	Medium	Medium	Medium
Certification	Certification Body	Be able to directly interact with organizations requesting certification	To speed up the certification process	Medium	Medium	Medium
Certification, Auditing	Certification Body	Be able to have a better overall view of the ability of an audited organization	I can have better audit results	High	Medium	Medium
Risk estimation	Retailer	Reduce the number of product recalls/Reduce the evaluation time of the suppliers	I can improve efficiency	High	Medium	Medium
Monitoring	Inspector/Auditor	Be able to interact with data of different	The data has increased reliability	High	Medium	Medium

		Certification Bodies				
Certification	**Certification Committee**	**Be able to verify a digital report**		**High**	**Medium**	**Medium**
Traceability	**Farmer/** **Producer, Distributor**	**Be able to trace input suppliers**	**Ensure the quality of my product**	**High**	**High**	**High**

BSC4

	Criteria		
ID	**business maturity/feasibility**	**time urgency**	**critical to business success/competitive advantage**
US_45	**High**	**Medium**	**High**
US_46	**Medium**	**Medium**	**High**
US_47	**Low**	**Medium**	**Medium**
US_48	**High**	**Medium**	**High**
US_49	**Medium**	**Medium**	**Medium**
US_50	**Medium**	**Medium**	**Medium**
US_51	**Medium**	**Low**	**Low**

BSC5

Category	**User Story**			**Criteria**		
	As a	**I want to <user>**	**So that**	**business maturity/feasibility**	**time urgency**	**critical to business success/competitive advantage**
Monitoring	Public Authorities (NVWA)	Be able to predict when/what/where to check	I can ensure food safery and effeciency	**High**	**High**	**High**

Monitoring	Public Authorities (NVWA)	Be able to have access to the degital format of the inspection	I can ensure effeciency	**Low**	**Low**	**Low**
Monitoring	Public Authorities (NVWA)	Be able to to search past audit performance per actor (producer, supplier, etc.)	I can ensure food safety and inspection effeciency	**Medium**	**Medium**	**Medium**
Risk estimation	Public Authorities (NVWA)	Be able to conduct risk-based monitoring	I can conduct effecient sampling	**High**	**High**	**High**
Certification	Public authorities	Be able to assess the performance of the producers in complying to the certification standards	I can decide to what extent they comply with law and certification standards	**Medium**	**Medium**	**Medium**
Monitoring	Industry	Be able to inspect market needs and new clients	I can better supervise the supply chain process	**Medium**	**Medium**	**Medium**
Monitoring	Industry	Be able to establish an up to date communication channel with traders	I can ensure communication	**Medium**	**Low**	**Low**