

Federated decentralized trusted dAta Marketplace for Embedded finance



## D2.5 - Requirements Analysis, Specifications and Co-Creation II

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## Definitions

<b>Acronyms</b>	<b>Definition</b>
4AML	4th Anti Money Laundering Directive
AAI	authentication authorization infrastructure
AI	Artificial Intelligence
AML	Anti Money Laundering
API	Application Programming Interface
BOI	Bank of Ireland
BPFI	Banking and Payments Federation Ireland
CDS	Copernicus Data Store
CMIP5	Coupled Model Intercomparison Project Phase 5
CPU	Central Processing Unit
DGA	Data Governance Act
DL	Deep Learning
EC	European Commission
EE	Energy Efficient
ESG	Environmental, Social and Governance
EU	European Union
FAIR	Findable Accessible Interoperable Reusable
FAME	Federated decentralized trusted dAta Marketplace for Embedded finance
FDAC	Federated Data Assets Catalogue
FML	Federated Machine Learning
GDPR	General Data Protection Regulation
HRP	Hierarchical risk parity (HRP) algorithm
ID	Identity
IDM	Identity Management
ISIN	International Securities Identification Number
IT	Information Technology
JSON	JavaScript Object Notation
JWT	JSON Web Token
KPI	Key Performance Indicator
ML	Machine Learning
NGEU	Next Generation EU
NIS	Network and Information Systems
NLP	Natural language processing
OEE	Overall Equipment Effectiveness

OIDC	OpenID Connect
PSDII	Second Payment Service Directive
PSR	Project Security Responsible
QA	Quality Assurance
REST	Representational State Transfer
RSA	Rivest, Shamir, Adelman Cryptographic Algorithm
SA	Supervisory Authority
SAX	Situation Aware eXplainability
SSI	Server Side Includes
TR	Technical Requirement
UC	Use Case
VAR	Value at Risk
XAI	Explainable Artificial Intelligence

## Executive Summary

D2.5 comprises the second and final version of the series of versions documenting the outcomes of Task 2.5, entitled “Requirements, Specifications and Co-Creation”. It constitutes the final outcome of the living document which was regularly updated throughout the duration of the task, depicting the updates in the elicitation and analysis of requirements, whether functional or non-functional, whether business, technical, or regulatory.

Deliverable D2.5 presents the methodology followed towards eliciting the business, technical and regulatory requirements of the FAME federated asset space and describes how this methodology was implemented in FAME. The adopted requirement engineering framework is based on the Agile Scrum methodology. The main tool used towards eliciting the FAME Generic Requirements was the Document Analysis methodology, while the main tools utilised during the Pilot Specific Requirements engineering process, were Co-Creation Workshops capitalizing upon the usage of User Stories. In more detail, one co-creation workshop per demonstrator was organised, in which the demonstrator partners and the technical partners were engaged in order to properly analyse each business requirement and formulate the respective technical requirement(s) from each business requirement.

The document describes the elicited FAME Generic Requirements that the federated asset space is designed to support, including both functional and non-functional requirements, stemming mainly from the Description of Action, as well as from the functionalities supported by external to the project, well-established marketplaces. In total, 50 FAME Generic Requirements have been identified, updating and refining the 38 original generic requirements presented in D2.1, while also adding additional generic requirements during the course of the project.

In addition, the document describes the elicited Business (Pilot-Specific) Requirements that the FAME federated asset space is designed to support, stemming mainly from the FAME project pilots. In total, 114 Business (Pilot-Specific) Requirements have been identified, significantly updating and refining the original business requirements presented in D2.1, after having gained a deeper and better understanding of the FAME vision and what it can offer.

Moreover, the document elaborates on the regulatory frameworks that FAME should take into consideration and abide by, given that these regulations affect the implementation decisions and future operation of the FAME federated asset space, and presents the list of 23 regulatory requirements that have been identified, stemming from these regulatory frameworks and their impact on and association with the FAME generic and business requirements.

Last but not least, the document describes the elicited (functional and non-functional) technical requirements of FAME, which have been extracted from the analysis of the generic requirements, as well as from the business requirements. In total, 140 (functional) technical requirements are listed, updating and refining the 106 original technical requirements presented in D2.1, while also adding additional technical requirements stemming out of the revised and new generic requirements identified during the course of the project, and an additional 9 (non-functional) technical requirements are also identified and documented.

# Table of Contents

1	Introduction.....	5
1.1	Objective of the Deliverable.....	5
1.2	Insights from other Tasks and Deliverables .....	6
1.3	Structure .....	6
2	FAME Vision.....	8
2.1	The FAME Federated Data Space.....	8
2.2	Long-term Vision and Impact .....	10
3	Requirements elicitation methodology .....	11
3.1	Approach .....	11
3.1.1	FAME Requirements Engineering Framework .....	11
3.1.2	Requirements Engineering Framework Methodologies & Tools .....	12
3.2	FAME Requirements Engineering Framework Implementation .....	13
3.2.1	Introduction.....	13
3.2.2	FAME Stakeholders Identification .....	14
3.2.3	FAME Generic Requirements Engineering Framework Implementation .....	15
3.2.4	FAME Pilot Specific Requirements Engineering Framework Implementation .....	15
3.2.5	FAME Technical Requirements Engineering Framework Implementation .....	16
3.3	Applied Methodologies & Tools.....	17
3.3.1	Performed Co-Creation Activities .....	17
3.3.2	Co-creation collaboration tools.....	20
4	FAME Generic Requirements.....	23
4.1	Overview .....	23
4.2	Generic Requirements backlog .....	34
5	FAME Pilot Specific (Business) Requirements.....	35
5.1	Overview .....	35
5.2	Pilot 1 business requirements .....	36
5.3	Pilot 2 business requirements .....	42
5.4	Pilot 3 Business requirements .....	45
5.5	Pilot 4 business requirements .....	49
5.6	Pilot 5 business requirements .....	52
5.7	Pilot 6 business requirements .....	58
5.8	Pilot 7 business requirements .....	63
5.9	Business requirements backlog .....	66
6	FAME Regulatory Requirements.....	67

6.1	Overview of relevant EU regulations .....	67
6.1.1	Data Governance Act (DGA).....	68
6.1.2	Data Act .....	68
6.1.3	(Proposed) Financial Data Access Regulation (FIDA).....	69
6.1.4	(Proposed) PSD3/PSR.....	69
6.1.5	General Data Protection Regulation (GDPR) .....	70
6.1.6	Digital Services Act (DSA).....	70
6.1.7	MiFiD II.....	71
6.1.8	The Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT) 71	
6.1.9	NIS2 .....	71
6.1.10	Digital Operational Resilience Act (DORA) .....	72
6.1.11	eIDAS Regulation .....	72
6.1.12	(proposed) AI Act .....	72
6.2	Indicative list of legal requirements .....	73
7	FAME Technical Requirements.....	80
7.1	Overview .....	80
7.2	(Functional) Technical Requirements Backlog.....	80
7.3	Mapping of Business Requirements to Technical Requirements.....	108
7.4	(Non-Functional) Technical Requirements Backlog.....	130
8	Conclusions.....	134
	References.....	136
9	Annex .....	137
9.1	Original Pilot 1 Business Requirements.....	137
9.2	Original Pilot 2 Business Requirements.....	142
9.3	Original Pilot 6 Business Requirements.....	145
9.4	Original Pilot 7 Business Requirements.....	151

## List of Figures

Figure 3-1 - The FAME Federated Data Space .....	9
Figure 3-1 - FAME Requirement Engineering framework.....	12
Figure 3-2 - FAME Functional & Non-Functional Requirements Elicitation step.....	13
Figure 3-3 - FAME Technical Requirements Elicitation step .....	14
Figure 3-4 - FAME business requirements Miro boards .....	20
Figure 3-5 - Miro boards sticky notes representing business requirements.....	21
Figure 3-6 - Miro boards business requirements example (1) .....	21
Figure 3-7 - Miro boards business requirements example (2) .....	21
Figure 3-8 - Technical requirements in SharePoint (1).....	22
Figure 3-9 - Technical requirements in SharePoint (2).....	22

## List of Tables

Table 1 - FAME stakeholders .....	14
Table 2 - Business Requirements Template.....	16
Table 3 - User Story template .....	17
Table 4 - Business Requirements elicitation co-creation workshops .....	18
Table 5 - Business Requirements elicitation co-creation workshops .....	18
Table 6 - Technical Requirements extraction co-creation workshops.....	19
Table 7 - Generic Requirements .....	24
Table 8 - Pilot 1 business requirements .....	36
Table 9 - Pilot 2 business requirements .....	42
Table 10 - Pilot 3 business requirements .....	45
Table 11: Pilot 4 Business Requirements .....	49
Table 12 - Pilot 5 business requirements .....	52
Table 13 - Pilot 6 business requirements .....	58
Table 14 - Pilot 7 business requirements .....	63
Table 15 – FAME Regulatory requirements.....	74
Table 16 - FAME (Functional) Technical Requirements .....	81
Table 17 - Mapped business requirements to technical requirements .....	108
Table 18 - FAME (Non-Functional) Technical Requirements .....	131
Table 19 – Conclusions.....	135
Table 20 – KPIs.....	135
Table 21: Original Pilot 1 Business Requirements .....	137
Table 22: Original Pilot 2 Business Requirements .....	142
Table 23: Original Pilot 6 Business Requirements .....	145

# 1 Introduction

FAME is an extended marketplace and asset (data, algorithm, tutorial) space which provides a federation of entities (data providers, consumers, assets, ...) with specialized functionalities, enabling the discovery and utilization of data assets and technology components to support EmFi applications. D2.5 reports on the outcomes of the requirements engineering and co-creation processes based on the efforts undertaken in the context of T2.1. It presents the methodology followed towards eliciting the business, technical and regulatory requirements of FAME, and the methodologies and tools employed to analyse the extracted requirements. D2.5 documents the Generic Requirements that the FAME federated asset space is designed to support, including both functional and non-functional requirements, as well as the business requirements stemming from the FAME project pilots that will be used towards validating the FAME concept, usability, and value. D2.5 also documents the technical requirements of the federated asset space, which have been extracted from the analysis of the Generic FAME Requirements, as well as from the business requirements. Finally, D2.5 also provides a high-level presentation of the core regulations that affect the implementation decisions and future operation of FAME, and the respective regulatory requirements that have been identified, stemming from these regulatory frameworks and their impact on and association with the FAME generic and business requirements.

## 1.1 Objective of the Deliverable

D2.5 comprises the second and final version of the series of versions documenting the outcomes of Task 2.5, entitled “Requirements, Specifications and Co-Creation”. It constitutes the final outcome of the living document which was regularly updated throughout the duration of the task, depicting the updates in the elicitation and analysis of requirements, whether functional or non-functional, whether business, technical, or regulatory. As such, the objectives of deliverable D2.5 are manyfold:

- 1) To present the requirements elicitation methodology followed towards eliciting the business, technical and regulatory requirements of FAME, and to describe how this methodology was implemented.
- 2) To analyse the co-creation activities performed, and the co-creation tools employed to facilitate the implementation of the requirements elicitation methodology.
- 3) To document the elicited Generic Requirements that the FAME federated asset space is designed to support, including both functional and non-functional requirements, stemming mainly from the Description of Action, as well as from the functionalities supported by external to the project, well-established marketplaces.
- 4) To document the elicited Business (Pilot-Specific) Requirements that the FAME federated asset space is designed to support, stemming mainly from the FAME project pilots.
- 5) To present the core regulations that affect the implementation decisions and future operation of FAME, and to also document the respective regulatory requirements that have been identified, stemming from these regulatory frameworks and their impact on and association with the FAME generic and business requirements.
- 6) To document the elicited (functional) technical requirements of the FAME federated asset space, which have been extracted from the analysis of the Generic Requirements, as well as from the business requirements.
- 7) To document the elicited (non-functional) technical requirements of the FAME federated asset space, which have been extracted from the non-functional Generic Requirements.

## 1.2 Insights from other Tasks and Deliverables

As aforementioned, D2.5 comprises the final version of a series of versions documenting the outcomes of Task 2.1. Despite the fact that D2.1 did not receive input from other deliverables, but rather served as input for the upcoming technical deliverables, mainly those constituting the outcomes of WP3, WP4 and WP5, D2.5 received input from these deliverables (namely D3.x, D4.x and D5.x, where x signifies the various versions of the corresponding deliverables), updating the corresponding functional and non-functional technical requirements of the FAME federated asset space, as well as from deliverable D6.1 entitled “Use Cases Specification and Pilot Sites Preparation” which provided updates to the corresponding business (Pilot-Specific) requirements that FAME will support. D2.5 has also received input from the work undertaken in the context of T2.2, entitled “Platform Architecture and Technical Specifications”, running in parallel with T2.1, with the (functional and non-functional) Generic Requirements being aligned with the corresponding updates as compared to the specifications described in the DoA, introduced in the context of this task.

## 1.3 Structure

The document comprises of 7 main chapters and its structure is as follows:

1. Chapter 1 introduces the deliverable highlighting its objective and its relation to other deliverables.
2. Chapter 2 introduces the FAME overall vision, prior to delving the reader to the analytical requirements and specifications that FAME needs to address, and the functionalities and added value services it aspires to deliver to its users and stakeholders.
3. Chapter 0 presents the methodology followed towards eliciting the business, technical and regulatory requirements of the FAME federated asset space. It documents the steps of the adopted requirement engineering framework followed, the methodologies and tools employed to elicit and analyse requirements and describes how the requirements elicitation methodology was implemented. In addition, it analyses the co-creation activities performed, and the co-creation tools employed to facilitate the implementation of the requirements elicitation methodology.
4. Chapter 4 documents the Generic Requirements that the FAME federated asset space is designed to support, including both functional and non-functional requirements. The Generic Requirements backlog on M18 contains all the collected and elicited Generic Requirements stemming mainly from the Description of Action of FAME, as well as from the functionalities supported by well-established marketplaces including yet not limited to SecureIoT, FINSEC Marketplace, INFINITECH Marketplace, PolicyCLOUD Data Marketplace and more.
5. Chapter 5 documents the Business (Pilot-Specific) Requirements that FAME is designed to support. The Business Requirements backlog on M18 contains all the collected and elicited Business Requirements stemming mainly from the FAME project pilots.
6. Chapter 6 provides a high-level presentation of the core regulatory frameworks that affect the implementation decisions and future operation of the FAME federated asset space. It also documents the respective regulatory requirements that have been identified, stemming from these regulatory frameworks and their impact on and association with the FAME generic and business requirements, that will in turn drive the implementation and piloting activities in the project.
7. Chapter 7 documents the technical requirements of the FAME federated asset space, which have been extracted from the analysis of the Generic Requirements, as well as from the business requirements. The chapter includes the (functional) technical requirements backlog on M18 of the project, which have been elicited from the functional Generic Requirements as

well as from the and business requirements of FAME. It also includes the (non-functional) technical requirements backlog on M18 of the project, which have been elicited from the non-functional Generic Requirements of FAME. Last but not least, the deliverable provides a mapping between the elicited business requirements and the extracted technical requirements.

8. Chapter 8 concludes the deliverable.
9. Chapter 9 is the Annex section which includes older General Requirements that have become obsolete and the older pilot business requirements from previous versions of this deliverable, presented again for reference.

## 2 FAME Vision

FAME is an amalgamation of expert input on data management, data technologies, digital finance, and data economy, establishing a new paradigm of data spaces and marketplaces. This chapter analyses FAME's vision by outlining the project's innovative offerings and the unique value it brings to the data economy.

### 2.1 The FAME Federated Data Space

Data Spaces are strategic data infrastructures to promote the European data economy's growth, while minimizing human and environmental carbon footprints. Data marketplaces allow buying, selling, and exchanging data, mainly datasets. They work like traditional markets with buyers, sellers, and transactions. The more valuable the marketplace, the more buyers it attracts, which then increases value for sellers. Data marketplaces are typically born to operate within deregulated markets, while Europe favours regulated markets with strict supervision. Data marketplaces ensure data sharing based on agreed principles, but face several challenges, including:

1. **Business/Organizational Challenges:** Companies need to build trust, follow EU rules, and adapt to changes of the economic environment.
2. **Legal Compliance Challenges:** GDPR and other laws protect privacy and define data ownership according to EU policies.
3. **Technical Challenges:** Issues like interoperability, data quality, and scalability in data sharing need to be addressed.

*According to the EU definition, the FAME Federated Marketplace is a Data Space. It is a revolutionary concept in the landscape of data marketplaces. FAME is meant to be a federated, energy-efficient, and secure data marketplace tailored for Embedded Finance (EmFi). Its vision is to transcend the limitations of centralised cloud marketplaces and demonstrate the data economy's full potential. Towards this end, FAME will deliver the: A) Technological, B) Business and C) Legal frameworks to create a B2B platform capable of providing to the enterprises the resources necessary to create / support applications for EmFi and other sectors. FAME can also support also B2C and P2P models, but they are currently beyond its scope. More specifically:*

**FAME Technological Framework:** Within its core, FAME provides the Federated Data Asset Marketplace, customized for buying and selling federated data assets to support Embedded Finance application and the financial sector. FAME's technological framework is built upon a foundation of cutting-edge innovations that facilitate a novel approach to data trading and asset management within the financial sector. The incorporation of into FAME's core functionality enables sophisticated analytics and decision-making processes, driving the platform's ability to deliver actionable insights. These technologies are utilised for data analysis and play a crucial role in automating/optimising the marketplace's operations. Explainable AI (XAI) and Situation Aware Explainability (SAX) techniques are employed to ensure transparency in algorithmic decision-making, building trust among users by allowing them to explore the platform's automated recommendations and actions. Furthermore, the platform's adoption of blockchain technology is pivotal to achieving a decentralised data trading environment.

**FAME Business Framework:** In addition to this marketplace, FAME offers a Federative Business/Governance model to ensure sovereignty and the sharing and exchange of trusted data assets resources within the digital ecosystems, all grounded on commonly agreed principles.

**FAME Legal Framework:** Capitalizing on this model, FAME, also embraces the European vision of data sharing by providing a framework for Regulatory Compliance and Data Governance, closely following the principles of European Data Spaces. This compliance is a legal necessity and a strategic

choice that underpins the platform's commitment to the highest standards of data protection and privacy.

Thus, FAME is a special type of data marketplace focused on creating a data space for the financial sector, standing out in several ways:

- ◁ **Market Focus:** FAME is tailored for the financial sector, offering a platform for using customized data assets, fostering innovation, and improving service delivery.
- ◁ **Product Diversity:** FAME offers a variety of data assets, including datasets, AI models, analytics, algorithms, services, and educational content.
- ◁ **Governance Model:** FAME uses a federated governance model to ensure data transactions are trustworthy, private, and secure, following EU regulations.
- ◁ **Cutting-edge Technologies:** FAME employs advanced technologies like semantic interoperability, AI, machine learning, blockchain, and adaptive authentication to enhance data analytics, ensure secure transactions, and manage dynamic identities.
- ◁ **Regulatory Compliance:** FAME provides tools to ensure compliance with laws like GDPR, Data Act, Payment Service Regulation (PSR), Markets in Crypto-Assets (MiCA) Regulation and 4th AntiMoney Laundering directive (4AML). These tools help ensure FAME's functionalities meet security and regulatory requirements, following EU regulations and security-by-design principles.

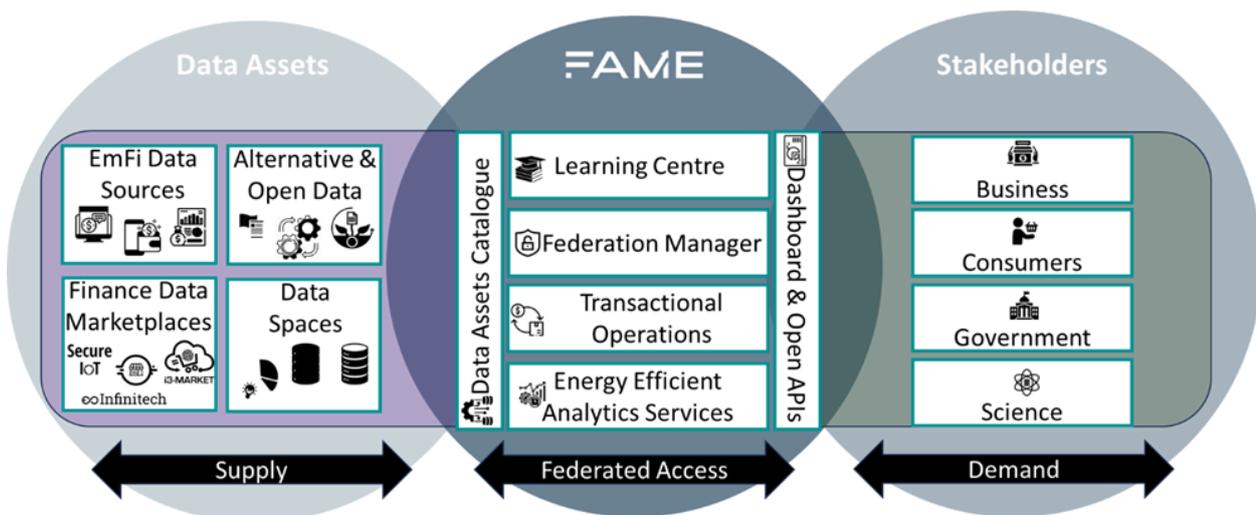


Figure 2-1 - The FAME Federated Data Space

FAME envisions a federated marketplace that is not just another platform in a vast network of data exchange platforms but a cornerstone, maintaining the core principles of decentralized finance and data sovereignty. The FAME marketplace is specifically engineered to support the burgeoning field of Data-Driven Finance Applications. This focus allows FAME to cater to a niche yet rapidly expanding segment of the financial industry. By providing a unified platform, FAME facilitates the discovery and utilization of diverse Data Assets. These assets are tailored to meet the specific needs of various entities within the financial sector, ranging from banking institutions to fintech startups, enabling them to innovate and deliver services efficiently. The variety and richness of the data assets offered by FAME set it apart from traditional data marketplaces. FAME's assets include:

- ◁ **Classical Data and Datasets:** These are the foundational elements that include raw and processed data applicable across various scenarios in finance.

- ◁ **Value-Added Assets:** Beyond standard datasets, FAME integrates models, algorithms, and technology components, such as code snippets and software modules, which are ready for deployment in financial applications.
- ◁ **Running Services:** FAME offers services that are currently operational and can be integrated directly into the users' environments. These include, but are not limited to, Energy Efficient (EE) Analytics, Artificial Intelligence (AI), Machine Learning (ML) models, Situation Aware Explainability (SAX) and Explainable AI (XAI) models.
- ◁ **Digital Content:** This includes educational and training materials such as courseware and tutorials, which support the onboarding and continuous development of users on the platform.

FAME's approach to federating data assets—that is, hosting these data assets in their native environments without unnecessary replication—reduces the environmental impact and the costs associated with large-scale data transfers.

## 2.2 Long-term Vision and Impact

FAME's long-term vision extends well beyond the immediate technical achievements and pilot validations. FAME's dedication to an open, interoperable, and federated marketplace aligns with the broader strategic objectives of the European Union, which build upon innovation and competitiveness across Europe's digital finance landscape. The project offers a reliable data ecosystem that can effectively bridge the gap between data providers and consumers, thus enhancing the overall quality and accessibility of financial services.

The anticipated impact of FAME on the financial sector is substantial, with implications that reach far into the economic and societal realms: i) Economically, the marketplace is set to unlock new business models and revenue streams by making high-value data assets more accessible and usable. Such data democratisation will enable small and medium-sized enterprises (SMEs) to compete more effectively in the marketplace, spurring innovation and driving growth within the European economy. ii) Societally, FAME increases financial inclusion by providing tools and insights that enable more informed decision-making for individuals and businesses alike, thus contributing to more equitable financial participation.

Moreover, the platform is conceived with an intrinsic commitment to sustainability. By promoting energy-efficient analytics and integrating CO2 monitoring tools within its operations, FAME aligns with the European Green Deal's ambition for a climate-neutral continent. This forward-thinking approach positions FAME as a leader in financial innovation and as an advocate of sustainable practices within the digital economy. In essence, FAME's long-term vision encapsulates a dual focus: i) Driving the evolution of the data-driven financial sector, and ii) Setting an example for responsible technological advancement. Through such efforts, FAME navigates and shapes the future of finance, making it more inclusive, innovative, and attuned to the broader objectives of social and environmental well-being.

Overall, the FAME project embodies a vision of innovation, collaboration, and transformation. It sets the stage for a future where the exchange, sharing, and monetisation of data assets are conducted with utmost security, efficiency, and regulatory compliance, driving forward the digital finance revolution.

## 3 Requirements elicitation methodology

### 3.1 Approach

Requirements engineering in software development is considered the multi-step process related to the identification, elicitation, analysis, formulation, validation, and management of the needs and expectations of stakeholders. The requirements engineering framework safeguards that the produced software artefacts will address all the needs and expectations of the stakeholders reducing the risk of failure as any potential issue can be spotted early enough to allow low-cost adjustments. In addition to this, the requirements engineering framework ensures that the software artefacts will be developed in the most cost-effective and efficient way as it reduces misunderstandings and produces solid requirements that drive the implementation activities.

#### 3.1.1 FAME Requirements Engineering Framework

Within the context of FAME, the adopted requirement engineering framework is based on the Agile Scrum methodology [1], however it has been slightly modified so as to fit the specificities and address the needs of the project more efficiently. It includes the following steps:

1. **Stakeholders Identification:** This step includes the identification of all related stakeholders and/or stakeholder categories (including yet not limited to financial organizations, insurance organizations, educational organizations, software houses, industrial organizations etc.)
2. **Functional & Non-Functional Requirements Elicitation:** This step includes the collection of the needs and expectations of all involved stakeholders. This involves capturing both functional requirements (what the system should do) and non-functional requirements (qualities, constraints, or conditions the system must meet, such as performance, security, or scalability). It gathers all the information related to the expected benefits from the stakeholder, the pains of the stakeholder, the problem to be solved, as well as any constraints and boundaries. The outcomes of this process are the user requirements, including both Generic Requirements and Pilot Specific / Business Requirements, along with Regulatory requirements.
3. **Technical Requirements Elicitation:** This step actually comprises of three discrete sub-steps analysed below:
  - a. **Requirements Analysis & Prioritization:** This step includes the analysis and assessment of the requirements in terms of their business value, their necessity, their consistency, their completeness and their feasibility. The requirements are analyzed to ensure they are clear, consistent, and achievable, and they are also prioritized based on their importance and impact on the system's success. Additionally, during this process any constraints or limitations that may affect the development activities are identified.
  - b. **Requirements Technical Documentation:** This step includes the documentation of the identified requirements from a more technical perspective in a clear, consistent, and unambiguous manner while also including their prioritization and grouping. The outcomes of this process are technical requirements. Standard templates or formats are used in order to ensure consistency and ease of understanding, while relevant details such as descriptions, acceptance criteria and dependencies are also included.
  - c. **Requirements Validation & Verification:** This step includes the validation of the requirements in terms of completeness, consistency, and accuracy. It also validates that the requirements are testable and meet the needs and expectations of the stakeholders. Requirements validation usually involves testing, user feedback, and acceptance criteria verification.

4. **Requirements Management:** Requirements may evolve over time due to changes in business needs, technology advancements, or user feedback. This step includes all the activities performed during the development phase for the monitoring, tracking, update, and validation of the requirements as the development activities progress so as to keep them aligned with the evolving system and stakeholder expectations.

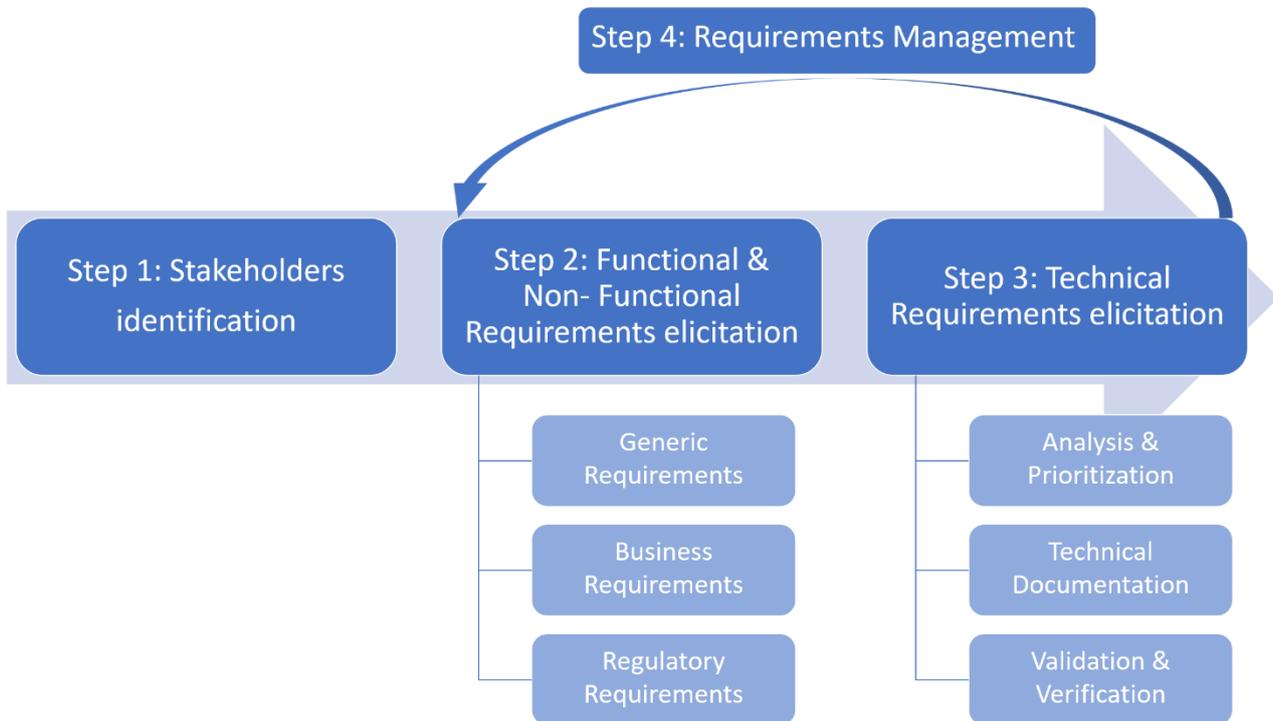


Figure 3-1 - FAME Requirement Engineering framework

### 3.1.2 Requirements Engineering Framework Methodologies & Tools

In terms of methodologies and tools to elicit and analyse requirements, several ones currently exist, which may be used towards eliciting business and technical requirements, either individually or in combination, depending on the specific needs and constraints. These amongst others include:

- ◁ **Interviews:** Conducting one-on-one interviews with stakeholders allows for direct communication and in-depth exploration of their needs, expectations, and constraints. Interviews provide an opportunity to gather rich information and clarify any uncertainties.
- ◁ **Surveys and Questionnaires:** Surveys and questionnaires allow for gathering requirements from a large number of stakeholders in a cost-effective manner. These can be distributed electronically, and respondents can provide their feedback and requirements at their convenience.
- ◁ **Co-Creation Workshops:** Workshops bring together multiple stakeholders in a facilitated session to discuss and collaborate on requirements. Various techniques like brainstorming, group discussions, and visual modeling can be used to foster collaboration and gather different perspectives.
- ◁ **Document Analysis:** Analyzing existing documentation, such as user manuals, business processes, and technical specifications, can provide valuable insights. This methodology helps in identifying gaps, inconsistencies, and opportunities for improvement.
- ◁ **Use Cases and User Stories:** Use cases and user stories are techniques used to capture functional requirements from a user's perspective. Use cases describe interactions between users and the system, while user stories focus on specific user goals and the system's response.

- ◁ **Storyboarding:** Storyboarding is a visual technique that uses sketches or drawings to illustrate how users interact with the system. It helps stakeholders visualize the user experience and identify key requirements.
- ◁ **Prototyping:** Creating prototypes or mock-ups of the proposed system allows stakeholders to visualize and interact with the system early in the requirements gathering process. Feedback from stakeholders on the prototypes helps in refining and validating requirements.

## 3.2 FAME Requirements Engineering Framework Implementation

### 3.2.1 Introduction

Towards implementing the second step of the requirements engineering framework, namely the Functional & Non-Functional Requirements Elicitation step, the FAME consortium focused on three requirements elicitation verticals:

- 1) **Generic Requirements** elicitation, concerning the identification and elicitation of functional and non-functional requirements stemming from the project vision and the designed conceptual architecture, aspiring to cover a set of functionalities that can be exploited by a wide variety of the FAME federated asset space users and related stakeholders, both internal as well as external to the project consortium.
- 2) **Pilot Specific Requirements** elicitation, concerning the identification and elicitation of business requirements stemming from the needs and pains of the FAME pilot partners, aspiring to satisfy additional user-specific requirements that have probably not been captured through the Generic Requirements elicitation process and focus more on specific domain-vertical needs.
- 3) **Regulatory requirements** elicitation, concerning the identification of regulatory requirements that will facilitate boosting the compliance of the assets shared and traded through FAME with applicable regulations in EmFi UCs.

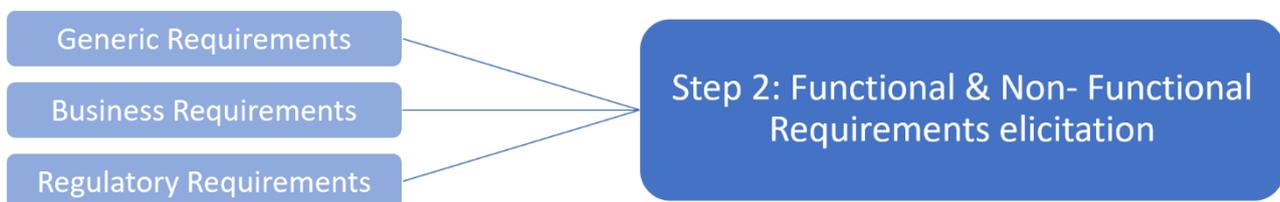


Figure 3-2 - FAME Functional & Non-Functional Requirements Elicitation step

Afterwards, towards implementing the three following steps of the requirements engineering framework, namely the i) Requirements Analysis & Prioritization step, the ii) Requirements Technical Documentation step, and the iii) Requirements Validation & Verification step, the FAME consortium focused on the elicitation of the FAME Technical Requirements.

- 4) **Technical Requirements** elicitation: Following the business requirements collection, the consortium focused on the extraction of the technical requirements from the elicited business requirements. Technical requirements describe the technical design specification of the system towards the delivery a desired function or behaviour of the system which satisfies a set of specific business needs. The scope of the technical requirements is to define how the features and functionalities are implemented accompanied by the respective success criteria.

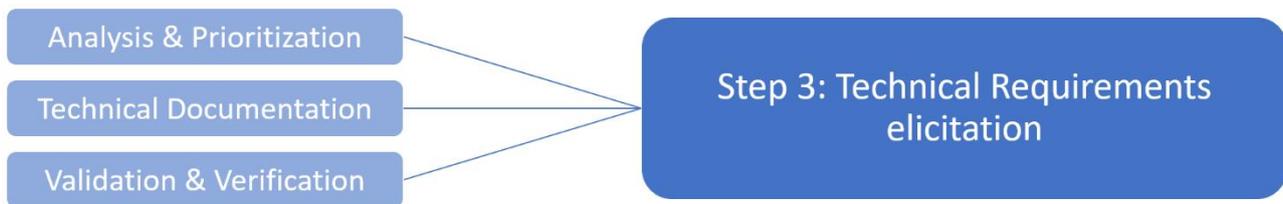


Figure 3-3 - FAME Technical Requirements Elicitation step

### 3.2.2 FAME Stakeholders Identification

Having analysed what the FAME federated asset space is and what it expects to offer to its end users, while also having analysed the pilot cases that will be used to evaluate and validate the validity of the assumptions made, the technical robustness and the business value of the FAME federated asset space, and all other relevant scientific, technical and business indicators, the consortium has compiled the initial list of identified stakeholders which are also utilised in the user stories definition. Table 1 presents the list of all identified stakeholders elaborating on their role.

*Note: Additional stakeholders have been identified in the current version of the deliverable, so as to cover the revised generic and business requirements and the revised user stories. These additional stakeholders include: i) the Private User (including for example non-affiliated users, ii) the Entities (including for example Legal entities, for profit & no-profit Organizations, Universities and research institutions etc.) and iii) the Marketplace targeting mainly the M2M interactions.*

Table 1 - FAME stakeholders

Role	Description
<b>Application provider</b>	The user's main objective is to provide an application software for automating or facilitating the execution of a specific task.
<b>Data provider</b>	The user's main objective is to provide internal data assets to external parties, referring to any type of organization (including data spaces/data marketplaces owners).
<b>Software developer</b>	The user's main objective is to design and implement a specific software to meet the end-users' needs by employing diagrams and models, writing code, and ensuring overall functionality.
<b>Researcher</b>	The user's main objective is to carry out academic or scientific research towards discovering new information or reaching a new understanding.
<b>Data analyst</b>	The user's main objective is to inspect, clean, transform, and model data with the goal of discovering useful information, informing conclusions, and supporting decision-making.
<b>Financial organization</b>	The user's main objective is to collect funds (from the public or other institutions) and invest them in financial assets by dealing with financial transactions such as investments, loans, and deposits.
<b>Regulator</b>	The user's main objective is to control an activity or process and make certain that it operates as it should, checking whether a business is working according to official rules or laws.
<b>Citizen</b>	The user's main objective is to be a member of a society and having rights because of belonging to this society (i.e., in FAME a citizen is considered anyone who has not the abovementioned roles).
<b>Educator</b>	The user's main objective is to educate or train people in order to acquire knowledge, competence, or virtue, via the practice of teaching.
<b>Private User</b>	The user's main objective is to utilize services or applications for personal or non-commercial purposes without any organizational affiliation.

<b>Entity</b>	The user's main objective is to operate as a legal entity, such as an organization, company, or university, engaging in various activities to achieve specific goals, whether for profit or non-profit purposes.
<b>Marketplace</b>	The user's main objective is to facilitate machine-to-machine (M2M) interactions by providing a platform where automated systems can exchange data, services, or transactions seamlessly.

### 3.2.3 FAME Generic Requirements Engineering Framework Implementation

**Generic Requirements** concern the functional and non-functional requirements of a system. A system's requirements can be broadly classified into i) functional requirements and ii) non-functional requirements. Functional requirements describe what the system should do, the specific features and functionalities it needs to provide to meet the users' needs. These requirements define the system's behavior and describe the interactions between the system and its users or other systems. Examples of functional requirements for an IT system could include yet are not limited to i) user authentication and authorization, ii) data input and manipulation, iii) integration with external systems, etc. Non-functional requirements, on the other hand, describe the qualities, constraints, and characteristics that define how the system should perform or behave. These requirements typically focus on aspects beyond the system's specific functionalities. Examples of non-functional requirements for an IT system could include its i) performance, ii) usability, iii) security etc. As aforementioned, the main tool used within the context of FAME towards eliciting the Generic Requirements was the **Document Analysis** methodology, during which the Description of Action was analysed by the consortium partners so as to safeguard that all aspired functionalities laid down in the document during the proposal conceptualization phase will be properly taken into consideration so that they will be evaluated by the technical partners responsible for implementing and delivering them.

### 3.2.4 FAME Pilot Specific Requirements Engineering Framework Implementation

Pilot Specific requirements, or business requirements generally describe the business need by answering the question "*what the stakeholder or business would like to do.*"

Hence, the scope of the business requirements is to define what is needed from the system accompanied by the respective success criteria. Typically, they relate to an overall business objective which describes the expectations of the stakeholder or business from the system answering the question "*what the stakeholder or business would like to do.*" And general, from a business perspective, multiple business requirements may arise. Business requirements should describe the need for the system, the beneficiaries of the system, when and where it will be utilised and how the system will be evaluated against these requirements. However, the purpose of business requirements is not to describe the mean or way of implementation of the system, and they should not encompass the system's implementation details.

The main tools utilised within the context of FAME during the Pilot Specific Requirements engineering process were **Co-Creation Workshops capitalizing upon the usage of User Stories**. The scope of the co-creation workshops designed was to apply systemic design and participatory practises based on approaches which effectively integrate social systems principles for the engagement of stakeholders and users into the design and decision-making process of complex systems. They provided a collaborative and structured process creating the creative thinking spaces for all core stakeholders to identify, analyse and document their needs and ideas for the problem at hand. Hence, these co-creation workshops were leveraged as an effective and time-efficient approach to collaboratively discover innovative, creative, and complete solutions to challenges, problems at hand or potential opportunities. The series of co-creation workshops organized in the context of

FAME facilitated better communication, innovative thinking, trust, and commitment, thus enabling more fruitful discussions and results, while driving the upcoming implementation activities. The details of the co-creation workshops organized towards eliciting the Pilot Specific Requirements are presented in Section 2.2.

Throughout the FAME Co-Creation Workshops, the business requirements elicitation process was facilitated through a solid template that was formulated and used in order to collect the required information, presented in Table 2. The business requirements were collected using this template capitalizing upon the initial use cases identified by the pilot partners, describing the aspired interactions between the users and the system.

Table 2 - Business Requirements Template

<b>Requirement Detail</b>	<b>Short description</b>
<b>Business Objective</b>	Description of the overall business objective describing the expectations of the stakeholder or business from the system
<b>Business Requirement Area</b>	Description of the business requirement describing the business need The business area that the requirement is applicable to, such as management, marketing, sales, financial, services, etc..
<b>Type</b>	<ul style="list-style-type: none"> <li>&lt; Functional Requirements which describe the way a solution should function from an end user's perspective covering the features and functions of the system which are expected from the business user.</li> <li>&lt; Non-Functional Requirements which describe the operational characteristics of the system.</li> </ul>
<b>Functionality</b>	<ul style="list-style-type: none"> <li>&lt; A categorisation of the requirement based on the need. This falls under the user, technical and infrastructure requirements or other categories.</li> </ul>
<b>Priority</b>	<p>The priority of the specific requirement is defined as follows:</p> <ul style="list-style-type: none"> <li>&lt; Critical: The requirement should be met otherwise the business objective is not achievable</li> <li>&lt; Preferred: The business objective can be achieved without this requirement but not in the most efficient and effective manner</li> <li>&lt; Optional: The business object can be achieved even if the specific requirement is not met.</li> </ul>

### 3.2.5 FAME Technical Requirements Engineering Framework Implementation

Technical requirements describe the technical design specification of the system towards the delivery a desired function or behaviour of the system which satisfies a set of specific business needs. The scope of the technical requirements is to define how the features and functionalities are implemented accompanied by the respective success criteria. The main tools used towards eliciting the FAME federated asset space Technical Requirements were **Co-Creation Workshops capitalizing upon the usage of User Stories**. The user stories are used to capture functional requirements from a user's perspective and focus on specific user goals and the system's response. They describe in informal manner the technical specifications of a software feature from the perspective of the end user. The scope of the user stories is to document the added value of each feature to the business user. Following the Agile methodology, each user story is defined as the smallest unit of work describing an end goal. In this sense, user stories describe the requirements from the perspective of an end-user goal. Hence, each user story defined what the user utilising the system wants to be able to do. In general, each user story should have a minimum set of characteristics [3]:

- ◁ Independent: It should simple and singular with no references to other user stories
- ◁ Negotiable: It should leave room for further discussion during the implementation phase while having a clear goal and benefit.
- ◁ Valuable: It should add value to the system and the stakeholder
- ◁ Estimable: It should be easy to size in terms of planning and prioritization
- ◁ Small: It should represent an amount of work that is feasible and realistic as a small functionality
- ◁ Testable: It should be easily tested and verified

The definition of a user story is as follows:

**As a** < role or user > **I want** <goal> **so that** <benefit>

The following table describes each parameter of a user story:

Table 3 - User Story template

User story parameters	Description
<b>Role or user</b>	Describes the stakeholder type. (See Table 1)
<b>Goal</b>	Describes the intent of the stakeholder (what he/she is trying to achieve or the particular problem that is solved)
<b>Benefit</b>	Describes the overall benefit/goal of the stakeholder, what is the overall intention of the stakeholder

Besides the definition of the user story, it is very important that each user story is accompanied by the respective acceptance criteria that should testable, precise, and concise and understandable by all involved parties. Furthermore, each user story should be prioritized in the same manner as with the business requirements via the critical, preferred, and optional levels.

### 3.3 Applied Methodologies & Tools

#### 3.3.1 Performed Co-Creation Activities

As aforementioned, FAME utilised the concept of the co-creation workshops as the main collaborative and structured process for the various steps of the adopted requirement elicitation approach. In order for the co-creation workshops to be as much effective and efficient as possible, the proper preparation and planning is required. Hence, the structure of each workshop was clearly defined and the objectives of each workshop were set. All stakeholders were invited and online tools were utilised to facilitate the smooth and efficient planning and hosting of the workshop.

With regards to the business requirements elicitation a series of co-creation workshops were organised by the consortium. In particular, the consortium organised co-creation workshops for the demonstrators of the project in which the respective demonstrator partners were engaged along with the respective technical partners of the project. During these workshops, the demonstrator partners were able to present and elaborate on:

- ◁ The scope and the business context of their demonstrator
- ◁ The business objectives of their demonstrator elaborating their problem at hand, their pain points, what are the expectations or the aspired improvements from FAME
- ◁ The stakeholders that they are aspiring to assist by addressing their business objectives and what is needed in order to achieve them

Through these workshops, the business requirements stemming directly from each demonstrator partner were elicited in a collaborative manner using the business requirements template that was presented in the previous paragraph. The elicited FAME pilot specific / business requirements are presented in detail in Section 5 of the current deliverable.

Table 4 presents the details of the first round of organised co-creation workshops for the business requirements elicitation, as documented in Deliverable D2.1

Table 4 - Business Requirements elicitation co-creation workshops

#	Workshop title	Scope	Date
1	1 <sup>st</sup> Joint Pilot Co-creation Workshop	This initial workshop was organised to present the methodology and tools that will be used in the upcoming workshops. The stakeholders were familiarised with the process and an initial set of business requirements were elicited.	30/03/23
2	Pilot 7: Assessing the Quality and Monetary Value of Data Assets Workshop	This workshop focused on the business requirements elicitation from Pilot 7	03/04/23
3	Pilot 5: ESG Scorecard Ranking & Sustainable Portfolio Optimisation & Pilot 6: Embedding Climatic Predictions in Property Insurance Products Workshop	This workshop focused on the business requirements elicitation from Pilot 5 and Pilot 6	20/04/23
4	Pilot 2: Embedding Finance Services in a Personalized Citizen Wallet	This workshop focused on the business requirements elicitation from Pilot 2	24/04/23
5	Pilot 1: FaMLy – A powerful financial recommendation engine for families	This workshop focused on the business requirements elicitation from Pilot 1	04/05/23

*Note: The following table presents the details of the second round of organised co-creation workshops for the business requirements elicitation, which led to the updates and refinements of the original business requirements, as well as to the addition of new ones. It also includes however the sessions organised with Pilot 3 and Pilot 4 which were not included in D2.1 due to the fact that they were reformed after M6.*

Table 5 - Business Requirements elicitation co-creation workshops

#	Workshop title	Scope	Date
1	Pilot 7: Assessing the Quality and Monetary Value of Data Assets	This workshop focused on the business requirements elicitation from Pilot 7	21/2/2024
2	Pilot 2: Embedding Finance Services in a Personalized Citizen Wallet	This workshop focused on the business requirements elicitation from Pilot 2	29/2/2024
3	Pilot 5: ESG Scorecard Ranking & Sustainable Portfolio Optimisation &	This workshop focused on the business requirements elicitation from Pilot 5	05/03/2024

4	Pilot 6: Embedding Climatic Predictions in Property Insurance Products Workshop	This workshop focused on the business requirements elicitation from Pilot 6	14/03/2024
5	Pilot 1: FaMLy – A powerful financial recommendation engine for families	This workshop focused on the business requirements elicitation from Pilot 1	19/03/2024
6	Pilot 3: Personalized Collaborative Intelligence for Enhancing EmFi Services	This workshop focused on the business requirements elicitation from Pilot 3	02/04/2024
7	Pilot 4: The EU Funds Application Process Made Easy	This workshop focused on the business requirements elicitation from Pilot 4	08/04/2024

The second part of the organised co-creation workshops were dedicated to the requirements analysis, documentation and validation with a clear focus on the extraction of the technical requirements from the collected business requirements. To this end, the consortium organised one co-creation per demonstrator in which the demonstrator partners and the technical partners were engaged in order to properly analyse each business requirement and formulate the respective technical requirement(s) from each business requirement. To assist this process, a set of guidelines were also prepared and circulated to all partners before the co-creation workshops were performed.

Through these workshops, the technical requirements stemming directly from each business requirement of each pilot were collaboratively extract in the form of user stories using the user stories template that was presented in the previous paragraph. The complete list of FAME technical requirements is presented in detail in Section 6 of the current deliverable.

Table 6 presents the details of the organised co-creation workshops for the technical requirements extraction.

Table 6 - Technical Requirements extraction co-creation workshops

#	Workshop title	Scope	Date
1	Pilot 1 Technical Requirements Extraction	This workshop focused on the extraction of technical requirements from business requirements of Pilot 1	29/05/23
2	Pilot 6 Technical Requirements Extraction	This workshop focused on the extraction of technical requirements from business requirements of Pilot 6	31/05/23
3	Pilot 5 Technical Requirements Extraction	This workshop focused on the extraction of technical requirements from business requirements of Pilot 5	08/06/23
4	Pilot 2 Technical Requirements Extraction	This workshop focused on the extraction of technical requirements from business requirements of Pilot 2	16/06/23
5	Pilot 7 Technical Requirements Extraction	This workshop focused on the extraction of technical requirements from business requirements of Pilot 7	19/06/23

*Note: During the second round of the organised co-creation workshops for the business requirements elicitation, the elicitation of the updated technical requirements also took place. These technical requirements were then asynchronously validated by all technical partners.*

### 3.3.2 Co-creation collaboration tools

For both the business requirements elicitation and the technical requirements extraction co-creation workshops, the need for tools that will enable the efficient and effective collaboration and coordination of multiple partners was identified. Hence, the consortium decided to utilise well-established online collaboration tools that will ensure the successful execution of the collaborative and structured process required for the co-creation workshops in a productive and efficient manner.

Regarding the business requirements elicitation process, the consortium decided to utilise the online collaboration platform Miro ([www.miro.com](http://www.miro.com)). Miro is an online collaborative whiteboard platform. Miro empowers remote, in-office, and hybrid teams to communicate and collaborate across formats, tools, channels, and time-zones without the constraints of physical location, meeting space, and whiteboards. Miro's features fully satisfied the goals of the co-creation workshops as it enabled the smooth collaboration of multiple partners during the definition of the business requirements. Miro enabled the interaction of the partners via the use of online boards where each partner can easily provide his/her input simultaneously while also enabling the interaction of the user via comments and notes. For the purposes of these workshops, a board has been created containing one separate table per demonstrator and different rows per use case of the demonstrator (Figure 3-4).

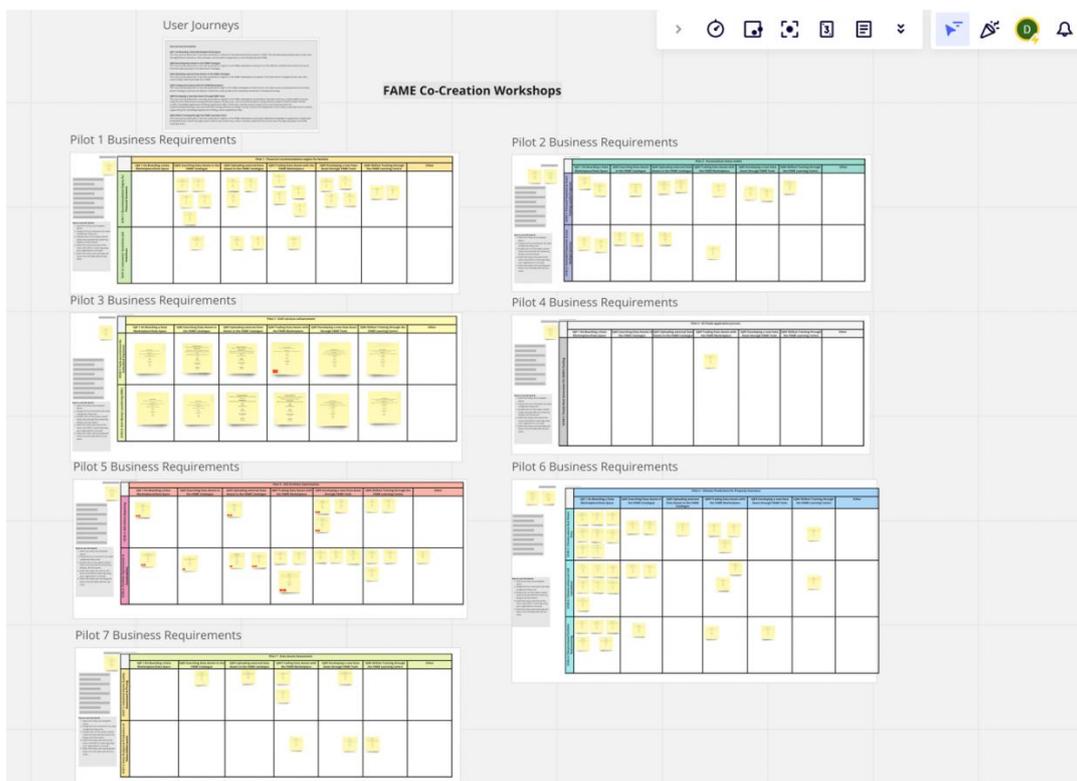


Figure 3-4 - FAME business requirements Miro boards

The concept of sticky notes has been utilised in order to collect the required input per business requirement. As presented in Figure 3-5, the template documented in 3.2.4 has been transformed into a sticky note template which all partners utilised in order to provide their input. In addition to the above, a set of guidelines were provided on each table of the board in order to assist the partners to provide their input.

**Business Objective:**  
Increase the accuracy of retail recommendations

**Requirement:**  
i.e. FAME should optimize the retail recommendations algorithm

**Area:**  
Management, Marketing, Services, Sales, etc..

**Type:**  
Functional or Non Functional

**Functionality:**  
User, technical, infrastructure, other

**Priority:**  
Critical, Preferred, Optional

Figure 3-5 - Miro boards sticky notes representing business requirements

The following figures (Figure 3-6, Figure 3-7) present some indicative examples of the input collected through the Miro boards. The outcomes of these workshops were provided as input to the next series of workshops that were dedicated the technical requirements extraction.

Pilot 6 Business Requirements

Sticky note template		Pilot 6 - Climatic Predictions for Property Insurance						
		UJ#1 On-Boarding a Data Marketplace/Data Space	UJ#2 Searching Data Assets in the FAME Catalogue	UJ#3 Uploading external Data Assets in the FAME Catalogue	UJ#4 Trading Data Assets with the FAME Marketplace	UJ#5 Developing a new Data Asset through FAME Tools	UJ#6 Skillset Training through the FAME Learning Centre	Other
<p><b>Sticky note template:</b></p> <p><b>Business Objective:</b> What the organisation expects to achieve?</p> <p><b>Requirement:</b> What does the organisation wants to do?</p> <p><b>Area:</b> Management, Marketing, Services, Sales, etc..</p> <p><b>Type:</b> Functional or Non Functional</p> <p><b>Functionality:</b> User, technical, infrastructure, other</p> <p><b>Priority:</b> Critical, Preferred, Optional</p> <p><b>How to use the board:</b></p> <ol style="list-style-type: none"> <li>Select the sticky note template above</li> <li>Using Ctrl-D (or Command-D) create a duplicate sticky note</li> <li>Double-click on the newly created sticky note and edit the content by filling in all information</li> <li>Select the sticky note and on the menu click Add to create tag using your organisation's acronym</li> <li>Select the sticky note and drag and drop it into the table with the use cases</li> </ol>	UC#6.1: Climate-aware Real Estate Price							
	UC#6.2: Climate-aware VR Calculation							
	UC#6.3: Climate-based Portfolio Restructuring							

Figure 3-6 - Miro boards business requirements example (1)

Pilot 5 Business Requirements

Sticky note template		Pilot 5 - ESG Portfolio Optimization						
		UJ#1 On-Boarding a Data Marketplace/Data Space	UJ#2 Searching Data Assets in the FAME Catalogue	UJ#3 Uploading external Data Assets in the FAME Catalogue	UJ#4 Trading Data Assets with the FAME Marketplace	UJ#5 Developing a new Data Asset through FAME Tools	UJ#6 Skillset Training through the FAME Learning Centre	Other
<p><b>Sticky note template:</b></p> <p><b>Business Objective:</b> What the organisation expects to achieve?</p> <p><b>Requirement:</b> What does the organisation wants to do?</p> <p><b>Area:</b> Management, Marketing, Services, Sales, etc..</p> <p><b>Type:</b> Functional or Non Functional</p> <p><b>Functionality:</b> User, technical, infrastructure, other</p> <p><b>Priority:</b> Critical, Preferred, Optional</p> <p><b>How to use the board:</b></p> <ol style="list-style-type: none"> <li>Select the sticky note template above</li> <li>Using Ctrl-D (or Command-D) create a duplicate sticky note</li> <li>Double-click on the newly created sticky note and edit the content by filling in all information</li> <li>Select the sticky note and on the menu click Add to create tag using your organisation's acronym</li> <li>Select the sticky note and drag and drop it into the table with the use cases</li> </ol>	UC#5.1: ESG Online Reporting							
	UC#5.2: Portfolio Optimisation & Sustainability							

Figure 3-7 - Miro boards business requirements example (2)

For the technical requirements extraction, the consortium decided to utilise the online spreadsheets of Excel offered by Microsoft SharePoint. Due to the nature of the information included in technical requirements, the structure of online spreadsheets facilitate the collection of such information in a more clear and organised manner. A template has been created and shared among the partners in order to collaboratively through a series of online workshop fill in the details of the technical requirements going on one by one on the collected business requirements. The following figures (Figure 3-8, Figure 3-9) display some indicative examples of the input collected through the Excel online spreadsheet.

Technical Req ID	Priority	As a ...	I want to ..	So That ..	Acceptance / Success Criteria
TR1	Preferred	data provider (including data spaces/data marketplaces owners)	assess the quality of my data assets	I can validate their applicability for predictive analytics	metrics/quality dimension (completeness, timeliness, validity, etc.)
TR2	Preferred	data provider (including data spaces/data marketplaces owners)	be able to assign a quality score to each of my data assets	I can compare them among them and give them a price	quality score comparison between raw and processed data
TR3	Preferred	data provider (including data spaces/data marketplaces owners)	estimate the value of each data asset used for maintenance	I can assign them an indicative pricing	provision of a model/calculation based on the effort spent for the QA process (WP4 to assist in defining specific pricing models)
TR4	Preferred	data provider (including data spaces/data marketplaces owners)	to compare the performance of new analytical models against the existing ones already in use	I can compare performance of new models against existing ones	the platform offers the tools to compare the models in use with the suggested new models e.g. by selecting specific periods in the time series and comparing results in order to assess their performance
TR5	Preferred	data provider (including data spaces/data marketplaces owners)	Make my industrial data assets available through FAME under my preferred license schemes	I can re-purpose/reuse/sell data assets for industrial maintenance	during dataset uploading process, the user will be able to select from a list various relevant licensing schemes
TR6	Critical	software developer	use tools that the platform has to offer to achieve more accurate prediction results	FAME as a platform offers tools to obtain more precise predictions in the scope of preventive/predictive maintenance and improve the overall equipment effectiveness (OEE)	FAME's trusted analytics and energy-efficiency toolkit will be able to process federated datasets stored in MOH's infrastructure
TR7	Preferred	data analyst	to perform data curation on my data assets	I can increase the utilization of the available data assets for predictive maintenance purposes	Find relevant results based on keywords and other meta-data using the FAME search engine

Figure 3-8 - Technical requirements in SharePoint (1)

Technical Req ID	Priority	As a ...	I want to ..	So That ..	Acceptance / Success Criteria
TR1	Preferred	application provider	be able to request a trial version of the data asset	I evaluate it and decide to purchase it later on	As a user I am able to request and get access to a trial version of the data asset via a sample
TR2	Critical	data provider (including data spaces/data marketplaces owners)	be able to trade produced data assets	I can monetize the produced by FAME results	As a user I am able to trade in FAME marketplace my data assets that are produced through FAME tools
TR3	Critical	data provider (including data spaces/data marketplaces owners)	be able to replicate a data asset	I can create different versions of the data assets I own	As a user I am able to create a copy of my data asset and create a new version of it
TR4	Critical	data provider (including data spaces/data marketplaces owners)	have a version control of my data assets	I can track changes on my data assets	As a user I am able to create, management and check the different versions of my data assets
TR5	Critical	data analyst	search and explore the data assets of the marketplace via an intelligent way (i.e. filters, keywords, metadata, word combination..)	I can easily and effectively discover what I am interested in	As a user I am able to search and discover data assets using multiple search ways
TR6	Preferred	data analyst	to be able to discuss, review and comment on a data asset	I decide if I will purchase the data asset	As a user I am able to review and comment on a data asset
TR7	Preferred	data provider (including data spaces/data marketplaces owners)	to be able to automatically update data assets with new data via a streaming mechanism	I can create a new version of my data asset	As a user I am able to upload new data via new streaming data on my data assets and create a new version of it
TR8	Optional	data provider (including data spaces/data marketplaces owners)	to be able to automatically update data assets with new data via a file upload mechanism	I can create a new version of my data asset	As a user I am able to upload new data via new files on my data assets and create a new version of it

Figure 3-9 - Technical requirements in SharePoint (2)

## 4 FAME Generic Requirements

### 4.1 Overview

As described in Section 2, Generic Requirements concern the functional and non-functional requirements that a system is designed to support. These requirements define the system's behavior and describe the interactions between the system and its users or other systems. Towards eliciting the Generic Requirements within the context of FAME, the main tool used was the Document Analysis methodology, during which the Description of Action was analysed by the consortium partners so as to safeguard that all aspired functionalities laid down in the document during the proposal conceptualization phase will be properly taken into consideration so that they will be evaluated by the technical partners responsible for implementing and delivering them. Furthermore, consortium partners have engaged in comprehensive internal discussions, incorporating invaluable feedback from stakeholders through a series of mini-workshops and other collaborative efforts. These interactions have played a pivotal role in refining and enhancing the development of this specific deliverable, to ensure its alignment with the project's objectives and stakeholders' expectations. This iterative process of consultation and feedback integration highlights the project's commitment to adaptability, stakeholder engagement, and the pursuit of excellence in achieving its goals. In the following paragraphs the list of elicited FAME Generic Requirements is presented in the form of tables. With respect to previous versions of this deliverable new status, comments and previous requirement ID columns were introduced to accommodate the evolving nature of the requirements. The table format is composed by the following information:

- ⟨ **Requirement ID:** The unique identifier for each business requirement is composed by the pilot number (i.e., P1, P2, etc.) and incremental number. In this column and after a significant change with respect to the original requirement has been made, a new Requirement ID is generated by using the same identifier followed by a “\_R” at the end.
- ⟨ **System Requirement:** The description of the requirement the system needs to address.
- ⟨ **Type:** Functional or Non-functional requirement type.
- ⟨ **Functionality:** The category of the business need.
- ⟨ **Priority:** The assigned priority of the requirement.
- ⟨ **Status:** The status of the requirement with respect to the previous version. This column indicates whether a particular business requirement has remained unchanged, revised or been created as new.
- ⟨ **Comments:** Any comments made that define further the current situation of information presented with respect to previous versions.
- ⟨ **Previous Requirement ID:** The unique identifier of each business requirement that maps a revised Requirement ID back to its previous ID.

Table 7 - Generic Requirements

Req. ID	System Requirement	System Requirement Description	Assoc. Task	Type	Functionality	Priority	Status	Previous Req. ID
GR_001	Deliver a user dashboard	Design and deliver a user dashboard through which a user can view his/her own assets and identify additional assets.	T2.4	Functional	User	Critical	Unchanged	N/A
GR_002	Support federated identity management	Support self-sovereign identities and access to assets from federated marketplaces.	T3.1	Functional	User, Technical	Critical	Unchanged	N/A
GR_003	Support interfaces for data assets trading, pricing, and data policy management	Develop and/or enhance interfaces to support interfaces for data assets trading, pricing and data policy management based on various data exchange models and ontologies.	T3.1	Non-Functional	Technical, Infrastructure	Critical	Unchanged	N/A
GR_004	Support asset policy management (/Ensure the sovereignty of the data being traded)	Support the management and enforcement of asset access policies in the FAME federated asset space, including asset access and visibility restrictions based on defined criteria (including e.g., organization type, user role, locality etc.).	T3.2	Functional	User, Technical	Critical	Unchanged	N/A
GR_005	Support access to external asset policies	Support access to the security policies of the underlying data marketplaces and data spaces.	T3.2	Non-Functional	Technical	Critical	Unchanged	N/A
GR_006	Support consolidation of asset access policies	Support the consolidation of asset access policies at the level of the FAME federated asset space.	T3.2	Non-Functional	Technical	Critical	Unchanged	N/A

<b>GR_007</b>	Support mapping of external asset access policies to FAME asset access policies	Support the mapping of FAME policies to the lower-level policies of the underlying providers.	T3.2	Non-Functional	Technical	Critical	Unchanged	N/A
<b>GR_008</b>	Support identification / discovery of assets	Support searching and filtering of assets from various federated data sources and marketplaces, including unstructured, semi-structured and fully-structured assets, so that users will be able to discover assets across different marketplaces and spaces.	T3.3	Functional	User, Technical	Critical	Unchanged	N/A
<b>GR_009</b>	Support (federated) asset acquisition / export / local download	Support (federated) discovered asset acquisition / export / local download from the different marketplaces and spaces.	T3.3	Functional	User, Technical	Critical	Unchanged	N/A
<b>GR_010</b>	Support the modelling and transformation of the federated assets to the FAME ontologies and models for EmFi	Support the modelling and transformation of the various federated assets from the formats and semantics of the individual underlying marketplaces and data spaces, to the FAME ontologies and models for EmFi, linking existing ontologies of the finance sector with ontologies from other sectors (e.g., retail, smart cities, healthcare) in-line with the requirements of embedded finance use cases.	T3.3 T3.4	Functional	Technical	Critical	Unchanged	N/A

<b>GR_011</b>	Support (EmFi-related) regulatory compliance of assets	Specify and implement security policies and data policies that will boost the compliance of data assets to applicable regulations in EmFi use cases.	T3.5	Functional	Technical	Critical	Unchanged	N/A
<b>GR_012</b>	Support provenance and traceability assets and	Deliver a baseline blockchain infrastructure which will be used for data assets provenance and traceability, while serving as a basis for supporting the trading and monetization schemes.	T4.1	Functional	Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_013</b>	Support writing and querying the metadata of assets	Deliver APIs for writing and querying the metadata of the assets included / indexed in the federated catalogue.	T4.1	Functional	User, Technical	Critical	Unchanged	N/A
<b>GR_014</b>	Support (dynamic) asset trading schemes	Leverage the data assets' metadata to produce various trading schemes to facilitate their monetization. It should enable configurability in terms of trading and monetization schemes i.e., enable the FAME federated asset space operator(s) to activate different schemes for different users, communities, collections of data assets and other granularities.	T4.2	Functional	User, Technical	Critical	Unchanged	N/A
<b>GR_015</b>	Support (dynamic) asset monetization and pricing schemes	Leverage the data assets' metadata to produce various pricing and monetization schemes (based on discrete dynamic pricing criteria). It	T4.2	Functional	User, Technical	Critical	Unchanged	N/A

		should leverage metadata information including metadata about the completeness, the volume, the quality, the timeliness. It should implement dynamic market mechanisms that will change the price of the data asset according to the demand for it in the scope of the marketplace.						
<b>GR_016</b>	Support trading and pricing of data assets	Design and implement (over a blockchain infrastructure) trading and pricing of (federated) assets, including support for (dynamic) asset trading, pricing, and monetization schemes.	T4.3	Functional & Non-Functional	Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_017</b>	Support token-based configurability of tokens	Design and implement programmable and configurable Smart Contracts enabling encoding hybrid trading and pricing rules based on tokens.	T4.3	Functional	Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_018</b>	Support semantic search of federated assets	Support semantic search over the federated FAME catalogue.	T4.4	Functional	User, Technical	Critical	Unchanged	N/A
<b>GR_019</b>	Support dynamic ranking of semantically discovered federated assets	Support schemes for ranking the results according to relevance and value-based attributes of the data assets.	T4.4	Functional	Technical	Critical	Unchanged	N/A
<b>GR_020_R</b>	Support operational and governance models	Implement the technical infrastructure for supporting the specified Operational and	T4.5	Non-Functional	Technical, Infrastructure	Critical	Updated-Description changes	GR020

		governance models, including support for users' registration, management of subscriptions, management of pay-as-you-go, Data-as-a-Service schemes and more. The system is designed to offer a seamless user experience with efficient onboarding, dynamic subscription management, and a focus on scalability, security, and regulatory compliance to establish a robust foundation for operational and governance frameworks in the marketplace.						
<b>GR_021</b>	Support the identification and acquisition of AI/ML techniques for EmFi use cases	Specify, implement, and make available in the marketplace a library of AI/ML techniques for EmFi use cases. It will comprise classical ML techniques and most popular deep learning techniques.	T5.1	Functional	User, Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_022</b>	Support (federated) (training and) execution of analytics (AI) services	Support (training and) execution of analytics (AI) services that are deployed and hosted on federated / cloud infrastructures. The federated AI services should be accessible and customizable through the FAME federated asset space while physically deployed and hosted outside of FAME. The federated AI services should be able to securely receive a	T5.5	Functional	User, Technical, Infrastructure	Preferred	Unchanged	N/A

		configuration and/or input file and securely return the output of the analysis to the requestor.						
<b>GR_023_R</b>	Support the identification and acquisition of (federated) AI-based models that are appropriate for supporting incremental analytics	The library of AI/ML techniques for EmFi use case should include AI-based models that are appropriate for supporting incremental analytics.	T5.1 and T5.3	Functional	User, Technical, Infrastructure	Optional	Updated-Priority Change	GR_023
<b>GR_024_R</b>	Support the identification and acquisition of (federated) AI-based models that can be explained (/Support explainability of developed / executed AI services)	The library of AI/ML techniques for EmFi use case should include AI-based models that can be explained based on the FAME XAI techniques.	T5.1 and T5.2	Functional	User, Technical, Infrastructure	Optional	Updated-Priority Change	GR_024
<b>GR_025_R</b>	Support scoring the explainability of the different models	Specify and implement a framework for scoring the explainability of the different models towards comparing alternative approaches, balancing performance vs. explainability trade-offs.	T5.2	Functional	User, Technical	Optional	Updated-Priority Change	GR_025
<b>GR_026_R</b>	Support Situation-Aware Explainability (SAX)	Support Situation-Aware Explainability (SAX), considering casual sequencing and constraints, broader context information (e.g., temporal) behind decisions, as well as	T5.2	Functional	User, Technical	Optional	Updated-Priority Change	GR_026

			inferential association between subsequent process enactments.						
<b>GR_027_R</b>	Support Incremental Analytics		Support Incremental Analytics, providing mechanisms that incrementally and continually compute (real-time / run-time) results of analytical query operations over values computed by the previous snapshot.	T5.3	Functional & Non-Functional	User, Technical, Infrastructure	Mandatory	Updated-Priority and Description Change	GR_027
<b>GR_028_R</b>	Support Energy Efficient Analytics		Perform analytical query processing with reduced energy consumption compared to the vanilla implementation of the technology, since it should be able to perform query operations with reduced I/O and data transfer needs.	T5.3	Non-Functional	Technical, Infrastructure	Optional	Updated-Priority Change	GR_028
<b>GR_029</b>	Monitor carbon footprint of analytical query operations		The incremental analytics component should be able to provide an estimation of the I/O accesses, data transfer and CPU consumption, in order for this information to be used to calculate the overall CO2 required consumption	T5.3	Functional	Technical Infrastructure	Optional	New	N/A
<b>GR_030_R</b>	Support deployment configurations that optimize emissions	the of that CO2	Based on the assignment of cloud edge applications in different profiles provide deployment configurations that optimize CO2 emissions without compromising the	T5.4	Non-Functional	Technical, Infrastructure	Optional	Updated-Priority Change	GR_030

			functionality and the expected performance of the UC.						
<b>GR_032</b>	Support organization onboarding		Provide the means for the registration of an organization in FAME so that the organization is able to share own (federated) assets.	T4.5	Functional	User, Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_033</b>	Support asset index		Provide the means for a registered organization in FAME to index its own assets on FAME federated asset space.	T3.3	Functional	User, Technical, Infrastructure	Critical	Unchanged	N/A
<b>GR_034</b>	Support suggestion	asset	Support the suggestion of similar assets.	T4.4	Functional	User	Optional	Unchanged	N/A
<b>GR_035</b>	Support asset request		Support communication with asset owners towards requesting similar and/or enhanced and/or customized / personalized assets.	T2.4	Functional	User	Optional	Unchanged	N/A
<b>GR_036</b>	Support asset review		Support reviewing assets available through the marketplace leaving feedback for both the asset owners and for the asset consumers.	T3.3	Functional	User, Technical	Preferred	Unchanged	N/A
<b>GR_037</b>	Support curation	asset	Support the various processes associated with asset curation, including yet not limited to asset cleaning, asset anonymization, asset integration, asset transformation, asset versioning etc.	T3.4	Functional	User, Technical	Preferred	Unchanged	N/A
<b>GR_038</b>	Provide educational & training content		Support the provision of educational content through	T7.4	Functional	User	Preferred	Unchanged	N/A

			e.g., training courses, webinars, white papers etc.						
<b>GR_039_R</b>	Ensure sovereignty of data	the FAME	Mechanisms to ensure data usage control policies	T3.2	Functional	Infrastructure	Critical	Revised	P1_BR8
<b>GR_040_R</b>	Enrich Marketplace	FAME	Permit data asset download from the marketplace	T3.2	Functional	Technical	Critical	Revised	P1_BR26
<b>GR_041_R</b>	Comply with regulation	with	Ensure a way to manage and enforce policies at a federation level	T3.2	Functional	User	Critical	Revised	P1_BR32
<b>GR_042_R</b>	Ensure sovereignty of data being traded	the FAME	Mechanisms to ensure usage control policies of the data being traded	T3.2	Functional	Infrastructure	Critical	Revised	P2_BR7 P2_BR15 P6_BR8 P6_BR24 P6_BR32 P7_BR4 P7_BR12
<b>GR_043_R</b>	Increase Trustworthiness of AI models	of AI	Provide explanations of AI/ML model results in proper form	T5.2	Non-Functional	User	Preferred	Revised	P7_BR15
<b>GR_044</b>	Visualization of processes and services status	of and	Provide a front-end user interface as a point of entry to the system	T2.4	Functional	User	Critical	New	N/A
<b>GR_045</b>	Protection and management of personal identities	and of	Facilitate authentication and authorization in a federated way for user to be verified and use the system facilities.	T3.1	Functional	User	Optional	New	N/A
<b>GR_046</b>	Data asset traceability		Provide provenance and traceability for data. The users would be able to access	T4.1	Functional	User	Optional	New	N/A

			provenance and trace the data flow						
<b>GR_047</b>	Data classification and categorization	asset and	Provide data access catalogue for easy access	T2.4	Functional	User	Optional	New	N/A
<b>GR_048</b>	Capability for searching data assets with easy access and usability.		Provide a ranked-based search engine for easy access and usability	T4.4	Functional	User	Optional	New	N/A
<b>GR_049</b>	Common language for accurate and reliable communication among computers.		Create a common data model and structures in the form of formal vocabulary that paves the way for accurate and reliable communication among computers.	T3.4	Functional	User	Optional	New	N/A
<b>GR_050</b>	Optimization and optimal system operability.		Energy efficient analytics optimizing the system operability.	T5.3	Functional	User	Optional	New	N/A
<b>GR_051</b>	Utilization of AI/ML analytics to facilitate and optimize the output of system evaluations		Improve the efficiency and accuracy of system evaluations, leading to better decision-making and outcomes	T5.1	Functional	User	Optional	New	N/A

## 4.2 Generic Requirements backlog

The presented tables constitute the current version of the FAME Generic Requirements backlog on M18. It contains all the collected and elicited Generic Requirements stemming mainly from the Description of Action of FAME, as well as from the functionalities supported by well-established marketplaces, including yet not limited to SecureIoT, FINSEC Marketplace, INFINITECH Marketplace, PolicyCLOUD Data Marketplace and more. Nevertheless, should additional Generic Requirements arise, or the existing ones be updated and/or refined, the current FAME Generic Requirements backlog will also be updated online on the project's repository, so that these updates are documented, despite D2.5 constituting the final version of this deliverable series.

## 5 FAME Pilot Specific (Business) Requirements

### 5.1 Overview

As described in Section 2.1, business requirements should clearly define the business need of the stakeholder by documenting what is needed from the system along with the success criteria that will be used for the stakeholder acceptance process. Through the organised co-creation workshops that were presented in Section 2.2, a series of business requirements were collected from the FAME stakeholders.

In the following paragraphs the list of elicited business requirements per FAME demonstrator is presented in the form of tables. Similarly to the generic requirements in chapter 4, this chapter also introduces a new status, comments, and previous requirement ID column to accommodate the evolving nature of the business requirements and log further considerations made. The table format is composed by the following information (based also in the template presented in Section 2.1):

- ⟨ **Requirement ID:** The unique identifier for each business requirement is composed by the pilot number (i.e., P1, P2, etc.) and incremental number. In this column and after a significant change with respect to the original requirement has been made, a new Requirement ID is generated by using the same identifier followed by a “\_R” at the end.
- ⟨ **Use Case ID:** The pilot’s use case number per the FAME DoA.
- ⟨ **Business Objective:** The description of a specific business objective of the pilot
- ⟨ **Business Requirement:** The description of the business requirement of the pilot
- ⟨ **Area:** The business area that the requirement is applicable
- ⟨ **Type:** Functional or Non-functional requirement type
- ⟨ **Functionality:** The category of the business need
- ⟨ **Priority:** The assigned priority of the requirement.
- ⟨ **Status:** The status of the requirement with respect to the previous version. This column indicates whether a particular business requirement has remained unchanged or revised.
- ⟨ **Comments:** Any comments made that define further particular changes of information presented with respect to previous versions.
- ⟨ **Previous Requirement ID:** The unique identifier of each business requirement that maps a revised Requirement ID back to its previous ID.

## 5.2 Pilot 1 business requirements

The scope of Pilot 1 is to develop analytics on top of an extensive pool of data assets from the pilot's ecosystem. UC1 aims to create a powerful recommendation engine for families and customize the user experience of pilot's clients as well as to develop more user-friendly consumer interfaces to provide these recommendations. UC2 aims to generate different customer profiles, based on consumer data, and cross them with instalment risk, leveraging and enlarging the scope of Buy Now Pay Later solutions implementation. It is intended to use analytical tools to support customer profiling and use ML techniques to develop a scoring risk model on installment availability. In the following table, the details of the collected business requirements stemming from Pilot 1 are presented.

Table 8 - Pilot 1 business requirements

<b>Business Req. ID</b>	<b>Use Case ID</b>	<b>Business Objective</b>	<b>Business Requirement</b>	<b>Area</b>	<b>Type</b>	<b>Functionality</b>	<b>Priority</b>	<b>Status</b>	<b>Comments</b>	<b>Previous Business Req.ID</b>
<b>P1_BR1_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Mechanisms to handle returns or disputes. (e.g. bad data asset quality, not as expected)	Sales	Functional	User	Preferred	Revised	Objective and Requirement change	<b>P1_BR1</b>
<b>P1_BR2_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs.	Allow trading data assets, including those created through FAME tools (e.g. I publish a data asset inside my private federation, transform it using FAME analytical tools into-Y into Z and trade Z publicly)	Sales	Functional	User	Preferred	Revised	Objective, Requirement, Area and Priority change	<b>P1_BR2</b>
<b>P1_BR3_R</b>	UC1	Find relevant data assets for the recommender system and monetize output	Support parametrization of transformation pipelines (ex: ML, anonymization, and	IT	Functional	Technical	Optional	Revised	Objective and Requirement change	<b>P1_BR3</b>

			whichever tools become available) in order to replicate the steps with new data updates							
<b>P1_BR4_R</b>	UC1	Find relevant data assets for the recommender system and monetize output	Searching and filtering capabilities, including unstructured data. Nice-to-have would be, intelligent search and not only keyword based as in classical engines e.g. "find me data about consumption patterns in Europe in 2023"	Data	Functional	User	Critical	Revised	Objective and Requirement change	<b>P1_BR4</b>
<b>P1_BR5_R</b>	UC1	Find relevant data assets for the recommender system and monetize output.	Allow for discussing, reviewing and inquiring about data assets	Data	Functional	User	Preferred	Revised	Objective and Requirement change	<b>P1_BR_5</b>
<b>P1_BR6_R</b>	UC1	Find relevant data assets for the recommender system and monetize output	Allow publishing new data as it becomes available, possibly in streaming (to be also consumed in streaming by acquires)	Data	Functional	Technical	Optional	Revised	Objective and Requirement change	<b>P1_BR_6</b>
<b>P1_BR9_R</b>	UC1	Train finance sector professionals on customers'	Provide training materials on how to use the platform and its tools (tutorials, Webinars, How-to	Training	Non-Functional	User	Optional	Revised	Objective, Area and Priority change	<b>P1_BR_9</b>

		profiling mechanisms	videos, Jupyter notebooks etc)								
<b>P1_BR11_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Provide statistics about data asset usage, views and downloads	Sales	Functional	User	Optional	Revised	Use case. Objective, Requirement and Area change	<b>P1_BR_11</b>	
<b>P1_BR12_R</b>	UC1	Comply with regulation	Trace each data asset to its origin when possible (e.g. column A comes from dataset B and is a sum of column C from dataset D and E, uploaded by X)	Data	Functional	User	Preferred	Revised	Requirement and Priority change	<b>P1_BR_12</b>	
<b>P1_BR13</b>	UC1	Comply with regulation	Restrict data access and visibility	IT	Functional	Technical	Optional	Unchanged	-	N/A	
<b>P1_BR14</b>	UC1	Comply with regulation	Tools that automatically anonymize data (ex: aggregations)	Compliance	Functional	User	Optional	Unchanged	-	N/A	
<b>P1_BR15_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Allow for buying fractional parts of data assets, possibly at reduced price (e.g. cost per row)	Data	Functional	User	Preferred	Revised	Objective and Requirement change	<b>P1_BR15</b>	

<b>P1_BR16_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Allow for requesting data assets to other entities in FAME	Data	Functional	User	Optional	Revised	Objective, Requirement and Priority change	<b>P1_BR16</b>
<b>P1_BR17_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Provide estimates of data asset value, based on similar data assets	Sales	Functional	User	Optional	Revised	Objective change	<b>P1_BR17</b>
<b>P1_BR18_R</b>	UC1	Find relevant data assets for the recommender system and monetize outputs	Recommend related data assets to the one currently being viewed	Data	Functional	User	Optional	Revised	Objective and requirement change	<b>P1_BR18</b>
<b>P1_BR19</b>	UC1	Monetize data assets	Support continuous updates	IT	Functional	Technical	Optional	Unchanged	-	N/A
<b>P1_BR20_R</b>	UC2	Understand dataset usage	Provide statistics about data asset usage, views, and downloads	Sales	Functional	Technical	Optional	Revised	Requirement and Area change	<b>P1_BR_20</b>
<b>P1_BR21_R</b>	UC2	All participants having the ability access FAME data marketplace	Allow for uploading data to the marketplace and monitor data usage by other marketplace users	Data, Credit	Functional	Technical	Critical	Revised	Requirement change	<b>P1_BR_21</b>
<b>P1_BR23_R</b>	UC2	Search Data regarding similar Credit and instalment services usage	Filter aggregated or individual data that could be useful to our analytics and	Product Development	Functional	User	Preferred	Revised	Objective change	<b>P1_BR_23</b>

				management team to explore and analyse							
<b>P1_BR24_R</b>	UC2	Search Data regarding similar Credit and instalment services usage	Allow data export to explore it in—private data analytical tools	Product Development	Functional	User	Preferred	Revised	Objective and Requirement change	<b>P1_BR24</b>	
<b>P1_BR25_R</b>	UC2	Search Data regarding similar Credit and instalment services usage	Allow project participants to interact to share knowledge and data clarification	Product Development	Functional	User	Preferred	Revised	Objective and Requirement change	<b>P1_BR25</b>	
<b>P1_BR29</b>	UC1	Generate the best recommendations for existing customers based on historical data	Train a recommender system based on historical data about customers and their behaviour	ML	Functional	User	Critical	New	-	N/A	
<b>P1_BR30</b>	UC1	Generate the best recommendations for existing customers based on historical data	Explain the recommendations of the recommender system, or any other model employed	ML/SAX	Functional	User	Critical	New	-	N/A	
<b>P1_BR31</b>	UC1	Comply with regulation	Tools that can generate new data assets containing synthetic data generated from other privately owned data assets	Compliance	Functional	Technical	Preferred	New	-	N/A	
<b>P1_BR33</b>	UC2	Generate customer profiles, through FAME tools	Through FAME analytical tools, analyze customer data and identify different customer profiles (e.g.:	Data, Product Development	Functional	Technical	Critical	New	-	N/A	

				Profile customer by age, gender, location, profession. Card type etc)							
<b>P1_BR34</b>	UC2	Generate customer profiles, through FAME tools		Cross various dimensions based on customer profile or merchant business type	Data, Product Development	Functional	Technical	Critical	New	-	N/A
<b>P1_BR35</b>	UC2	Generate an installment risk model		FAME tools should be able to create a scoring ML model to predict instalment risk	Data, Product Development	Functional	Technical	Critical	New	-	N/A
<b>P1_BR36</b>	UC2	Generate an installment risk model		Analytical tools should be able to consume data to predict product consumption and friction points.	Data, Product Development	Functional	Technical	Preferred	New	-	N/A
<b>P1_BR37</b>	UC2	Generate an installment risk model		Analytical tools should be able to cross product risk with other similar products	Data, Product Development	Functional	Technical	Optional	New	-	N/A
<b>P1_BR38</b>	UC2	Search Data regarding similar Credit and instalment services usage		Include in the FDAC relevant data to support customer profiles generation	Product Development	Functional	User	Preferred	New	-	N/A
<b>P1_BR39</b>	UC2	Search Data regarding similar Credit and instalment services usage		Include in the FDAC relevant data to support instalment risk ML model development	Product Development	Functional	User	Preferred	New	-	N/A

### 5.3 Pilot 2 business requirements

The scope of Pilot 2 is to develop novel EmFi services in an urban context, where data from smart services are used to provide additional finance related services. To this end, Pilot 2 will create citizen's EmFi profile by leveraging existing parking data, onboarding other behavioural data of citizens and by using citizens profiles to generate and provide personalised citizen-centric offers and recommendations. On the other hand, Pilot 2 will extend citizen wallet to a broader range of services such as transportation services, payments of fines, etc. In the following table, the details of the collected business requirements stemming from Pilot 2 are presented.

Table 9 - Pilot 2 business requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status	Comments	Previous Business Req. ID
<b>P2_BR1_R</b>	UC1 - UC2	Generate a citizen profile.	Analyse historical data and generate profiles based on parking localities	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised	Use case, Objective and Requirement change	<b>P2_BR1</b>
<b>P2_BR2</b>	UC1	Request data from other organisations that have loyalty programs in order to analyse the rewarding mechanisms	Offer data assets of 3rd parties related with loyalty programs for evaluating current rewarding systems	Parking Management, Marketing	Functional	User, technical, infrastructure,	Preferred	Unchanged	-	N/A
<b>P2_BR3_R</b>	UC1 - UC2	Acquire knowledge and training on the platform so as to leverage the city's IT	Offer training feature (e.g., webinars, user guide, MOOCs, online training sessions etc)	Public administration, management	Functional	User, technical, infrastructure,	Critical	Revised	Use case change	<b>P2_BR3</b>

		personnel competencies								
<b>P2_BR4_R</b>	UC1 - UC2	Request and analyse data from other organizations to improve municipal services.	Offer data assets of municipalities related with their services	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised	Use Case and Objective change	<b>P2_BR4</b>
<b>P2_BR5_R</b>	UC1	Reduce the costs that refer to the management of the parking system of the city	Provide analytics of parking transaction data in order to utilize the parking areas from municipal police	Parking Management, Marketing	Functional	technical, infrastructure,	Preferred	Revised	Requirement change	<b>P2_BR5</b>
<b>P2_BR6_R</b>	UC1 - UC2	Generate a citizen profiling.	Analyse historical data and generate profiles based on parking time duration	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised	Use Case, Objective and Requirement change	<b>P2_BR6</b>
<b>P2_BR8_R</b>	UC1	Reduce costs that refer to the management of the parking system of the city	Offer a view of correlated data and usable visualizations for a city employee	Public administration	Functional	User, technical	Critical	Revised	Objective change	<b>P2_BR8</b>
<b>P2_BR9_R</b>	UC1	Provide personalized	Provide recommendation for discount based	Public administration,	Functional	User, technical	Critical	Revised	Objective and Requirement	<b>P2_BR9</b>

		citizen services (discount)	on historical data and citizen profiling	management					ent change	
<b>P2_BR11_R</b>	UC1 - UC2	Generate citizen profiling.	a Analyse historical data and generate day-time parking profiles.	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised	Use case, Objective and Requirement change	<b>P2_BR11</b>
<b>P2_BR12_R</b>	UC2	Extend financial services providing a pricing scheme.	a Foresee parking demand based on historical data	Parking Management, Marketing	Functional	User, technical, infrastructure,	Preferred	Revised	Objective and Requirement change	<b>P2_BR_12</b>
<b>P2_BR13</b>	UC2	Offer citizen wallet to citizens	Develop a citizen wallet for citizens to consume services in one app	Marketing	Functional	User	Critical	Unchanged	-	<b>P2_BR_13</b>
<b>P2_BR16</b>	UC1 - UC2	Monetize offered data sets	Allow for municipality/citizen parking data trading with external organizations	Data	Functional	User	Optional	New	-	N/A
<b>P2_BR17</b>	UC1	Provide personalized citizen services (park and ride)	Provide data analysis enhanced with external entities to support recommendations for parking points.	Public administration, management	Functional	Public administration, management	Preferred	New	-	N/A
<b>P2_BR18</b>	UC1 - UC2	Monetize offered data sets	Provide statistics about the dataset usage	Data	Functional	User	Optional	New	-	N/A

## 5.4 Pilot 3 Business requirements

The scope of Pilot 3 is to demonstrate how the federation of customer data from different sources can increase the accuracy of embedded payments solution by enabling a facts-as-a-service paradigm. Specifically, the pilot will integrate, link, and analyse data from different organizations (i.e., payment providers, banks, EmFi providers) within the federate FAME marketplace. Two UCs will be implemented:

UC1 – Pay Facts-as-a-Service for Embedded Payments: This use case will produce new data assets that will be sold as “facts” to embedded finance services providers through the FAME marketplace. The FAME analytical tools (XAI, Energy Efficient Analytics, FML) will be used over datasets from multiple payment providers (incl. BOI, BPFI), as well as alternative data sets (e.g., news, blogs, social media). EmFi providers will be able to locate these insights, pay for them and use them to develop their own services. The FAME marketplace will ensure that data from the various services are consolidated and accessible (FDAC) and fair priced through blockchain smart contracts.

UC2 – Anti Money Laundering (AML) as a Service: This use case will implement an AML service based on the identification of potential links to fraudulent payments or other criminal activities. The service will be made available to EmFi application developers and services providers in order to facilitate their AML checks. In the following table, the details of the collected business requirements stemming from Pilot 3 are presented.

Table 10 - Pilot 3 business requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status	Comments	Previous business Req ID
P3_BR1	UC1 - UC2	Enable Multi-factor Authentication for data security	Verify the identity of a user, device, or system attempting to access a particular resource, service, or application.	Technology / Integration	Functional	Management	Critical	New	-	N/A
P3_BR2	UC1 - UC2	Specifying and enforcing the permissions, privileges, and roles that different users or entities	Implement the process that determines what actions or resources that entity is allowed to access within the system.	Technology / Integration	Functional	Management	Critical	New	-	N/A

<b>P3_BR3</b>	UC1 - UC2	Open-ID, IDM	OpenID Connect 1.0 on top of the OAuth 2.0 protocol. It allows Clients to verify the identity of the End-User based on the authentication performed by an Authorization Server, as well as to obtain basic profile information about the End-User in an interoperable and REST-like manner.	Technology / Integration	Functional	Management	Critical	New	-	N/A
<b>P3_BR4</b>	UC1 - UC2	A new type of globally unique identifier that does not require a centralized registration authority	Decentralized identifiers (DIDs) are a new type of identifier that enables verifiable, decentralized digital identity. A DID identifies any subject (e.g., a person, organization, thing, data model, abstract entity, etc.) that the controller of the DID decides that it identifies.	Technology / Integration	Functional	Management	Critical	New	-	N/A
<b>P3_BR5</b>	UC1 - UC2	DL Technology for proving decentralization, immutability, and cryptographic security.	Implement the creation of credentials that could be issued and verified without the need of a central certification authority and could be owned by the end users and directly shared with third party without involving the credential issuer.	Technology / Integration	Functional	Management	Critical	New	-	N/A

<b>P3_BR6</b>	UC1 - UC2	Self-Sovereign Services and Decentralized IDM	Implement Verifiable Credentials and access control to data, with support of decentralized system Besu, OAuth 2.0 and JSON Web Token (JWT) open standards.	Technology / Integration	Functional	Management	Preferred/Optional	New	-	N/A
<b>P3_BR7</b>	UC1 - UC2	Exchange of information with high security standards	Enable exchange of information using JSON Web Token (JWT) which is an open standard (RFC 7519) that defines a schema in JSON format for exchanging information between various services. The generated token can be signed (with a secret key that only those who generate the token know) using the HMAC algorithm or using a pair of keys (public / private) using the RSA or ECDSA standards.	Technology / Integration	Functional	Management	Preferred/Optional	New	-	N/A
<b>P3_BR8</b>	UC1 - UC2	Federated user-centric authentication with microservices	Provides authentication and authorization with distributed identity and verifiable credentials, planned two Node.js micro-services. Enables Verifiable Credential micro service providing the APIs that implement the core functions to manage	Technology / Integration	Functional	Management	Preferred/Optional	New	-	N/A

			verifiable credentials, namely issuing, verifying and revoking verifiable credentials, and a utility function. Enables the OIDC SSI Auth micro-service providing the API to perform the authorization code flow with PKCE using verifiable credentials as proof method.								
<b>P3_BR9</b>	UC1 - UC2	Use Software and Hardware Wallet	Use a wallet that stores and uses the keys that allows a user to operate with existing tokens by proving ownership of them.	Technology / Integration	Functional	Management	Preferred/Optional	New	-	N/A	
<b>P3_BR10</b>	UC1 - UC2	Open-API Specification Web 3.0. Open-API for easy and FAIR integration	Implement solution using Open-API standards to facilitate the integration and development of pilot services and applications.	Technology / Integration	Non-Functional	Management	Preferred/Optional	New	-	N/A	

## 5.5 Pilot 4 business requirements

The scope of Pilot 4 is to simplify the process for applying for Next Generation EU (NGEU) funds for companies, SMEs and self-employed in Spain through the development and validation of a specific model that will be able to provide tailor-made advice, allowing a perfect synergy between both stakeholders (bank and granted company). The advice will be provided through the creation of an optimised banking financing intervention plan (type of financing - loan, guarantee, prefinance, cofinance, time, and amount), which will be automatically generated for the financial institutions, so that they understand to which company and when to provide complementary banking financing to support the whole public funding process. In the following table, the details of the collected business requirements stemming from Pilot 4 are presented.

Table 11: Pilot 4 Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status	Comments	Previous Business Req ID
<b>P4_BR1</b>	UC1	Create a new business opportunity for banks.	Develop and validate a specific model to provide tailor-made advice, allowing a perfect synergy between both stakeholders (bank and granted company). The advice will be provided through the creation of an appropriate plan, which will be automatically generated for the financial institutions, so that they understand to which company and when to provide complementary banking financing to support the whole public funding process.	Product development	Functional	User	Preferred	New	-	N/A
<b>P4_BR2</b>	UC1	"Facilitate the effectiveness of the EU Funds	Provide an optimized banking financing intervention plan (type of	Product	Functional	User	Preferred	New	-	N/A

			financing - loan, guarantee, prefinance, cofinance, time, and amount) through a tool that will perform automatic and robust simulations of different potential scenarios.	development							
<b>P4_BR3</b>	UC1	innovation projects implementation"	Develop a tool capable of providing the context and information necessary for easy and quick understanding of the output by the bank's employees in charge of offering financial products to granted clients. The model will be built from an existing grant management platform working currently in the Spanish, French and Polish markets. Depending on the aids selected to modelise, the tool will be tested in one or another of the above-mentioned markets.	Product development	Functional	User	Preferred	New	-	N/A	
<b>P4_BR4</b>	UC1	Facilitate the work of bank employees in advising granted clients while reducing the time spent.	Develop a tool so that the whole process can be harmonized and automated by implementing a methodology that ensures the most effective approach. The tool will be tailored to the targeted country target.	Product development	Functional	User	Preferred	New	-	N/A	

<b>P4_BR5</b>	UC1	Improve the bank's funding parameters (time, feasibility, bureaucracy, etc).	Parameterize the financial support schemes between financial institutions and clients, so that the tool generated can be customized for each interested bank and public aid program. The FAME data space will share this information upon request from clients, increasing the visibility of the protocol for other EU countries and banks.	Product development	Functional	User	Preferred	New	-	N/A
<b>P4_BR6</b>	UC1	Mechanisms to ensure data privacy control policies.	Provide a solution available in the marketplace to be transferred to any financial entities internationally (e.g., entities with similar profiles).	Compliance	Functional	Infrastructure	Preferred	New	-	N/A
<b>P4_BR7</b>	UC1	Mechanisms to ensure data assets usage control policies.	Ensure the anonymization of the data being used to set the methodology, especially granted company data	Compliance	Functional	Infrastructure	Preferred	New	-	N/A

## 5.6 Pilot 5 business requirements

The scope of Pilot 5 is to develop an online reporting tool that will provide weighted portfolio sustainability scores for ESG investments. On the one hand, Pilot 5 will develop the ESG reporting tools that will combine various ESG metrics and will aggregate different dimensionalities of data to provide synthetic measures that rank assets using a multi-criteria model. On the other hand, Pilot 5 will leverage the developed ESG reporting tools to perform portfolio optimisations towards the transition to sustainable finance. In the following table, the details of the collected business requirements stemming from Pilot 5 are presented.

Table 12 - Pilot 5 business requirements

<b>Business Req. ID</b>	<b>Use Case ID</b>	<b>Business Objective</b>	<b>Business Requirement</b>	<b>Area</b>	<b>Type</b>	<b>Functionality</b>	<b>Priority</b>	<b>Status</b>	<b>Comments</b>	<b>Previous Business Req.ID</b>
<b>P5_BR1</b>	UC 1	Develop a ranking system for stocks and/or bonds based on ESG criteria, alongside fundamental and price-based factors	Rank Stocks based on their ESG scoring. Publish it globally through FAME marketplace	Analytics	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR2</b>	UC 1	ESG Tutorials	Provide educational content explaining its ESG approach	Marketing	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR3</b>	UC 1	ESG Weightings and Recommendation Tutorials	Introduce detailed ESG "recipe" of weights and the mechanisms that govern our	Marketing	Functional	User	Optional	Unchanged	-	N/A

				recommendations							
<b>P5_BR4</b>	UC 1	ESG Reporting		Introduce detailed ESG reporting and impact analysis, allowing users to select based on E,S,G criteria	Marketing, Services	Functional	User	Preferred	Unchanged	-	N/A
<b>P5_BR5</b>	UC 1	Provide ESG table of recommendations		Allow market data to be inserted beyond price and ESG data from Bloomberg etc	Analytics	Functional	User	Preferred	Unchanged	-	N/A
<b>P5_BR6</b>	UC 1	Provide ESG analytics on a set of listed companies from market feeds (only indicative for testing)		Allow market data to be inserted beyond price and ESG data from Bloomberg etc	Analytics	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR7</b>	UC 1	ESG Table of Recommendations (quarterly monthly) according to the proprietary FAME recipe of ESG weights		Allow the calculated table to be exchanged through FAME Marketplace	Marketing, Services	Functional	User	Preferred	Unchanged	-	N/A
<b>P5_BR8</b>	UC 2	ESG-focused Portfolios	Model	Create monthly ESG-powered model portfolios, offering clients a range of	Marketing, Services	Functional	User, Technical	Optional	Unchanged	-	N/A

			investment options								
<b>P5_BR9</b>	UC 2	ESG scoring Tool	Calculator	Store a user profile table, with specific scores that characterize available user/investor ESG services. Scores such as risk profile, age, ESG sensitivity etc. will be generated by the columns of a questionnaire form. This form will also be provided as input for the integration of facts-as-a-service	Marketing, Services	Function al	User	Preferre d	Unchange d	-	N/A
<b>P5_BR1 0</b>	UC 2	Optimizing Portfolio with ESG	Investment	Optimize client portfolios by considering ESG criteria and client specific ESG preferences, resulting in more sustainable and	Manageme nt, Marketing, Services, Sales,	Function al	User, Technical	Optiona l	Unchange d	-	N/A

			responsible investments							
<b>P5_BR1_1</b>	UC2	Use AI to extract sentiment and portfolio impact of our recommendation text for portfolio optimisation	Create monthly AI-powered text analysis on our ESG portfolio recommendations	Marketing, Services	Functional	User, Technical	Preferred	Unchanged	-	N/A
<b>P5_BR1_2</b>	UC2	Whitepaper: Hierarchical risk parity (HRP) algorithm	Provide educational content explaining approach Hierarchical Risk Parity (HRP) algorithm	Marketing	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR1_3</b>	UC2	Portfolio Optimization Tutorials with custom ESG weights	Provide educational content explaining Portfolio Optimization methods	Marketing	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR1_4</b>	UC2	Comparison of proprietary FAME "recipe" of ESG weights with the weights of other renowned investment organisations	Compare a list of 10 weights of ESG parameters to best-in-class paradigms around the world	Marketing, Services	Functional	Technical, Infrastructure	Optional	Unchanged	-	N/A

<b>P5_BR1_5</b>	UC 2	Back-testing for ESG performance	Analysis portfolio	Conduct back-testing on our ESG ranking system, ensuring that the rankings support investment rationale and the profitability of portfolios	Marketing, Services	Functional	Technical, Infrastructure	Optional	Unchanged	-	N/A
<b>P5_BR1_6</b>	UC 2	Insert 3-4 indicative portfolios as testing sample from renowned global investment sources (yahoo, Bloomberg, investment houses etc.)		Allow a portfolio of assets with their ISIN number or TICKER and with weights to be constructed. Insert examples from data feeds if possible	Analytics	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR1_7</b>	UC 2	Provide indicative E,S,G weights of 2-3 comparative investment institutions.		Allow weights of ESG in various "recipes" to be held	Analytics	Functional	User	Preferred	Unchanged	-	N/A
<b>P5_BR1_8</b>	UC 2	Provide indicative portfolios of "synthetic" fictional customers for testing and for FAME marketplace visitors to consult		Allow construction of a set of 4-5 portfolios of 5-10 assets each	Analytics	Functional	User	Critical	Unchanged	-	N/A
<b>P5_BR1_9</b>	UC 2	Compare ESG weights of other established		Allow for 10 custom weights	Analytics	Functional	User	Optional	Unchanged	-	N/A

		investment institutions that registered in FAME marketplace with the recommendation weights of FAME	of E+S+G for every Asset in a portfolio								
<b>P5_BR2_0</b>	UC 2	Explanation of Reporting Recommendations	ESG and impact analysis, allowing clients to track the ESG impacts of their investments	Marketing	Functional	User	Preferred	Unchanged	-	N/A	
<b>P5_BR2_1</b>	UC 2	ESG Portfolio Recommendations published through FAME to global investors	Provide ESG portfolio Recommendations with custom ESG weights	Services	Functional	User	Preferred	Unchanged	-	N/A	

## 5.7 Pilot 6 business requirements

The scope of Pilot 6 is to develop novel climate aware property insurance products. Hence, it will leverage the value-added datasets on localized climate projections in FAME in order to project valuations of real-estate assets based on local-level predictions as well as to calculate climate aware VaR of entire portfolios of assets possessed by insurers, including bonds, stocks and real-estate assets. Finally, Pilot 6 will analyse different portfolios of assets in the light of climate change. In the following table, the details of the collected business requirements stemming from Pilot 6 are presented.

Table 13 - Pilot 6 business requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status	Comments	Previous Business Req.ID
<b>P6_BR1_R</b>	UC1	Supply featurised climate projections for a specific location	Train a statistical downscaling model that relates coarse grid climate projections to finer grid reanalysis data such as – but not limited to -- ERA5 Land data	Analysts at a Financial Services	Functional	User	Critical	Revised	Requirement change	<b>P6_BR1</b>
<b>P6_BR2</b>	UC1	Supply featurised climate projections for a specific location	Connect to CDS to download historical reanalysis data (ERA5 Land)	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR3</b>	UC1	Supply featurised climate projections for a specific location	Connect to CDS (Copernicus data store) to download climate projection data (CMIP5) and	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A

			historical reanalysis							
<b>P6_BR4_R</b>	UC1	Supply featurised climate projections for a specific location	Create ML model to downscale climate projections and subsequently get the fitted values from this model	Analysts at a Financial Services	Functional	User		Revised	Requirement change	<b>P6_BR4</b>
<b>P6_BR5</b>	UC1	Supply featurised climate projections for a specific location	An Analysts can find that the climate risk feature for a specific location exists	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR7</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	Offer value to an organization that uploads property price data	Analysts at a Financial Services	Functional	User	Optional	Unchanged	-	N/A
<b>P6_BR9</b>	UC1	Supply featurized climate projections for a specific location	Purchase the featured climate projection for a specific location	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR10</b>	UC2	Train insurance sector professionals how to perform climate-aware	Development of financial courses, Webinars, How-to videos, Jupyter notebooks on how	Insurance, Finance	Non-Functional	User	Preferred	Unchanged	-	N/A

		Real Estate Pricing	to perform climate-aware Real Estate Pricing							
<b>P6_BR11</b>	UC1	Supply featured climate projections for a specific location	Downscaling model and future climate projections to supply a projection of changes in climate project features at any given location	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR16</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	A new asset and location will need to be provided, for which the model and downscaled climate features will be used to forecast property price changes	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR17</b>	UC2	Supply Seasonal Forecasts of Climate Risk Features	Purchase the seasonal forecast of a catalogue of climate risk features	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR23</b>	UC1	Train insurance/finance sector professionals how to climate-aware assess their portfolios	Development of financial courses, Webinars, How-to videos, Jupyter notebooks on how to perform climate-aware	Insurance, Finance	Non-Functional	User	Preferred	Unchanged	-	N/A

Real Estate Pricing										
<b>P6_BR25</b>	UC2	Determine Risk Exposure of an Asset to Climate Risk Features	Download historical assets prices for e.g. a given equity	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR28</b>	UC3	Assess the climate risk exposure of a portfolio	Download historical prices for a portfolio of assets	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR29</b>	UC3	Assess the climate risk exposure of a portfolio	For each asset in the portfolio, model the "risk premium" and "risk" related to climate features from (UC1)	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR30</b>	UC3	Assess the climate risk exposure of a portfolio	For each asset in the portfolio, model the portfolio level excess return over a supplied index and risk from this portfolio related to climate risk	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR31</b>	UC3	Assess the climate risk exposure of a portfolio	An analyst can find that this tool exists and can upload their portfolio	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A

<b>P6_BR33</b>	UC3	Propose climate-safe indices	Allow external users access to our tools to enable them to propose new stock indices which are "climate proof"	Index Providers	Functional	User	Optional	Unchanged	-	N/A
<b>P6_BR34</b>	UC3	Assess the climate risk exposure of a portfolio	For a given portfolio, indicate how excess returns and risk will change on account of changes in climate features	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A
<b>P6_BR35</b>	UC3	Propose portfolio Restructuring	Determine which assets to drop from an existing portfolio in order to improve performance based on changes in projected climate risk features	Analysts at a Financial Services	Functional	User	Critical	Unchanged	-	N/A

## 5.8 Pilot 7 business requirements

The scope of Pilot 7 is to assess the quality of its different types of data assets, while using the quality assessment and the type of each data asset for pricing and trading purposes inside the FAME marketplace. To this end, the pilot will audit its assets against different characteristics, including their volume, completeness, locality and context, variety of data sources, use in industrial applications, etc, while developing different pricing schemes for trading within the FAME marketplace. Finally, the pilot aims to develop new ML models on top of existing data based on XAI and energy efficient analytics that will be traded within the marketplace. In the following table, the details of the collected business requirements stemming from Pilot 7 are presented.

Table 14 - Pilot 7 business requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status	Comments	Previous Business Req. ID
<b>P7_BR1</b>	UC1	Quality Assessment of (IIoT) Assets	Perform quantitative quality assessment of data assets considering various quality dimensions such as data accuracy, completeness, consistency, timeliness, and validity	Industrial applications, IIoT, Services	Functional	User	Preferred	Unchanged	-	N/A
<b>P7_BR2</b>	UC1	Indicative Pricing of Data Assets (ML Models, Labelled data) used for Maintenance	Assign a quality score to each asset for comparison and pricing purposes	Services	Functional	User	Preferred	Unchanged	-	N/A

<b>P7_BR3</b>	UC1	Indicative Pricing of Data Assets (ML Models, Labelled data) used for Maintenance	Estimate the value of each data asset based on factors such as usage, impact on business processes, accuracy, and maintenance costs. The valuation should be flexible, allowing for adjustments based on specific business requirements and market conditions	Industrial applications, IIoT, Services	Functional	User	Preferred	Unchanged	-	N/A
<b>P7_BR5</b>	UC1	Re-purpose/reuse/SELL Data Assets for Industrial Maintenance	Develop analytical models providing operational insights on equipment used in industrial environments	Analytics, Marketing	Functional	User	Preferred	Unchanged	-	N/A
<b>P7_BR6</b>	UC1	Re-purpose/reuse/SELL Data Assets for Industrial Maintenance	Trade of industrial data assets (i.e., sensor data, AI/ML models) through FAME	Industrial applications	Functional	User	Optional	Unchanged	-	N/A
<b>P7_BR7</b>	UC1	Improving Overall Equipment Effectiveness (OEE) through Predictive Maintenance	Obtain more precise predictions in the scope of preventive/predictive maintenance by developing more accurate predictive models than the	Industrial applications, IIoT, Services	Functional	User	Critical	Unchanged	-	N/A

			existing ones. These models should ensure zero downtime, and increase overall equipment effectiveness (OEE).							
<b>P7_BR8</b>	UC1	Increase in the utilization of the available data assets for predictive maintenance purposes	Provide tools that allow the curation of multi-type data produced from different sources	Data	Functiona l	User	Preferre d	Unchange d	-	N/A
<b>P7_BR9</b>	UC1	Streamline decision-making by assessing the quality and value of data assets	Identify underutilized resources and opportunities for further investment	Managemen t	Functiona l	User	Preferre d	Unchange d	-	N/A
<b>P7_BR10</b>	UC1	Train industrial workers on how to assess and understand data produced by IoT devices and sensors	Develop relevant training materials for industrial workers	Training	Non- Functiona l	User	Preferre d	Unchange d	-	N/A
<b>P7_BR11</b>	UC2	Increase Trustworthiness of AI models used in IoT	An Analyst can search for an XAI solution based on criteria such type of the underlying ML model and data.	Analytics, Services	Functiona l	User	Critical	Unchange d	-	N/A

<b>P7_BR1_3</b>	UC2	Stakeholder Interaction	Allow access to the primary data assets to develop secondary data assets and applications to be used in IoT scenarios	Services	Functiona l	User	Critical	Unchange d	-	N/A
<b>P7_BR1_4</b>	UC2	Increase Trustworthiness of AI models used in IoT	Develop XAI techniques for timeseries forecasting models	Analytics	Functiona l	User	Optional	Unchange d	-	N/A
<b>P7_BR1_6</b>	UC2	Increase acceptance of novel AI-based systems by industrial workers	Train industrial workers on how to assess, use, and interpret the outcomes of AI/XAI Systems related to machinery health	Analytics	Non- Functiona l	User	Preferre d	Unchange d	-	N/A

## 5.9 Business requirements backlog

The presented tables constitute the current version of the FAME Business Requirements backlog on M18. It contains all the collected and elicited business requirements stemming from the pilots of FAME. Nevertheless, as the project evolves, and the pilot use cases become even more mature, new business requirements as well as updates on the existing ones could arise. Should this occur, the current FAME Business Requirements backlog will also be updated online on the project's repository, so that these updates are documented, despite D2.5 constituting the final version of this deliverable series.

## 6 FAME Regulatory Requirements

This section will present the regulatory landscape for the FAME platform in consideration of EU laws for data, cybersecurity, and financial services. The aim of this contribution is to provide FAME technical partners with valid legal references, thus, to allow making consistent technical and architectural choices, i.e. ‘compliance-by-design’.

In Section 6.1 ‘Overview of relevant EU regulations’ a set of EU laws is presented and their main provisions and relevance for FAME platform is briefly discussed. In Section 6.2 ‘Indicative list of legal requirements’, certain specific requirements related to some of the laws selected in Section 6.1 are further highlighted.

### 6.1 Overview of relevant EU regulations

The current section includes 12 EU legal provisions, covering issues of data, intermediation, and financial services. This broad selection of regulations is based on an initial understanding of the FAME platform’s activities, which focuses on intermediation of financial data and related services. As FAME’s scope of activities will further develop and define, the direct relevance of such regulations may change. Such update will be provided under the upcoming legal deliverables, under Task T1.4 “Ethical Management and Regulatory Compliance”.

Following, a non-exhaustive set of the most relevant – and up to date – EU regulations, either already in force or that are under legislative discussion (e.g. proposal for EU Commission), is outlined:

- Data Governance Act (DGA)
- Data Act
- (Proposed) Financial Data Access Regulation (FIDA)
- (Proposed) Payment Services Directive 3 (PSD3) / Payment Services Regulation (PSR)
- General Data Protection Regulation (GDPR)
- Digital Services Act (DSA)
- Markets in financial instruments Directive (MiFiD II)
- (Proposed) Fifth Anti-Money Laundering Directive (5AMLD)
- Network and Information Security (NIS)2 Directive
- Digital Operational Resilience Act (DORA)
- Regulation on electronic identification and trust services (iDAS)
- (Proposed) AI Act

In the remainder of this chapter, such legal provisions are briefly presented, and their relevance for the FAME platform highlighted. This discussion is framed in consideration of the core activities that FAME platform is supposed to provide. Nevertheless, it is worth noting that additional or different requirements may apply to the extent that FAME platform will include additional or different services. As mentioned above, a more in-depth analysis, including a focus on the FAME piloting activities, is envisaged in Deliverable D1.3 ‘Ethical Management and Regulatory Compliance Framework I’, due in M18 of the project.

### 6.1.1 Data Governance Act (DGA)

The Data Governance Act (DGA) is applicable since 24 September 2023<sup>1</sup> and it outlines a set of rules for providers of data intermediation services (so-called data intermediaries, such as data marketplaces) to ensure that they will function as trustworthy organisers of data sharing or pooling within the common European data spaces. To increase trust in data sharing, this new approach proposes a model based on the neutrality and transparency of data intermediaries whilst putting individuals and companies in control of their data. In addition, the DGA lays the groundwork for the creation of data intermediary services and data altruism organisations.

Relevant to the FAME data intermediation activities, pursuant to the DGA, data intermediaries are meant to function as neutral third parties that connect individuals and companies with data users. While they may charge for facilitating the data sharing between the parties, they cannot directly use the data that they intermediate for financial profit (e.g. by selling it to another company or using it to develop their own product based on this data). Data intermediaries will have to comply with strict requirements to ensure this neutrality and avoid conflicts of interest. In practice, this means that there must be a structural separation between the data intermediation service and any other services provided (i.e. they must be legally separated). Also, the commercial terms (including pricing) for the provision of intermediation services should not be dependent on whether a potential data holder or data user is using other services. Any data and metadata acquired can be used only to improve the data intermediation service.

To the extent that FAME will operate as a data intermediation service, provisions in the DGA will be of direct relevance.

### 6.1.2 Data Act

The Data Act was published in the Official Journal of the EU on 22 December 2023, and it will become applicable on 12 September 2025.<sup>2</sup> The Data Act also includes measures to increase fairness and competition in the European cloud market as well as to protect companies from unfair contractual terms related to data sharing imposed by stronger players. It also establishes a mechanism through which public sector bodies can request data from a business where there is an exceptional need, for example in public emergency situations, and provides clear rules on how such requests should be made. In addition, it introduces safeguards to avoid that government bodies from third countries can access non-personal data where this would go against EU or national law. Finally, the Data Act defines essential requirements regarding interoperability to ensure that data can flow seamlessly between sectors and Member States, facilitated by Common European Data Spaces, as well as between data processing services providers.

In particular, the Data Act aims to protect all European businesses seeking to acquire data, in particular SMEs, against unfair contractual terms through its measures to intervene in situations where, for example, one of the businesses is in a stronger bargaining position (e.g. due to its market size) and imposes a non-negotiable term ('take-it-or-leave-it') related to data access and use on the other.

The Data Act might be indirectly relevant to the FAME platform on two aspects: accruing availability of non-personal data and extended possibilities regarding the use of cloud services.

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<sup>1</sup> Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act)

<sup>2</sup> Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (Data Act)

### 6.1.3 (Proposed) Financial Data Access Regulation (FIDA)

As part of the digital finance package proposed by on 28 June 2023 by the European Commission, FIDA is building block to establish a European financial data space<sup>3</sup>. This proposal envisages the possibility, but no obligation, for customers to share their data with data users (e.g. financial institutions or fintech firms) in secure machine-readable format to receive new, cheaper and better data-driven financial and information products and services (i.e. such as financial product comparison tools, personalised online advice).

At the same time, the proposed FIDA set an obligation for data holders (e.g. financial institutions) to make this data available to data users (e.g. other financial institutions or fintech firms) by putting in place the required technical infrastructure and subject to customer permission. The framework will ensure full control by customers over who accesses their data and for what purpose to enhance trust in data sharing, facilitated by a requirement for dedicated permission dashboards and strengthened protection of customers' personal data in line with the General Data Protection Regulation (GDPR).

Standardisation of customer data and the required technical interfaces as part of financial data sharing schemes, of which both data holders and data users must become members. Clear liability regimes for data breaches and dispute resolution mechanisms as part of financial data sharing schemes so that liability risks do not act as a disincentive for data holders to make data available. Additional incentives for data holders to put in place high-quality interfaces for data users through reasonable compensation from data users in line with the general principles of business-to-business (B2B) data sharing laid down in the Data Act proposal (and smaller firms will only have to pay compensation at cost).

This legislation is of direct relevance to the FAME platform, as it will determine a broader availability of financial data and the framework regulating financial information service providers (Art. 14). This proposal is set to advance in the legislative process after the June parliamentary elections.

### 6.1.4 (Proposed) PSD3/PSR

As part of the digital finance package, on 28 June 2023 the European Commission also proposed a third revision of the Payments Services Directive and a Payments Services Regulation. Among the several aspects covered, these will: combat and mitigate payment fraud, by enabling payment service providers to share fraud-related information between themselves, increasing consumers' awareness, strengthening customer authentication rules, extending refund rights of consumers who fall victim to fraud and making a system for checking alignment of payees' IBAN numbers with their account names mandatory for all credit transfers. Moreover, improve consumer rights, in cases for example where their funds are temporarily blocked, improve transparency on their account statements and provide more transparent information on ATM charges.

Further levelling the playing field between banks and non-banks, in particular by allowing non-bank payment service providers access to all EU payment systems, with appropriate safeguards, and securing those providers' rights to a bank account. Improve the functioning of open banking, by removing remaining obstacles to providing open banking services and improving customers' control over their payment data, enabling new innovative services to enter the market. Improve the availability of cash in shops and via ATMs, by allowing retailers to provide cash services to customers without requiring a purchase and clarifying the rules for independent ATM operators. Strengthen

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<sup>3</sup> Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a framework for Financial Data Access and amending Regulations (EU) No 1093/2010, (EU) No 1094/2010, (EU) No 1095/2010 and (EU) 2022/2554  
COM/2023/360 final

harmonisation and enforcement, by enacting most payment rules in a directly applicable regulation and reinforcing provisions on implementation and penalties.

Legal provisions relating to digital payments included in the regulations mentioned above might be of direct relevance to the FAME platform.

#### 6.1.5 General Data Protection Regulation (GDPR)

The GDPR, entered into force in 2018,<sup>4</sup> is a comprehensive framework aimed at safeguarding the personal data of EU citizens and residents. It introduces the principles of privacy-by-design and privacy-by-default, requiring organizations to embed data protection measures into their systems and processes from the outset and to ensure that privacy settings are automatically set to the highest level possible. GDPR mandates that organizations must have a legal basis for processing personal data, such as consent or contractual necessity, and individuals have various rights over their data, including access, rectification, and erasure. Consent must be explicit and freely given, and individuals can withdraw it at any time. Moreover, GDPR imposes strict requirements for data breach notification and the appointment of Data Protection Officers in certain cases. It also regulates the transfer of personal data outside the EU, requiring organizations to ensure adequate protection or implement safeguards. A key aspect of GDPR compliance is conducting Data Protection Impact Assessments (DPIAs) to evaluate and mitigate risks to individuals' rights and freedoms. Additionally, organizations must maintain detailed records of data processing activities to demonstrate compliance. Overall, GDPR aims to enhance data protection, privacy, and transparency in the digital age, empowering individuals with greater control over their personal data and holding organizations accountable for responsible data processing practices.

To the extent that personal data are processed on the FAME platform, GDPR applies.

#### 6.1.6 Digital Services Act (DSA)

The Digital Services Act entered into force in November 2022, and as of 17 February 2024, the DSA rules apply to all platforms.<sup>5</sup> The DSA regulates online intermediaries and platforms such as marketplaces, social networks, content-sharing platforms, app stores, and online travel and accommodation platforms. Its main goal is to prevent illegal and harmful activities online and the spread of disinformation. It ensures user safety, protects fundamental rights, and creates a fair and open online platform environment. The DSA introduces new obligations for providers of online marketplaces to counter the spread of illegal goods. In particular, such providers must now ensure that sellers provide verified information on their identity before they can start selling their goods on those online marketplaces. Such providers must also guarantee that users can easily identify the person responsible for the sale. Moreover, if a provider of online marketplace becomes aware of the selling of an illegal product or service by a seller, it must inform the users who purchased the illegal good or product, as well as the identity of the seller and the options for redress.

The direct relevance of the DSA will depend on the kind and extent of services that the FAME platform will provide. Nevertheless, certain general provisions, also highlighted in the table in Section (2), might be of general importance. A more in-depth analysis of the relevance of the DSA for the FAME platform will be conducted in Deliverable D1.3 'Ethical Management and Regulatory Compliance Framework I'.

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<sup>4</sup> 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)

<sup>5</sup> Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act)

### 6.1.7 MiFiD II

The Market in Financial Instruments Directive targets all services of financial instruments, predominantly securities, investment certificates and crypto assets.<sup>6</sup> Such services include advice, brokerage, dealing, storage and financial analysis of financial instruments. The offering of financial instruments to fund own business is not covered by MIFID. MiFID II aims to improve transparency, fairness, and efficiency in financial markets while strengthening investor protection. The directive covers various financial instruments, including stocks, bonds, derivatives, and structured products, as well as investment services and activities. MiFID II places a strong emphasis on safeguarding investor interests by ensuring firms act in their best interests and provide suitable investment advice. Firms are required to report all transactions in financial instruments to regulators in a timely and accurate manner, promoting market transparency. MiFID II enhances the transparency of trading activities by requiring more pre- and post-trade information to be made publicly available. Investment firms must take all reasonable steps to achieve the best possible results for their clients when executing orders. To address conflicts of interest, MiFID II requires the separation of research costs from execution services, ensuring transparency in research charges.

The MiFiD II would not seem to apply directly to the FAME platform, however several FAME's stakeholders may be subject to it.

### 6.1.8 The Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT)

A new legal framework on anti-money laundering and countering the financing of terrorism was proposed on 20 July 2021 by the European Commission,<sup>7</sup> and in April 2024 approved by the EU co-legislators (i.e. EU Parliament and Council of the EU). The new framework, which includes two Regulations and one Directive, envisages, among the other aspects, the creation of a new EU authority to fight money laundering (AMLA), as well as the inclusion in its scope of application of crypto-asset service providers, residence scheme operators, crowdfunding operators, football clubs and football agents will enter in force in the following months.

The AML/CFT is of indirect relevance to the FAME platform, as some of its stakeholders may be subject to such requirements.

### 6.1.9 NIS2

The EU cybersecurity rules introduced in 2016 were updated by the NIS2 Directive that came into force in 2023.<sup>8</sup> It modernised the existing legal framework to keep up with increased digitisation and an evolving cybersecurity threat landscape. By expanding the scope of the cybersecurity rules to new sectors and entities, it further improves the resilience and incident response capacities of public and private entities, competent authorities and the EU as a whole.

The Directive on measures for a high common level of cybersecurity across the Union (the NIS2 Directive) provides legal measures to boost the overall level of cybersecurity in the EU by ensuring that Businesses identified by the Member States as operators of essential services in the above sectors will have to take appropriate security measures and notify relevant national authorities of serious

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<sup>6</sup> DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU

<sup>7</sup> Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing. COM/2021/420 final

<sup>8</sup> Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)

incidents. Key digital service providers, such as search engines, cloud computing services and online marketplaces, will have to comply with the security and notification requirements under the Directive.

Being a Directive, NIS2 does not apply directly to the FAME platform, instead national provisions implementing such Directive should be considered. Nevertheless, the NIS2 Directive provides principles and high-level guidance for any entity dealing with cybersecurity.

#### 6.1.10 Digital Operational Resilience Act (DORA)

The Digital Operational Resilience Act (DORA) has been in force since January 2023. DORA is a European regulation that aims to ensure that financial organisations improve the controls of their IT risks and thus become more resilient against cyber threats. DORA should be considered a piece of cybersecurity legislation specifically tailored to the financial sector. Existing legislation that also provides normative guidance on the issue of cybersecurity, such as the NIS2 Directive, remain in place.

As several FAME's stakeholders are part of the financial sector, this regulation may be of direct relevance to them.

#### 6.1.11 eIDAS Regulation

The eIDAS Regulation provides for the interoperability of national eID schemes among EU member states. This requires the development of a technology-neutral framework that does not favour any particular technical solution for eID implementation. Procedural and technical standards have been set to facilitate cooperation among EU countries, aimed at ensuring the seamless exchange of electronic identification data and fostering a cohesive digital ecosystem across the EU.

At the same time, eIDAS created a level playing field for a number of trusted services, that have become indispensable in today's digital value chains: Electronic Registered Delivery Services (ERDS). These ensure secure and reliable delivery of electronic messages, data, or documents and provide evidence of the time of sending, receipt, and content integrity.

The eIDAS Regulation is of indirect relevance to the FAME platform, as its framework may be used to address compliance issues, such as know your customer & anti money laundering requirements.

#### 6.1.12 (proposed) AI Act

The general objective of the proposed AI act unveiled in April 2021 is to ensure the proper functioning of the single market by creating the conditions for the development and use of trustworthy AI systems in the Union.<sup>9</sup> The draft sets out a harmonised legal framework for the development, placing on the Union market, and the use of AI products and services. The AI act proposal seeks to achieve a set of specific objectives: (i) ensure that AI systems placed on the EU market are safe and respect existing EU law, (ii) ensure legal certainty to facilitate investment and innovation in AI, (iii) enhance governance and effective enforcement of EU law on fundamental rights and safety requirements applicable to AI systems, and (iv) facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation. The proposal enshrines a technology-neutral definition of AI systems and adopts a risk-based approach, which lays down different requirements and obligations for the development, placing on the market and use of AI systems in the EU. The proposal defines common mandatory requirements applicable to the design and

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<sup>9</sup> Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL LAYING DOWN HARMONISED RULES ON ARTIFICIAL INTELLIGENCE (ARTIFICIAL INTELLIGENCE ACT) AND AMENDING CERTAIN UNION LEGISLATIVE ACTS COM/2021/206 final

development of AI systems before they are placed on the market and harmonises the way ex-post controls are conducted.

The AI Act has been approved by the EU co-legislator and will likely enter into force by the end of 2024. In consideration of the services that the FAME platform may include, this regulation may be of direct relevance.

## 6.2 Indicative list of legal requirements

The table below provides an initial set of indicative legal requirements relating to the FAME platform. The legal requirements listed are extrapolated from certain legal provisions – already in force – described in the previous section, namely DGA, DSA and GDPR. The order in which they are listed does not necessarily represent neither an order of precedence nor of priority. Most of the requirements are indicated as “non-functional”, namely relevant to the entire platform or service. Finally, the column ‘Priority’ indicates whether abiding to such provision is mandatory or recommended.

Table 15 – FAME Regulatory requirements

<b>Req. ID</b>	<b>Legal Requirement</b>	<b>Legal Requirement Description</b>	<b>Legal Framework</b>	<b>Type*</b>	<b>Priority</b>
<b>LR_001</b>	Data Intermediation Service	The organization qualifying as a data intermediation service shall submit a notification to the competent authority for data intermediation services	DGA (Art. 11)	Non-Functional	Mandatory
<b>LR_002</b>	Data Intermediation Service	The organization qualifying as a data intermediation service shall designate a legal representative in one of the Member States in which those services are offered.	DGA (Art. 11)	Non-Functional	Mandatory
<b>LR_003</b>	Data Intermediation Service	The organization qualifying as a data intermediation service shall not use the data for which it provides data intermediation services for purposes other than to put them at the disposal of data users and shall provide data intermediation services through a separate legal person;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_004</b>	Data Intermediation Service	The data collected with respect to any activity of a natural or legal person for the purpose of the provision of the data intermediation service, including the date, time and geolocation data, duration of activity and connections to other natural or legal persons established by the person who uses the data intermediation service, shall be used only for the development of that data intermediation service, which may entail the use of data for the detection of fraud or cybersecurity, and shall be made available to the data holders upon request;	DGA (Art. 12)	Non-Functional	Mandatory

<b>LR_005</b>	Data Intermediation Service	The data intermediation services provider shall facilitate the exchange of the data in the format in which it receives it from a data subject or a data holder, shall convert the data into specific formats only to enhance interoperability within and across sectors or if requested by the data user or where mandated by Union law or to ensure harmonisation with international or European data standards and shall offer an opt-out possibility regarding those conversions to data subjects or data holders, unless the conversion is mandated by Union law;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_006</b>	Data Intermediation Service	Data intermediation services may include offering additional specific tools and services to data holders or data subjects for the specific purpose of facilitating the exchange of data, such as temporary storage, curation, conversion, anonymisation and pseudonymisation, such tools being used only at the explicit request or approval of the data holder or data subject and third-party tools offered in that context not being used for other purposes;	DGA (Art. 12)	Non-Functional	Recommended
<b>LR_007</b>	Data Intermediation Service	The data intermediation services provider shall ensure that the procedure for access to its service is fair, transparent and non-discriminatory for both data subjects and data holders, as well as for data users, including with regard to prices and terms of service;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_008</b>	Data Intermediation Service	The data intermediation services provider shall have procedures in place to prevent fraudulent or abusive practices in relation to parties seeking access through its data intermediation services;	DGA (Art. 12)	Non-Functional	Mandatory

<b>LR_009</b>	Data Intermediation Service	The data intermediation services provider shall, in the event of its insolvency, ensure a reasonable continuity of the provision of its data intermediation services and, where such data intermediation services ensure the storage of data, shall have mechanisms in place to allow data holders and data users to obtain access to, to transfer or to retrieve their data and, where such data intermediation services are provided between data subjects and data users, to allow data subjects to exercise their rights;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_010</b>	Data Intermediation Service	The data intermediation services provider shall take appropriate measures to ensure interoperability with other data intermediation services, <i>inter alia</i> , by means of commonly used open standards in the sector in which the data intermediation services provider operates;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_011</b>	Data Intermediation Service	The data intermediation services provider shall put in place adequate technical, legal and organisational measures in order to prevent the transfer of or access to non-personal data that is unlawful under Union law or the national law of the relevant Member State;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_012</b>	Data Intermediation Service	The data intermediation services provider shall without delay inform data holders in the event of an unauthorised transfer, access or use of the non-personal data that it has shared;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_013</b>	Data Intermediation Service	The data intermediation services provider shall take necessary measures to ensure an appropriate level of security for the storage, processing and transmission of non-personal data, and the data intermediation services	DGA (Art. 12)	Non-Functional	Mandatory

		provider shall further ensure the highest level of security for the storage and transmission of competitively sensitive information;			
<b>LR_014</b>	Data Intermediation Service	The data intermediation services provider offering services to data subjects shall act in the data subjects' best interest where it facilitates the exercise of their rights, in particular by informing and, where appropriate, advising data subjects in a concise, transparent, intelligible and easily accessible manner about intended data uses by data users and standard terms and conditions attached to such uses before data subjects give consent;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_015</b>	Data Intermediation Service	Where a data intermediation services provider provides tools for obtaining consent from data subjects or permissions to process data made available by data holders, it shall, where relevant, specify the third-country jurisdiction in which the data use is intended to take place and provide data subjects with tools to both give and withdraw consent and data holders with tools to both give and withdraw permissions to process data;	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_016</b>	Data Intermediation Service	The data intermediation services provider shall maintain a log record of the data intermediation activity.	DGA (Art. 12)	Non-Functional	Mandatory
<b>LR_017</b>	Compliance Design	by Providers of online platforms allowing consumers to conclude distance contracts with traders shall ensure that its online interface is designed and organised in a way that enables traders to comply with their obligations regarding pre- contractual information,	DSA (Art. 31)	Non-Functional	Mandatory

		<p>compliance and product safety information under applicable Union law.</p> <p>In particular, the provider concerned shall ensure that its online interface enables traders to provide information on the name, address, telephone number and email address of the economic operator, as defined in Article 3, point (13), of Regulation (EU) 2019/1020 and other Union law.</p>			
<b>LR_018</b>	Right to information	<p>Provider of an online platform shall inform consumers who purchased the illegal product or service through its services of the following:</p> <p>(a) the fact that the product or service is illegal;  (b) the identity of the trader;  (c) and any relevant means of redress.</p>	DSA (Art. 34)	Non-Functional	Mandatory
<b>LR_019</b>	Privacy-by-Design	<p>The controller shall implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the requirements of this Regulation and protect the rights of data subjects.</p>	GDPR (Art. 25)	Non-Functional	Mandatory
<b>LR_020</b>	privacy-by-default	<p>The controller shall implement appropriate technical and organisational measures for ensuring that, by default, only personal data which are necessary for each specific purpose of the processing are processed.</p>	GDPR (Art. 25)	Non-Functional	Mandatory
<b>LR_021</b>	DPIA	<p>In particular when using new technologies, and taking into account the nature, scope, context and purposes of the processing, is likely to result in a high risk to the</p>	GDPR (Art. 35)	Non-Functional	Recommended

		rights and freedoms of natural persons, the controller shall, prior to the processing, carry out an assessment of the impact of the envisaged processing operations on the protection of personal data.			
<b>LR_022</b>	Legal basis	The data controller shall indicate the legal basis on which it will process personal data	GDPR (Art. 6)	Non-Functional	Mandatory
<b>LR_023</b>	Records of processing activities	Each controller and, where applicable, the controller's representative, shall maintain a record of processing activities under its responsibility.	GDPR (Art. 30)	Non-Functional	Mandatory

This work will be expanded in Deliverable D1.3 'Ethical Management and Regulatory Compliance Framework I', outlining the core data, financial and security EU laws that affect the implementation and future operation of the FAME federated data space.

## 7 FAME Technical Requirements

### 7.1 Overview

As described in Section 2.1, the technical requirements of a system describe the technical details related to the design of the system's desired functionalities and features. The technical requirements are extracted from the analysis of the generic requirements as well as from the business requirements from a technical perspective and are accompanied by a set of success criteria that are utilised for their evaluation. The extracted technical requirements provide the necessary input to T2.2 in which the architecture of the FAME federated asset space is produced along with the technical specifications of the FAME components.

### 7.2 (Functional) Technical Requirements Backlog

In this section, the list of extracted technical requirements, based upon functional generic and business requirements of FAME is presented. The table is composed by the following information (based also in the template presented in Section 2.1):

- ◁ **Technical Requirement ID:** The unique identifier of each technical requirement is a composed by the TR acronym followed by pilot number (i.e., 1, 2, etc.) and incremental number. For example, TR101 stands for the first requirement (01) of the first pilot (TR1).
- ◁ **Priority:** The assigned priority of the technical requirement
- ◁ **As a., I want to, So that:** The specific column define the user stories representing the technical requirement
- ◁ **Acceptance / Success Criteria:** The success criteria of the specific technical requirement.
- ◁ **Component(s):** The component responsible for addressing the specific technical requirement.
- ◁ **Functionality:** The column that defines the FAME functionality that a specific technical component covers.
- ◁ **Status:** This column indicates whether a particular technical requirement has remained unchanged or revised.
- ◁ **New Technical Requirements ID:** A column that is only filled after a significant change with respect to the original technical requirement has been made, by using the same Technical Requirement ID followed by a “\_R” at the end.

In sections 7.3 and 0 there is furthermore a table column named:

- ◁ **Delivered by:** In this column the responsible component for addressing the specific generic / non-functional technical requirement is shown.

The following list of extracted technical requirements constitute the updated and final version of the FAME (functional) technical requirements backlog on M18. As explained in the previous sections, these requirements were extracted through: 1) the analysis of the Description of Action by the consortium partners so as to safeguard that all aspired functionalities laid down in the document during the proposal conceptualization phase will be properly taken into consideration; and 2) the organised co-creation workshops where the technical partners of the consortium performed an analysis of the collected business requirements in collaboration with the demonstrator partners. As the project evolves, and the development and piloting activities progress, updates and optimisations could arise, resulting in the translation of these enhancements into updates to the existing technical requirements, and in the addition of new technical requirements. Should this occur, the current FAME Technical Requirements backlog will also be updated online on the project's repository, so that these updates are documented, despite D2.5 constituting the final version of this deliverable series

Table 16 - FAME (Functional) Technical Requirements

Technical Req. ID	Priority	As a/an ..	I want to ..	So That ..	Acceptance / Success Criteria	Functionality	Status	New Tech. Req. ID
TR001	Critical	application provider	be able to properly visualize available assets and the outputs of the analysis of the assets	I can extract useful insights based on my needs	As a user I can visualize available assets and the outputs of the analysis of the assets	FDAC, Dashboard	Unchanged	N/A
TR002	Critical	all users	be able to access the assets of several marketplaces and data spaces using a single sign-on mechanism	I do not have to log in to each discrete marketplace and data space to identify and obtain the assets of interest	As I user I can identify and obtain assets that are hosted in different marketplaces and data spaces without having to log in to each marketplace and data space independently.	AAI	Unchanged	N/A
TR003	Critical	Application provider / data provider	be able to manage and enforce access and visibility restrictions on my assets, based on defined criteria (including e.g., organization type, user role, locality etc.).	I can ensure the sovereignty of the data being traded and I can restrict access to my assets to organizations and individuals based upon regulatory and other constraints	As a user I can restrict access to my assets to a specific group of organizations and individuals, defining the corresponding asset access policies.	Assets Policy Manager	Revised	TR003_R

<b>TR004</b>	Critical	data analyst / researcher	be able to filter, identify and discover assets that are hosted in different marketplaces, data spaces etc. that are useful for me, without having to search each marketplace, data space etc. individually.	I can perform my tasks more quickly and with less effort.	As a user I can filter, identify, and discover assets that are hosted in different marketplaces.	FDAC, Dashboard	Unchanged	N/A
<b>TR005</b>	Critical	data analyst / researcher	be able to acquire and (locally) download discovered assets that are hosted in different marketplaces, data spaces etc..	I can use them both online and/or offline/locally to perform my tasks	As a user I can acquire and (locally) download discovered assets so that I can use them both online and/or offline/locally to perform my tasks	FDAC	Unchanged	N/A
<b>TR006</b>	Critical	data provider	be able to transform my assets to standard EmFi ontologies and models	I add value to my assets making them more easily linkable with other assets complying with ontologies from the finance sector	As a user I can model and transform my assets to standard EmFi ontologies and models	Semantic Interoperability	Unchanged	N/A
<b>TR007</b>	Critical	Application provider, data provider, regulator	be able to define security and privacy policies	I can safeguard the compliance of my assets with applicable security and privacy regulations (e.g., PSDII, GDPR, etc.).	As a user I can define security and privacy policies that will boost the compliance of my assets with applicable security and privacy regulations (e.g., PSDII, GDPR, etc.).	Assets Policy Manager	Unchanged	N/A

<b>TR008</b>	Critical	data provider / researcher	be able to trace an asset and attest its provenance	I can safeguard my IPRs and trace back the original owner of an asset	As a user I can trace an asset and attest its provenance	Assets Provenance and Traceability	Unchanged	N/A
<b>TR009</b>	Optional	data provider / researcher	be able to query the metadata of the assets included in the catalogue, including data assets statistics (usage, downloads)	I can identify suitable assets and/or track the usage of data assets	As a user I can identify suitable assets and/or track the usage of data assets	FDAC, Search Engine	Unchanged	N/A
<b>TR010</b>	Critical	data provider / researcher	be able to activate different schemes for different users, communities, collections of data assets and other granularities	I can facilitate their monetization exploiting different trading schemes	As a user I can activate different schemes for different users, communities, collections of data assets and other granularities	Assets Trading and Monetization	Unchanged	N/A
<b>TR011</b>	Critical	Application provider, data provider	be able to get dynamic asset price suggestions according to the demand and be presented with different monetization options regarding my assets	I can review my assets' price estimates and be able to trade and monetize my assets more efficiently.	As a user I can receive price suggestions and monetization options for my assets	Pricing Advisor	Unchanged	N/A
<b>TR012</b>	Critical	Application provider, data provider	be able to trade my assets in a secure and traceable manner, exploiting different asset trading, pricing, and monetization schemes	I can monetize my assets efficiently and securely	As a user I can trade my assets in a secure and traceable manner, exploiting different asset trading, pricing, and monetization schemes	Assets Trading and Monetization	Unchanged	N/A

<b>TR013</b>	Critical	Application provider, data provider	be able to trade my assets using secure contracts building upon one common trading instrument (e.g., tokens)	I can sell or exchange my assets in a secure and trustworthy manner	As a user I can create secure and trustworthy contracts to trade my assets using one common trading instrument	Assets Trading and Monetization	Unchanged	N/A
<b>TR014</b>	Critical	Data analyst, researcher	be able to perform semantic search queries	I can retrieve relevant results from various distributed repositories	As a user searching for information across federated assets, I receive search results ranked based on relevance and significance to the user's query	Search Engine	Unchanged	N/A
<b>TR015</b>	Critical	Data analyst, researcher	be able to see the results of assets I am searching for, ranked based upon their relevance	I can more easily select the assets that more relevant for the tasks I wish to accomplish	As a user I can see the results of assets I am searching for, ranked based upon their relevance.	Dashboard	Unchanged	N/A
<b>TR016</b>	Critical	Data analyst, researcher	be able to identify and acquire AI/ML techniques for EmFi use cases	I do not need to create models to resolve problems in the domain, that have already been created by other researchers.	As a user I can identify and acquire AI/ML techniques for EmFi use cases	FDAC	Unchanged	N/A
<b>TR017</b>	Critical	Data analyst, researcher	be able to train, customize and run (federated) AI-based analytics services	I can execute my analytics tasks without having to	As a user I can train, customize, and run (federated) AI-based analytics services	ML/AI Analytics, FML Deployment	Unchanged	N/A

			hosted on federated / cloud infrastructures	maintain the corresponding infrastructure	hosted on federated / cloud infrastructures			
<b>TR018</b>	Critical	Data analyst, researcher	be able to identify (and execute) (federated) AI-based models for EmFi use case that are appropriate for supporting incremental analytics	I can capitalize upon state-of-the-art technologies to extract insights	As a user I can identify (and execute) (federated) AI-based models for EmFi use case that are appropriate for supporting incremental analytics.	ML/AI Analytics	Revised	TR018_R
<b>TR019</b>	Critical	researcher	be able to identify and acquire AI/ML techniques for EmFi use cases that can be explained	I can better understand the results of my analysis.	As a user I can identify and acquire AI/ML techniques for EmFi use cases that can be explained	SAX Analytics	Revised	TR019_R
<b>TR020</b>	Critical	researcher	Be able to review the scores of different explainability models	I can compare alternative approaches and choose the one that is more appropriate for my needs	As a user I can review the scores of different explainability models and choose the one that is more appropriate for my needs evaluating performance vs. explainability trade-offs	Multidimensional XAI score	Revised	TR020_R
<b>TR021</b>	Critical	researcher	be able to receive explanations considering and analyzing different contextual information and internal processes	I can better understand the results of my analysis and experiment with customizing	As a user receive explanations considering and analyzing different contextual information and internal processes and get a more in depth	SAX analytics	Revised	TR021_R

				different parameters	understanding of the results of my analyses.			
<b>TR022</b>	Critical	All roles	Be able to register myself and/or my organization	I am able to use FAME and identify federated assets and trade my own assets	As a user I can register myself and/or my organization and use FAME	Operational Governance	Unchanged	N/A
<b>TR023</b>	Critical	Application provider, data provider	Be able to upload my assets on the marketplace to facilitate their trading	I can monetize my assets	As a user I can upload my assets on the marketplace	FDAC	Unchanged	N/A
<b>TR024</b>	Optional	data analyst	be able to receive suggestions on similar assets when I am searching for an asset	I can get recommendations on relevant assets	As a user I can receive recommendations for assets relevant to the ones I am searching for.	Search Engine	Unchanged	N/A
<b>TR025</b>	Preferred	data analyst	be able to communicate with asset owners towards requesting similar and/or enhanced and/or customized / personalized assets	I can get access to potentially new data assets that I am interested in	As a user I can communicate with asset owners and request new and/or additional assets	Dashboard	Unchanged	N/A
<b>TR026</b>	Preferred	data analyst	to be able to review and comment on a data asset	I can leave feedback for both the asset owners and for the other asset consumers	As a user I can review and comment on a data asset	Dashboard, FDAC	Unchanged	N/A

<b>TR027</b>	Optional	Application provider, data provider	Be able to curate my assets on the marketplace, including updating, cleaning, anonymizing, transforming them etc.	I increase their quality and thus value	As a user I can curate my assets	ML/AI Analytics	Unchanged	N/A
<b>TR028</b>	Preferred	application provider, educator, financial organization	Be able to provide educational content to my customers, employees etc. through e.g., training courses, webinars, white papers etc	I can provide training material for finance sector enthusiasts and/or professionals, and indirectly further increase the value of my assets	As a user I can upload and/or provide educational content and related training material.	Learning Centre	Priority change	N/A
<b>TR040</b>	Critical	data provider	be able to create and market new data assets for use in embedded finance by leveraging advanced analytical tools and diverse datasets.	I can provide valuable, fact-based insights to financial service providers, enhancing decision-making and service offerings.	As a user, I can develop and market data-driven financial insights.	AI/ML Analytics	New	N/A
<b>TR041</b>	Critical	Software Developer	be able to develop a user-friendly front-end interface for system access.	I can provide users with a way to easily navigate and interact with the system, enhancing user	As a user, I can develop an accessible, user-friendly interface.	Dashboard	New	N/A

				experience and accessibility.				
<b>TR042</b>	Optional	Application Provider	be able to implement federated authentication and authorization mechanisms to verify users and manage their access to system facilities.	I can provide secure and efficient access to the system's services, enhancing both security and user experience.	As a user, I can implement secure access controls and enhance system security.	AAI	New	N/A
<b>TR043</b>	Optional	data provider	be able to enable provenance and traceability of data, allowing users to track data flow and access its history.	I can verify the origin and data history, to provide transparency and trust from the data's integrity and authenticity.	As a user, I can enable data and traceability transparency.	Assets Provenance and Traceability	New	N/A
<b>TR044</b>	Optional	data provider	be able to exploit a data access catalogue	I can quickly locate and access the data they need, improving efficiency and facilitating informed decision-making.	As a user, I can exploit a data access catalogue to improve efficiency and decision-making	FDAC	New	N/A
<b>TR045</b>	Optional	data analyst, researcher	be able to exploit a ranked-based search engine for easy access and usability of data.	I can efficiently find the most relevant information based on their	As a user, I can exploit a ranked search engine to enhance data	Search Engine	New	N/A

				search criteria, enhancing productivity and decision-making processes.	accessibility and relevance.			
<b>TR049</b>	Optional	Application Provider	be able to implement energy-efficient analytics to optimize system operability.	I can reduce energy consumption while maintaining efficient system operations, leading to cost savings and environmental sustainability.	As a user, I can implement energy-efficient analytics to optimize operations and sustainability.	Energy Efficient Analytics	New	N/A
<b>TR050</b>	Optional	data analyst, researcher	be able to utilize AI/ML analytics to facilitate and optimize the output of system evaluations.	I can improve the efficiency and accuracy of system evaluations, leading to better decision-making and outcomes.	As a user, I can utilize AI/ML analytics to enhance system evaluations and decision-making.	ML/AI Analytics	New	N/A
<b>TR101</b>	Preferred	data provider	be able to handle asset returns or any disputes	I can effortlessly obtain to proper asset quality	As a user I can obtain quality assets by handling returns or disputes in an efficient way	FDAC	Revised	TR101_R

<b>TR102</b>	Preferred	data provider	be able to trade produced data assets	I can monetize the produced by FAME results	As a user I can trade in FAME marketplace my data assets that are produced through FAME tools	Assets Trading and Monetization	Revised	TR102_R
<b>TR103</b>	Optional	data provider	be able to replicate a data asset	I can create different versions of the data assets I own	As a user I can create a copy of my data asset and create a new version of it	FDAC	Revised	TR103_R
<b>TR104</b>	Optional	data provider	have a version control of my data assets	I can track changes on my data assets	As a user I am able to create, management and check the different versions of my data assets, so I can replicate my steps	FDAC	Revised	TR104_R
<b>TR105</b>	Critical	data analyst	search and explore the data assets of the marketplace via an intelligent way (i.e. filters, keywords, metadata, word combination)	I can easily and effectively discover what I am interested in	As a user I can search and discover data assets using multiple search ways	Search Engine	Revised	TR105_R
<b>TR106</b>	Preferred	data analyst	be able to discuss, review and comment on a data asset	I decide if I will purchase the data asset	As a user I can review and comment on a data asset	FDAC, Dashboard	Revised	TR106_R
<b>TR107</b>	Preferred	data provider	be able to automatically update data assets with new data and commenting mechanisms	I can create a new version of my data asset with knowledge exchange	As a user I am able to upload new data and create comments, reviews, inquiries and discussions around different versions	FDAC, Dashboard	Revised	TR107_R

<b>TR108</b>	Optional	data provider	be able to automatically update data assets with new data via a file upload mechanism	I can create a new version of my data asset	As a user I am able to upload new data via new files on my data assets and create a new version of it	FDAC, Dashboard	Revised	TR108_R
<b>TR109</b>	Preferred	data provider	be able to identify, alter and mask client sensitive information on upload	I can protect sensitive information of my data asset	As a user I am able to perform anonymisation on my data assets	AI/ML Analytics	Unchanged	N/A
<b>TR110</b>	Critical	data provider	be able to configure and set the access usage policies on my data assets	I can define who can have access to my data assets and under which conditions	As a user I can set the preferred access usage policies to my data assets	Assets Policy Manager	Revised	TR110_R
<b>TR111</b>	Optional	educator	be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals	As a user I can upload training material and make it available to interested parties	Learning Centre	Revised	TR111_R
<b>TR112</b>	Optional	financial organization	be able to access tutorials, Webinars, How-to videos, Jupyter notebooks	I can find training material for finance sector professionals	As a user I can find training material for the finance sector professional	Learning Centre	Revised	TR112_R
<b>TR113</b>	Optional	data provider	to be able to find data assets statistics (usage, downloads)	I can track the usage of my data assets	As a user I can see the data usage statistics of my data assets	FDAC, Dashboard	Revised	TR113_R
<b>TR114</b>	Optional	data provider	be able to keep track of the changes performed on my data asset	I can have an overview of the changes performed on	As a user I am able to view the changes performed on my data assets on each version	FDAC, Dashboard	Revised	TR114_R

				each version of my data asset				
<b>TR115</b>	Preferred	data analyst	be able to purchase a selected portion of a dataset (e.g. a selected portion or percentage) on a different price	I can purchase only the part of the dataset that I am interested in	As a user I am able to request and purchase only the part of the dataset that I am interested in	Assets Trading and Monetization	Revised	TR115_R
<b>TR116</b>	Optional	data analyst	be able to contact a specific organisation/entity to request for an additional data asset (not currently listed in the marketplace)	I can get access to potentially new data assets that I am interested in	As a user I am able to contact any other organisation and request for additional data assets	Dashboard	Revised	TR116_R
<b>TR117</b>	Optional	data provider	be able to get suggestions on the price for my data asset based on the prices of similar data assets	I can get a recommendation on what the candidate price of my data asset could be	As a user I get recommendations on the pricing of my data assets based on similar data assets on the marketplace	Pricing Advisor	Revised	TR117_R
<b>TR118</b>	Optional	data analyst	be able to receive recommendations on similar assets when I am searching a data asset	I can get recommendations for relevant data assets	As a user when I am searching a data asset I get recommendation for similar data assets	Search Engine	Revised	TR118_R
<b>TR119</b>	Critical	data provider	be able to trade my assets on the marketplace and track their trade statistics	I can monetize my assets and have a clear view of their trade statistics	As a user I can trade my assets on the marketplace and check how many times they are purchased by other users	Assets Trading and Monetization	Revised	TR119_R
<b>TR120</b>	Preferred	software developer	to be able to export the purchase data assets	I can use them locally	As a user I am able to export the purchased data assets in order to use them locally	FDAC	Revised	TR120_R

<b>TR121</b>	Optional	data analyst	be able to use historical data	I can understand customer behaviour	As a user I can engage with customer behavioural trends via the use of historical data	FDAC, AI/ML Analytics	New	N/A
<b>TR122</b>	Critical	data analyst	be able to have insightful explanations on my models	I can understand recommendations made	As a user I can gain insight in recommendations made by interpreting explanations of my models	XAI	New	N/A
<b>TR123</b>	Preferred	data analyst	be able to generate new data assets	I can have synthetic data generated from other privately owned data assets	As a user I can generate synthetic data from other privately owned data assets	AI/ML Analytics	New	N/A
<b>TR124</b>	Critical	data provider	be able to manage policies	I can enforce policies at a federation level	As a user I am able to enforce policies at a federation level with the appropriate management policy tools	Assets Policy Manager	New	N/A
<b>TR125</b>	Critical	data analyst	be able to access analytical tools	I can analyze customer data and identify different profiles	As a user I can analyze customer data, identifying their different profiles by having access to the right analytical tools	AI/ML Analytics	New	N/A
<b>TR126</b>	Critical	data analyst	be able to access analytical tools	I can cross various dimensions based on	As a user I can have layers of customer profiles by having	AI/ML Analytics	New	N/A

				customer profile or merchant business type	access to the right analytical tools			
<b>TR127</b>	Critical	data analyst	be able to create a scoring ML model	I can predict installment risk	As a user I can predict installment risks by creating ML models	AI/ML Analytics	New	N/A
<b>TR128</b>	Preferred	data analyst	to be able to access analytical tools that consume data	I can predict product consumption and friction point.	As a user I can predict product consumption and its friction points by having access to the appropriate analytical tools	AI/ML Analytics	New	N/A
<b>TR129</b>	Optional	data analyst	be able to access analytical tools	I can cross product risk with other similar products	As a user I can check product risks in comparison to other similar products by having access to the respective analytical tools	AI/ML Analytics	New	N/A
<b>TR130</b>	Preferred	data provider	be able to maintain a catalogue	I can have customer profile generation	As a user I can generate customer profiles to maintain relevant customer data	FDAC, Dashboard	New	N/A
<b>TR131</b>	Preferred	data provider	be able to maintain a catalogue	to support instalment risk ML model development	As a user I want to have a catalogue of developed ML models on instalment risks	ML/AI analytics	New	N/A

<b>TR201</b>	Critical	data analyst	be able to train a ML model in FAME	I extract behavioural patterns	As a user I can train a ML model to analyse my assets and extract behavioural patterns	ML/AI analytics	Revised	TR201_R
<b>TR202</b>	Preferred	data provider	be able to get rewards in tokens for sharing my assets	I can spend the tokens on FAME to buy assets or services	As a user I get rewards for sharing the assets in FAME so that I can use to buy services or other assets	Assets Trading and Monetization	Revised	TR202_R
<b>TR203</b>	Preferred	data provider	be able to offer of my assets only to registered users	I can limit the access to them	As a user I am able to protect my assets from being offered to unregistered users	Assets Policy Manager	Revised	TR203_R
<b>TR204</b>	Preferred	data provider	be to define the appropriate access policies on my assets	I can define who can have view my listed assets	As a user I am able to configure the desired access policies for the permission to a user to view my assets	Assets Policy Manager	Unchanged	N/A
<b>TR205</b>	Critical	software developer	to be able to access tutorials, Webinars, How-to videos, online training sessions	I can find training material for the IT personnel	As a user I can find training material for the IT personnel	Learning Centre	Revised	TR205_R
<b>TR206</b>	Preferred	data analyst	be able to train a ML model	be able to receive analytics to examine incident cases	As a user I can train receive analytics to examine incident cases and make use of telematics	ML/AI Analytics	Revised	TR206_R
<b>TR207</b>	Critical	data provider	be able to configure and set the access usage policies on my data assets	I can define who can have access to my data assets and	As a user I can set the preferred access usage policies to my data assets	Assets Policy Manager	Revised	TR207_R

				under which conditions				
<b>TR208</b>	Preferred	application provider	be able to correlate and filter data and properly visualise them	I can extract useful insights based on my needs	As a user I can create visualizations from correlated or filtered data to extract insights	Dashboard, ML/AI Analytics	Revised	TR208_R
<b>TR209</b>	Critical	data provider	be able to use citizen services	I can receive discounts based on historical data and citizen profiling	As a user I can receive discounts based on historical data and citizen profiling	ML/AI Analytics	Revised	TR209_R
<b>TR210</b>	Preferred	data analyst	be able to train a ML model with historical data	I can generate demand predictions	As a user I can train a ML model with historical data in order to generate demand forecast	ML/AI Analytics	Revised	TR210_R
<b>TR212</b>	Optional	application provider	process the results of an analysis	I can produce a custom report	As a user I can create custom reports based on the results of my executed analysis	Dashboard	Unchanged	N/A
<b>TR213</b>	Optional	financial organization	be able to trade data assets	I can monetise assets with other organisations	As a user I can monetise assets via trading	Assets Trading and Monetization	Unchanged	N/A
<b>TR301</b>	Critical	All users	be able to have access to resources securely.	I can enable multi-factor authentication for data security.	As a user I have access to resources	AAI	New	N/A

<b>TR302</b>	Critical	data provider	be able to implement access control within the system.	I can manage access permissions on my assets effectively.	As a user I can implement access control on my assets	AAI, Assets Policy Manager	New	N/A
<b>TR303</b>	Critical	software developer, application provider	be able to implement OpenID for Verifiable Presentations (OID4VP) protocol for authentication, and the OpenID for Verifiable Credential Issuance (OID4VCI) protocol for user onboarding.	I can manage identity and access effectively.	As a user I can effectively manage identity access	AAI	New	N/A
<b>TR304</b>	Critical	software developer	be able to use decentralized identifiers (DIDs) to identify data providers and (organizations).	I can use identifiers without relying on a centralized registration authority.	As a user I can use identifiers without a centralized registration authority	AAI	New	N/A
<b>TR305</b>	Critical	software developer	be able to implement a system for creating credentials that can be issued, owned, and verified independently of a central authority.	I can leverage distributed ledger technology for decentralization, immutability, and cryptographic security.	As a user I can leverage distributed ledger technology	Operational Governance	New	N/A
<b>TR306</b>	Optional	software developer	be able to implement verifiable credentials and access control using a decentralized system	I can enable self-sovereign services and decentralized	As a user I can facilitate secure, decentralized identity	AAI	New	N/A

				identity management.	management with verifiable credentials.			
<b>TR307</b>	Optional	software developer	be able to provide authentication and authorization through distributed identity and verifiable credentials	I can enhance security and streamline user verification processes.	As a user I can enhance security and verification.	AAI	New	N/A
<b>TR308</b>	Optional	software developer	be able to implement a digital wallet that stores and utilizes keys, allowing users to manage and prove ownership of various tokens, and facilitating interaction with distributed ledger technologies (DLTs).	I can securely manage and operate digital assets and transactions.	As a user I can securely manage a digital wallet for assets and transactions	Assets Trading and Monetization	New	N/A
<b>TR309</b>	Optional	software developer	be able to implement a solution using Open-API standards to facilitate the integration and development of pilot services and applications.	I can enhance interoperability and streamline development processes.	As a user I can enhance interoperability	Dashboard	New	N/A
<b>TR401</b>	Preferred	financial organization	be able to develop and validate a model to provide tailored financial advice, creating a plan that allows banks and companies to achieve optimal synergy in funding processes.	I can optimize the allocation of financial resources and enhance the support for companies through the public funding process.	As a user I can optimize allocation of financial resources	AI/ML Analytics	New	N/A

<b>TR402</b>	Preferred	financial organization	be able to provide an optimized banking financing intervention plan through a tool that performs automatic and robust simulations of various potential scenarios.	I can provide the best financial outcomes and strategic decision-making for financial institutions and their clients.	As a user I can provide the best financial outcomes and strategies	AI/ML Analytics	New	N/A
<b>TR403</b>	Preferred	financial organization	be able to develop a tool that provides essential context and information for bank employees to easily and quickly understand outputs related to financial products offered to clients.	I can enhance the efficiency and effectiveness of financial product offerings to clients across multiple markets.	As a user I can improve efficiency and effectiveness of financial product offerings in a greater market spectrum	AI/ML Analytics	New	N/A
<b>TR404</b>	Preferred	software developer	be able to develop a tool to harmonize and automate processes by implementing an effective approach, with customization tailored to specific target countries.	I can streamline operations and enhance efficiency in a country-specific manner.	As a user I can smooth operations and provide efficiency in a country-specific manner	AI/ML Analytics	New	N/A
<b>TR405</b>	Preferred	data provider	be able to parameterize the financial support schemes between financial institutions and clients.	I can improve the bank's funding parameters (time, feasibility,	As a user I can optimise funding parameters	AI/ML Analytics	New	N/A

				bureaucracy, etc).				
<b>TR406</b>	Preferred	application provider	be able to provide a solution available in the marketplace to be transferred to any financial entities internationally	I can ensure data privacy control policies	As a user I can control data privacy policies to provide a solution to any financial entity	Assets Policy Manager, FDAC	New	N/A
<b>TR501</b>	Critical	data analyst	be able to train an ML algorithm on FAME	I can utilize it to perform a sorting analysis	As a user I can train an ML algorithm within FAME in order to execute an analysis	ML/AI Analytics	Unchanged	N/A
<b>TR502</b>	Preferred	data analyst	be able to upload a ML model on FAME	I can utilise it to perform a sorting analysis	As a user I can upload ML model within FAME in order to execute an analysis	ML/AI Analytics	Unchanged	N/A
<b>TR503</b>	Critical	application provider	be able to trade the results of an execute analysis in the FAME Marketplace under different pricing policies	I can monetize my asset or publish them	As a user I can trade my produced assets within FAME marketplace	Assets Trading and Monetization	Unchanged	N/A
<b>TR504</b>	Critical	educator	be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals	As a user I can upload training material and make it available to interested parties	Learning Centre	Unchanged	N/A
<b>TR505</b>	Critical	educator	be able to access tutorials, Webinars, How-to videos, Jupyter notebooks	I can find training material for finance sector professionals	As a user I can find training material for the finance sector professional	Learning Centre	Unchanged	N/A

<b>TR506</b>	Critical	data analyst	be able to set the input parameters of a ML algorithm	I can execute the algorithm with specific input	As a user I am able to set the input parameters and execute the algorithm	ML/AI Analytics	Unchanged	N/A
<b>TR507</b>	Preferred	financial organization	be able to process the results produced by an algorithm execution	I can generate custom reports	As a user I am able to process the results and produce reports	ML/AI Analytics	Unchanged	N/A
<b>TR508</b>	Preferred	data provider	be able to upload new assets in FAME	I publish it in FAME	As a user I am able to upload new assets in FAME	FDAC	Unchanged	N/A
<b>TR509</b>	Preferred	data provider	be able to pull data from an API	I save it as a new asset in FAME	As a user I am able to configure FAME to pull data from an API and store it as a new asset	FDAC	Unchanged	N/A
<b>TR510</b>	Preferred	data provider	be able to append new data on my data asset	I can create a new version of my data asset	As a user I am able to append new data and a new version of my asset is created	FDAC	Unchanged	N/A
<b>TR511</b>	Preferred	data provider	be able to update (replace) my data asset	I can modify my data asset	As a user I am able to update my data asset by replacing it.	FDAC	Unchanged	N/A
<b>TR512</b>	Preferred	data analyst	be able to schedule the periodic execution of a ML algorithm	I can periodically produce results	As a user I am able to schedule the execution of an ML algorithm and store the results	Smart Deployment	Unchanged	N/A
<b>TR513</b>	Critical	data analyst	be able to execute NLP algorithms	I can perform text analysis	As a user I am able to perform text analysis with the use of NLP algorithms	ML/AI Analytics	Unchanged	N/A

<b>TR514</b>	Critical	data analyst	be able to create a pipeline of trained ML models	I can execute multiple ML models sequentially	As a user I am able to execute multiple ML models as a chain	Smart Deployment	Unchanged	N/A
<b>TR515</b>	Optional	financial organization	be able to perform comparison analysis	I can compare my own results with 3rd parties	As a user I am able to compare my results with results from 3rd parties	FDAC, Dashboard	Unchanged	N/A
<b>TR601</b>	Critical	data analyst	be able to train supervised ML models	I can perform analysis and correlation of my data assets	As a user I am able to train a supervised ML Model and use it to perform an analysis of my data assets	ML/AI analytics	Revised	TR601_R
<b>TR602</b>	Critical	data analyst	be able to get data (through API or connector) from CDS to FAME	I can use them to perform an analysis	As a user I am able to fetch data from CDS and include them in my analysis	FDAC	Unchanged	N/A
<b>TR603</b>	Critical	data analyst	be able to execute a trained ML model using fixed features	I can get the results for specific fixed features	As a user I am able to execute a trained model using a specific fixed set of features as input and get the corresponding results	ML/AI analytics	Unchanged	N/A
<b>TR604</b>	Critical	data analyst	be able to search for ML models in the marketplace	I can purchase them to perform an analysis	As a user I am able to search a trained ML model from the marketplace to perform an analysis	Search Engine	Unchanged	N/A
<b>TR605</b>	Critical	data provider	be able to upload my data assets and trade them	I can monetize my data assets	As a user I am able to upload my data asset	FDAC	Unchanged	N/A

					in the FAME marketplace			
<b>TR606</b>	Critical	data analyst	be able to purchase data assets from the marketplace	I can use them to perform an analysis	As a user I am able to purchase data assets based on my preferences and use them in my analysis	FDAC	Unchanged	N/A
<b>TR607</b>	Critical	data provider	be able to configure and set the access usage policies on my data assets	I can define who can have access to my data assets and under which conditions	As a user I can set the preferred access usage policies to my data assets	Assets Policy Manager	Revised	TR607_R
<b>TR608</b>	Preferred	educator	be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals	As a user I can upload training material and make it available to interested parties	Learning Centre	Unchanged	N/A
<b>TR609</b>	Preferred	financial organization	be able to access tutorials, Webinars, How-to videos, Jupyter notebooks	I can find training material for finance sector professionals	As a user I can find training material for the finance sector professional	Learning Centre	Unchanged	N/A
<b>TR610</b>	Critical	data analyst	be able to download a purchased data asset	I can use them to exploit them locally	As a user I can download a purchased data asset locally on my system.	FDAC	Unchanged	N/A
<b>TR611</b>	Critical	data analyst	be able to create a pipeline of trained ML models	I can execute multiple ML models sequentially	As a user I am able to execute multiple ML models as a chain	Smart Deployment	Unchanged	N/A

<b>TR612</b>	Optional	data analyst	be able to trade the results of my analysis in the marketplace	I can monetize the results of my performed analysis	As a user I am able to trade my results in the FAME marketplace	Assets Trading and Monetization	Unchanged	N/A
<b>TR613</b>	Optional	financial organization	be able to purchase results or reports from performed analysis from the marketplace	I can exploit them	As a user I am able to purchase results or reports from FAME marketplace	FDAC	Unchanged	N/A
<b>TR614</b>	Preferred	application provider	be able to publish a service on the FAME catalogue	I can get requests from potential customers for specific analysis at a specific price	As a user I am able to publish a service on FAME marketplace that performs an analysis on demand and on a specific price	FDAC	Unchanged	N/A
<b>TR615</b>	Critical	data analyst	be able to purchase ML models in the marketplace	I can use them to perform an analysis	As a user I am able to purchase a trained ML model from the marketplace and use it to perform an analysis	FDAC	Unchanged	N/A
<b>TR616</b>	Critical	data provider	be able to trade my data assets	I can monetize my data assets	As a user I am able to trade my data assets in the FAME marketplace	Assets Trading and Monetization	Unchanged	N/A
<b>TR701</b>	Preferred	data provider	be able to assess the quality of my data assets	I can validate their applicability for predictive analytics	As a user I am able to assess the quality of my assets using metrics / quality dimension (completeness,	AI/ML Analytics	Unchanged	N/A

					timeliness, validity, etc.)			
<b>TR702</b>	Preferred	data provider	be able to assign a quality score to each of my data assets	I can compare them among them and give them a price	As a user I can assign a quality score comparison between raw and processed data	AI/ML Analytics	Unchanged	N/A
<b>TR703</b>	Preferred	data provider	be able to estimate the worth of each data asset used for maintenance	I can assign them an indicative pricing	Provision of a model/calculation based on the effort spent for the QA process (WP4 to assist in defining specific pricing models)	AI/ML Analytics	Unchanged	N/A
<b>TR704</b>	Preferred	data provider	be able to compare the performance of new analytical models against the existing ones already in use	I can identify the most performant model for further usage	FAME offers the tools to compare the models in use with the suggested new models e.g. by selecting specific periods in the time series and comparing results in order to assess their performance	ML/AI Analytics, Smart deployment	Unchanged	N/A
<b>TR705</b>	Optional	data provider	be able to make my industrial data assets available through FAME under my preferred license schemes	I can re-purpose/reuse/sell data assets for industrial maintenance	As a user during dataset uploading process, I am able to select from a list various relevant licensing schemes	Assets Policy Manager	Unchanged	N/A

<b>TR706</b>	Critical	software developer	be able to use tools that FAME has to offer to achieve more trusted prediction results	I can analyze IIoT datasets in a trusted manner	As a user I am able to use trusted analytics and energy-efficiency tools to process federated datasets stored in the infrastructure and provide trusted insights	FML Deployment	Unchanged	N/A
<b>TR707</b>	Preferred	data analyst	be able to use tools available in FAME catalogue in order to facilitate data/analytic-related tasks	I can increase the utilization of proprietary data assets	As a user I am able to use the search engine to provide with relevant results based on keywords and metadata	Search Engine	Unchanged	N/A
<b>TR708</b>	Preferred	data provider	be provided with the means to create/upload/share/index/find training materials	I can train industrial workers on how to assess and understand data produced by IIoT devices and sensors	As a user I am offered the means to create/upload/share training materials, facilitate the indexing, finding of relevant training materials	Learning Centre	Unchanged	N/A
<b>TR709</b>	Critical	data provider	be able to allow analysts to search for available XAI solutions based on criteria such as the type of the underlying ML model and data	I can increase the trustworthiness of the current AI models used in IIoT	As a user I am able to find the available XAI solutions for timeseries DL models in the FAME catalogue	FDAC	Unchanged	N/A
<b>TR710</b>	Critical	data provider	be able to have access to the existing data assets	I can develop secondary (derivative)	As a user I am facilitated to access and use existing assets in order to	FDAC	Unchanged	N/A

				data assets and applications	develop secondary ones			
<b>TR711</b>	Optional	researcher	be able to identify end-user XAI techniques for timeseries forecasting models	I can increase the trustworthiness of AI models used in IIoT	As a user I am able to find and utilize XAI techniques to increase the trustworthiness of the AI models	FDAC	Unchanged	N/A
<b>TR712</b>	Preferred	researcher	be able to produce explanations of the results of AI (ML) models in proper form	I can increase the trustworthiness of AI models	As a user I am able to provide a high-level explanation understandable to non-technical users (which can be acted upon)	SAX analytics	Revised	TR712_R
<b>TR713</b>	Preferred	data provider	be able to train industrial workers on how to assess, use and interpret the outcomes of AI/XAI systems related to machinery health	I can increase the acceptance of novel AI-based systems by industrial workers	As a user I am offered the means to create/upload/index/find training materials	Learning Centre	Unchanged	N/A
<b>TR714</b>	Critical	researcher	be able to evaluate XAI models applied on timeseries forecasting models	I can compare different XAI solutions applied on the same forecasting model	As a user I am able to use the trusted analytics tools which provide an explainability score for a given XAI model	FDAC	Unchanged	N/A
<b>TR715</b>	Critical	data provider	be able to configure and set the access usage policies on my data assets	I can define who can have access to my data assets and under which conditions	As a user I can set the preferred access usage policies to my data assets	Assets Policy Manager	Revised	TR715_R

### 7.3 Mapping of Business Requirements to Technical Requirements

The performed for the extraction of the technical requirements cannot be viewed independently from the collected business requirements that were presented in Section 3. As described in the adopted requirement methodology in Section 2, the technical requirements co-creation workshops that were organised after the business requirements co-creation workshops took as input the list of business requirements that were collected and ensured that all of them were firstly analysed and then translated into a set of technical requirements per business requirement.

The following table present the mapping between the elicited business requirements and the extracted technical requirements. The particular backlog constitutes a confirmation that all business requirements were taken into consideration and will be used to monitor the progress of the development activities in respect to the business needs of the demonstrator partners.

Table 17 - Mapped business requirements to technical requirements

Business Req. ID	Technical Req. ID	Similar to	Priority	As a/an ..	I want to ..	So That ..	Status
GR_001	TR001	TR208	Critical	application provider	to be able to properly visualise available assets and the outputs of the analysis of the assets	I can extract useful insights based on my needs	Unchanged
GR_002	TR002	N/A	Critical	all users	be able to access the assets of several marketplaces and data spaces using a single sign-on mechanism	I do not have to log in to each discrete marketplace and data space to identify and obtain the assets of interest	Unchanged
GR_004	TR003	TR110, TR207, TR607, TR715	Critical	Application provider / data provider	be able to manage and enforce access and visibility restrictions on my assets, based on defined criteria (including e.g., organization type, user role, locality etc.).	I can ensure the sovereignty of the data being traded and I can restrict access to my assets to organizations and individuals based upon	Unchanged

							regulatory and other constraints
<b>GR_008</b>	TR004	TR105, TR709	Critical	data analyst / researcher	be able to identify and discover assets that are hosted in different marketplaces, data spaces etc. that are useful for me, without having to search each marketplace, data space etc. individually.	I can perform my tasks more quickly and with less effort.	Unchanged
<b>GR_009</b>	TR005	TR120, TR602, TR610, TR710	Critical	data analyst / researcher	be able to acquire and (locally) download discovered assets that are hosted in different marketplaces, data spaces etc..	I can use them both online and/or offline/locally to perform my tasks	Unchanged
<b>GR_010</b>	TR006	N/A	Critical	data provider	Be able to transform my assets to standard EmFi ontologies and models	I add value to my assets making them more easily linkable with other assets complying with ontologies from the finance sector	Unchanged
<b>GR_011</b>	TR007	TR109, TR110, TR114	Critical	Application provider, data provider, regulator	be able to define security and privacy policies	I can safeguard the compliance of my assets with applicable security and privacy regulations (e.g. PSDII, GDPR, etc.).	Unchanged
<b>GR_012</b>	TR008	N/A	Critical	data provider / researcher	be able to trace an asset and attest its provenance	I can safeguard my IPRs and trace back the original owner of an asset	Unchanged

<b>GR_013</b>	TR009	TR113	Critical	data provider / researcher	to be able to query the metadata of the assets included in the catalogue, including data assets statistics (usage, downloads)	I can identify suitable assets and/or track the usage of data assets	Unchanged
<b>GR_014</b>	TR010	TR115	Critical	data provider / researcher	be able to activate different schemes for different users, communities, collections of data assets and other granularities	I can facilitate their monetization exploiting different trading schemes	Unchanged
<b>GR_015</b>	TR011	TR117, TR703	Critical	Application provider, data provider	be able to get dynamic asset price suggestions according to the demand and be presented with different monetization options regarding my assets	I can review my assets' price estimates and be able to trade and monetize my assets more efficiently.	Unchanged
<b>GR_016a</b>	TR012	TR102, TR119, TR503, TR605, TR612, TR616, TR705	Critical	Application provider, data provider	be able to trade my assets in a secure and traceable manner, exploiting different asset trading, pricing, and monetization schemes	I can monetize my assets efficiently and securely	Unchanged
<b>GR_017</b>	TR013	N/A	Critical	Application provider, data provider	be able to trade my assets using secure contracts building upon one common trading instrument (e.g., tokens)	I can sell or exchange my assets in a secure and trustworthy manner	Unchanged
<b>GR_018</b>	TR014	TR008, TR105, TR709	Critical	Data analyst, researcher	be able to perform semantic search queries	I can retrieve relevant results from various	Unchanged

						distributed repositories	
<b>GR_019</b>	TR015	N/A	Critical	Data analyst, researcher	be able to see the results of assets I am searching for, ranked based upon their relevance	I can more easily select the assets that more relevant for the tasks I wish to accomplish	Unchanged
<b>GR_020_R</b>	TR003_R	TR002, TR011, TR012, TR013, TR021, TR023 TR119_R, TR603 TR614, TR616	Critical	All Users	be able to seamlessly access and trade assets, manage access restrictions on my assets, ensuring data sovereignty and compliance with regulations, optimize trading and revenue, and secure, traceable transactions using common trading instruments.	I can effectively navigate the market ecosystem and get maximum value from my participation.	Revised
<b>GR_021</b>	TR016	N/A	Critical	researcher	be able to identify and acquire AI/ML techniques for EmFi use cases	I do not need to create models to resolve problems in the domain, that have already been created by other researchers.	Unchanged
<b>GR_022</b>	TR017	TR513, TR601	Critical	researcher	be able to train, customize and run (federated) AI-based analytics services hosted on federated / cloud infrastructures	I can execute my analytics tasks without having to maintain the corresponding infrastructure	Unchanged
<b>GR_023_R</b>	TR018_R	N/A	Critical	researcher	be able to identify (and execute) (federated) AI-based models for EmFi use case that are	I can capitalize upon state-of-the-	Revised

					appropriate for supporting incremental analytics	art technologies to extract insights	
<b>GR_024_R</b>	TR019_R	TR711, TR712, TR714	Critical	researcher	be able to identify and acquire AI/ML techniques for EmFi use cases that can be explained	I can better understand the results of my analysis.	Revised
<b>GR_025_R</b>	TR020_R	N/A	Critical	researcher	Be able to review the scores of different explainability models	I can compare alternative approaches and choose the one that is more appropriate for my needs	Revised
<b>GR_026_R</b>	TR021_R	N/A	Critical	researcher	be able to receive explanations considering and analysing different contextual information and internal processes	I can better understand the results of my analysis and experiment with customizing different parameters	Revised
<b>GR_027_R</b>	TR049	N/A	Mandatory	Application provider, data analyst, researcher	Have at my disposal mechanisms that incrementally and continually compute (real-time / run-time) results of analytical query operations	I can design time-critical incremental analytics applications exploiting available real-time data	New
<b>GR_029</b>	TR049	N/A	Optional	Application provider, data analyst, researcher	be able to receive information about the I/O accesses, data transfer and CPU consumption	I can efficiently monitor the carbon footprint of	New

						analytical query operations	
<b>GR_032</b>	TR022	TR203	Critical	All roles	Be able to register myself and/or my organization	I am able to use FAME and identify federated assets and trade my own assets	Unchanged
<b>GR_033</b>	TR023	TR108, TR605	Critical	Application provider, data provider	Be able to upload my assets on the marketplace to facilitate their trading	I can monetize my assets	Unchanged
<b>GR_034</b>	TR024	TR118	Optional	data analyst	to be able to receive suggestions on similar assets when I am searching for an asset	I can get recommendations on relevant assets	Unchanged
<b>GR_035</b>	TR025	TR116	Preferred	data analyst	to be able to communicate with asset owners towards requesting similar and/or enhanced and/or customized / personalized assets	I can get access to potentially new data assets that I am interested in	Unchanged
<b>GR_036</b>	TR026	TR106	Preferred	data analyst	be able to review and comment on a data asset	I can leave feedback for both the asset owners and for the other asset consumers	Unchanged
<b>GR_037</b>	TR027	TR102, TR108, TR109, TR707	Critical	Application provider, data provider	Be able to curate my assets on the marketplace, including updating, cleaning, anonymizing, transforming them etc.	I increase their quality and thus value	Unchanged
<b>GR_038</b>	TR028	TR205, TR504, TR505	Preferred	application provider, educator,	Be able to provide educational content to my customers, employees etc. through e.g.,	I can provide training material for finance sector enthusiasts and/or	Unchanged

				financial organization	training courses, white papers etc	webinars, professionals, and indirectly further increase the value of my assets	
<b>GR_039</b>	TR110_R	N/A	Critical	data provider	be able to control data usage policies	I can have sovereignty of my data	New
<b>GR_040</b>	TR120_R	N/A	Critical	data provider	be able to provide data asset download permissions	I can have an enriched marketplace for my data assets	New
<b>GR_041</b>	TR124	N/A	Critical	data provider	be able to manage and enforce policies at a federation level	I have full compliance with existing regulations	New
<b>GR_042</b>	TR207_R, TR607_R, TR715_R	N/A	Critical	data provider	be able to have access to data usage control policies	I ensure sovereignty the data being traded	New
<b>GR_043</b>	TR712_R	N/A	Preferred	data analyst, researcher	be able to obtain meaning explanations of machine learning model results	I can increase trust amongst stakeholders but also to increase understanding in the decision-making processes	New
<b>GR_044</b>	TR041	N/A	Critical	Software Developer	be able to develop a user-friendly front-end interface for system access.	I can provide users with a way to easily navigate and interact with the system, enhancing user experience and accessibility.	New

<b>GR_045</b>	TR042	N/A	Optional	Application Provider	be able to implement federated authentication and authorization mechanisms to verify users and manage their access to system facilities.	I can provide secure and efficient access to the system's services, enhancing both security and user experience.	New
<b>GR_046</b>	TR043	N/A	Optional	data provider	be able to enable real-time provenance and traceability of data, allowing users to track data flow and access its history.	I can verify the origin and data history, to provide transparency and trust from the data's integrity and authenticity.	New
<b>GR_047</b>	TR044	N/A	Optional	data provider	be able to provide a data access catalogue	I can quickly locate and access the data they need, improving efficiency and facilitating informed decision-making.	New
<b>GR_048</b>	TR045	N/A	Optional	data analyst, researcher	be able to implement a ranked-based search engine for easy access and usability of data.	I can efficiently find the most relevant information based on their search criteria, enhancing productivity and decision-making processes.	New

<b>GR_062</b>	TR047	N/A	Optional	Software Developer/ Application Provider	be able to create a common data model and structures in the form of a formal vocabulary that paves the way for accurate and reliable communication among computers.	I can exchange information seamlessly and accurately between different systems, facilitating interoperability and enabling efficient data communication and processing.	New
<b>GR_050</b>	TR049	N/A	Optional	Application Provider	be able to implement energy-efficient analytics to optimize system operability.	I can reduce energy consumption while maintaining efficient system operations, leading to cost savings and environmental sustainability.	New
<b>GR_051</b>	TR050	N/A	Optional	data analyst, researcher	be able to utilize AI/ML analytics to facilitate and optimize the output of system evaluations.	I can improve the efficiency and accuracy of system evaluations, leading to better decision-making and outcomes.	New
<b>P1_BR1_R</b>	TR101_R	N/A	Preferred	data provider	be able to handle asset returns or any disputes	I can effortlessly obtain to proper asset quality	Revised

<b>P1_BR2_R</b>	TR102_R	N/A	Preferred	data provider	be able to trade produced data assets	I can monetize the produced by FAME results	Revised
<b>P1_BR3_R</b>	TR103_R	N/A	Optional	data provider	be able to replicate a data asset	I can replicate procedures with new data updates	Revised
<b>P1_BR3_R</b>	TR104_R	N/A	Optional	data provider	have a version control of my data assets	I can track changes on my data assets and replicate my data analysis steps	Revised
<b>P1_BR4_R, P1_BR23_R</b>	TR105_R	N/A	Critical	data provider	search and explore the data assets of the marketplace via an intelligent way (i.e. beyond classical keyword based search engines)	I can easily and effectively discover what I am interested in	Revised
<b>P1_BR5_R, P1_BR25_R</b>	TR106_R	N/A	Preferred	data analyst	be able to discuss, review and comment on a data asset	I decide if I will purchase the data asset	Revised
<b>P1_BR5_R, P1_BR25_R</b>	TR107_R	N/A	Preferred	data provider	be able to automatically update data assets with new data and commenting mechanisms	I can create a new version of my data asset with knowledge exchange	Revised
<b>P1_BR6_R, P1_BR27</b>	TR108	N/A	Optional	data provider	be able to automatically update data assets with new data via a file upload mechanism	I can create a new version of my data asset	Revised
<b>P1_BR14, P1_BR_28, P1_BR_40</b>	TR109	N/A	Critical	data provider	be able to identify, alter and mask client sensitive information on upload	I can protect sensitive information of my data asset	Unchanged
<b>P1_BR13, P1_BR_28</b>	TR110	N/A	Critical	data provider	be able to configure and set the access usage policies on my data assets	I can define who can have access to my data assets and	Unchanged

							under which conditions	
<b>P1_BR9_R</b>	TR111_R	N/A	Optional	educator	be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals		Revised
<b>P1_BR9_R</b>	TR112_R	N/A	Optional	financial organization	be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals		Revised
<b>P1_BR11_R, P1_BR20_R, P1_BR21_R</b>	TR113_R	N/A	Optional	data provider	be able to find data assets statistics (usage, views, downloads)	I can track the usage of my data assets		Revised
<b>P1_BR12_R</b>	TR114_R	N/A	Preferred	data provider	be able to keep track of the changes performed on my data asset	I can have an overview of the changes performed on each version of my data asset		Revised
<b>P1_BR15_R</b>	TR115_R	N/A	Preferred	data analyst	be able to purchase a selected portion of a dataset (e.g. a selected portion or percentage) on a different price	I can purchase only the part of the dataset that I am interested in		Revised
<b>P1_BR16_R</b>	TR116_R	N/A	Optional	data analyst	be able to contact a specific organisation/entity to request for an additional data asset (not currently listed in the marketplace)	I can get access to potentially new data assets that I am interested in		Revised
<b>P1_BR17_R</b>	TR117_R	N/A	Optional	data provider	be able to get suggestions on the price for my data asset based on the prices of similar data assets	I can get a recommendation on what the candidate price of		Revised

						my data asset could be	
<b>P1_BR18_R</b>	TR118_R	N/A	Optional	data analyst	be able to receive recommendations on similar assets when I am searching a data asset	I can get recommendations for relevant data assets	Revised
<b>P1_BR21_R</b>	TR119_R	N/A	Critical	data provider	be able to trade my assets on the marketplace and track their trade statistics	I can monetize my assets and have a clear view of their trade statistics	Revised
<b>P1_BR24_R</b>	TR120_R	N/A	Preferred	software developer	be able to export the purchase data assets	I can use them locally	Revised
<b>P1_BR29</b>	TR121	N/A	Critical	data analyst	be able to use historical data	I can understand customer behaviour	New
<b>P1_BR30</b>	TR122	N/A	Critical	data analyst	be able to have insightful explanations on my models	I can understand recommendations made	New
<b>P1_BR31</b>	TR123	N/A	Preferred	data analyst	be able to generate new data assets	I can have synthetic data generated from other privately owned data assets	New
<b>P1_BR33</b>	TR125	N/A	Critical	data analyst	be able to access analytical tools	I can analyze customer data and identify different profiles	New
<b>P1_BR34</b>	TR126	N/A	Critical	data analyst	be able to access analytical tools	I can cross various dimensions based on customer profile or merchant business type	New

<b>P1_BR35</b>	TR127	N/A	Critical	data analyst	be able to create a scoring ML model	I can predict installment risk	New
<b>P1_BR36</b>	TR128	N/A	Preferred	data analyst	to be able to access analytical tools that consume data	I can predict product consumption and friction point.	New
<b>P1_BR37</b>	TR129	N/A	Optional	data analyst	be able to access analytical tools	I can cross product risk with other similar products	New
<b>P1_BR38</b>	TR130	N/A	Preferred	data provider	be able to maintain a catalogue	I can have customer profile generation	New
<b>P1_BR39</b>	TR131	N/A	Preferred	data provider	be able to maintain a catalogue	to support instalment risk ML model development	New
<b>P2_BR1_R, P2_BR6_R, P2_BR11</b>	TR201_R	N/A	Critical	data analyst	be able to train a ML model in FAME	I can extract behavioural patterns	Revised
<b>P2_BR2, P2_BR4_R</b>	TR202_R	N/A	Critical	data provider	be able to get rewards in tokens for sharing my assets	I can spend the tokens on FAME to buy assets or services	Revised
<b>P2_BR2, P2_BR4_R</b>	TR203_R	N/A	Critical	data provider	be able to offer of my assets only to registered users	I can limit the access to them	Revised
<b>P2_BR2</b>	TR204	N/A	Preferred	data provider	be to define the appropriate access policies on my assets	I can define who can have view my listed assets	Unchanged
<b>P2_BR3_R</b>	TR205_R	N/A	Critical	software developer	be able to access tutorials, Webinars, How-to videos, online training sessions	I can find training material for the IT personnel	Revised

<b>P2_BR5_R</b>	TR206_R	N/A	Preferred	data analyst	be able to receive analytics to examine incident cases	I can make use of telematics and reduce costs on parking areas control from municipal police	Revised
<b>P2_BR8_R</b>	TR208_R	N/A	Critical	application provider	be able to correlate and filter data and properly visualize them	I can extract useful insights based on my needs	Revised
<b>P2_BR9_R</b>	TR209_R	N/A	Critical	data provider	be able to use citizen services	I can receive discounts based on historical data and citizen profiling	Revised
<b>P2_BR12_R</b>	TR210_R	N/A	Preferred	data analyst	be able to train a ML model with historical data	I can generate demand predictions	Revised
<b>P2_BR16</b>	TR213	N/A	Optional	financial organization	be able to trade data assets	I can monetize assets with other organizations	Unchanged
<b>P3_BR1</b>	TR301	N/A	Critical	All users	be able to control access to resources securely.	I can enable multi-factor authentication for data security.	New
<b>P3_BR2</b>	TR302	N/A	Critical	data provider	be able to implement access control within the system.	I can manage permissions and roles effectively.	New
<b>P3_BR3</b>	TR303	N/A	Critical	software developer, application provider	be able to implement OpenID Connect 1.0 to verify user identities and obtain profile information via OAuth 2.0.	I can manage identity and access effectively.	New
<b>P3_BR4</b>	TR304	N/A	Critical	software developer	be able to implement decentralized identifiers (DIDs)	I can use identifiers without	New

					to enable verifiable, decentralized digital identity.	relying on a centralized registration authority.	
<b>P3_BR5</b>	TR305	N/A	Critical	software developer	be able to implement a system for creating credentials that can be issued, owned, and verified independently of a central authority.	I can leverage distributed ledger technology for decentralization, immutability, and cryptographic security.	New
<b>P3_BR6</b>	TR306	N/A	Preferred/Optional	software developer	be able to implement verifiable credentials and access control using a decentralized system	I can enable self-sovereign services and decentralized identity management.	New
<b>P3_BR7</b>	TR307	N/A	Preferred/Optional	software developer	be able to provide authentication and authorization through distributed identity and verifiable credentials	I can enhance security and streamline user verification processes.	New
<b>P3_BR8</b>	TR308	N/A	Preferred/Optional	software developer	be able to implement a digital wallet that stores and utilizes keys, allowing users to manage and prove ownership of various tokens, and facilitating interaction with distributed ledger technologies (DLTs).	I can securely manage and operate digital assets and transactions.	New
<b>P3_BR9</b>	TR309	N/A	Preferred/Optional	software developer	be able to implement a solution using Open-API standards to facilitate the integration and development of pilot services and applications.	I can enhance interoperability and streamline development processes.	New

<b>P4_BR1</b>	TR401	N/A	Preferred	financial organization	be able to develop and validate a model to provide tailored financial advice, creating a plan that allows banks and companies to achieve optimal synergy in funding processes.	I can optimize the allocation of financial resources and enhance the support for companies through the public funding process.	New
<b>P4_BR2</b>	TR402	N/A	Preferred	financial organization	be able to provide an optimized banking financing intervention plan through a tool that performs automatic and robust simulations of various potential scenarios.	I can provide the best financial outcomes and strategic decision-making for financial institutions and their clients.	New
<b>P4_BR3</b>	TR403	N/A	Preferred	financial organization	be able to develop a tool that provides essential context and information for bank employees to easily and quickly understand outputs related to financial products offered to clients.	I can enhance the efficiency and effectiveness of financial product offerings to clients across multiple markets.	New
<b>P4_BR4</b>	TR404	N/A	Preferred	software developer	be able to develop a tool to harmonize and automate processes by implementing an effective approach, with customization tailored to specific target countries.	I can streamline operations and enhance efficiency in a country-specific manner.	New
<b>P4_BR5</b>	TR405	N/A	Preferred	data provider	be able to parameterize the financial support schemes	I can improve the bank's funding parameters (time,	New

					between financial institutions and clients.	feasibility, bureaucracy, etc).	
<b>P4_BR6</b>	TR406	N/A	Preferred	application provider	be able to provide a solution available in the marketplace to be transferred to any financial entities internationally	I can ensure data privacy control policies	New
<b>P5_BR1, P5_BR10</b>	TR501	N/A	Critical	data analyst	be able to train ML algorithm on FAME	I can utilise it to perform a sorting analysis	Unchanged
<b>P5_BR1, P5_BR10</b>	TR502	N/A	Critical	data analyst	be able to upload a ML model on FAME	I can utilise it to perform a sorting analysis	Unchanged
<b>P5_BR1, P5_BR7, P5_BR21</b>	TR503	N/A	Critical	application provider	be able to trade the results of an execute analysis in the FAME Marketplace under different pricing policies	I can monetize my asset or publish them	Unchanged
<b>P5_BR2, P5_BR12, P5_BR13</b>	TR504	N/A	Critical	educator	to be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals	Unchanged
<b>P5_BR2, P5_BR12, P5_BR13</b>	TR505	N/A	Critical	educator	to be able to access tutorials, Webinars, How-to videos, Jupyter notebooks	I can find training material for finance sector professionals	Unchanged
<b>P5_BR3, P5_BR9, P5_BR10, P5_BR17, P5_BR18, P5_BR19</b>	TR506	N/A	Critical	data analyst	to be able to set the input parameters of a ML algorithm	I can execute the algorithm with specific input	Unchanged

<b>P5_BR4, P5_BR8, P5_BR9, P5_BR15, P5_BR16, P5_BR20</b>	TR507	N/A	Preferred	financial organization	to be able to process the results produced by an algorithm execution	I can generate custom reports	Unchanged
<b>P5_BR5, P5_BR6</b>	TR508	N/A	Preferred	data provider	to be able to upload new assets in FAME	I publish it in FAME	Unchanged
<b>P5_BR5, P5_BR6</b>	TR509	N/A	Preferred	data provider	to be able to pull data from an API	I save it as a new asset in FAME	Unchanged
<b>P5_BR5, P5_BR6</b>	TR510	N/A	Preferred	data provider	to be able to append new data on my data asset	I can create a new version of my data asset	Unchanged
<b>P5_BR5, P5_BR6</b>	TR511	N/A	Preferred	data provider	to be able to update (replace) my data asset	I can modify my data asset	Unchanged
<b>P5_BR8</b>	TR512	N/A	Preferred	data analyst	to be able to schedule the periodic execution of a ML algorithm	I can periodically produce results	Unchanged
<b>P5_BR11</b>	TR513	N/A	Critical	data analyst	to be able to execute NLP algorithms	I can perform text analysis	Unchanged
<b>P5_BR1, P5_BR10, P5_BR3, P5_BR9</b>	TR514	N/A	Critical	data analyst	to be able to create a pipeline of trained ML models	I can execute multiple ML models sequentially	Unchanged
<b>P5_BR14, P5_BR20</b>	TR515	N/A	Optional	financial organization	to be able to perform comparison analysis	I can compare my own results with 3rd parties	Unchanged
<b>P6_BR1_R, P6_BR4_R, P6_BR29, P6_BR30</b>	TR601_R	N/A	Critical	data analyst	be able to train supervised ML models	I can perform analysis and correlation of my data assets	Revised

<b>P6_BR2, P6_BR3</b>	TR602	N/A	Critical	data analyst	be able to get data (through API or connector) from CDS to FAME	I can use them to perform an analysis	Unchanged
<b>P6_BR5, P6_BR9, P6_BR11, P6_BR16</b>	TR603	N/A	Critical	data analyst	be able to execute a trained ML model using fixed features	I can execute a trained model using a specific fixed set of features as input and get the corresponding results	Unchanged
<b>P6_BR31</b>	TR604	N/A	Critical	data analyst	be able to search for ML models in the marketplace	I can purchase them to perform an analysis	Unchanged
<b>P6_BR7</b>	TR605	N/A	Critical	data provider	be able to upload my data assets and trade them	I can monetize my data assets	Unchanged
<b>P6_BR7, P6_BR17</b>	TR606	N/A	Critical	data analyst	be able to purchase data assets from the marketplace	I can use them to perform an analysis	Unchanged
<b>P6_BR10, P6_BR23</b>	TR608	N/A	Preferred	educator	to be able to upload tutorials, Webinars, How-to videos, Jupyter notebooks	I can upload training material for finance sector professionals	Unchanged
<b>P6_BR10, P6_BR23</b>	TR609	N/A	Preferred	financial organization	to be able to access tutorials, Webinars, How-to videos, Jupyter notebooks	I can find training material for finance sector professionals	Unchanged
<b>P6_BR25, P6_BR28</b>	TR610	N/A	Critical	data analyst	to be able to download a purchased data asset	I can use them to exploit them locally	Unchanged
<b>P6_BR33</b>	TR612	N/A	Optional	data analyst	to be able to trade the results of my analysis in the marketplace	I can monetize the results of my	Unchanged

						performed analysis	
<b>P6_BR33</b>	TR613	N/A	Optional	financial organization	to be able to purchase results or reports from performed analysis from the marketplace	I can exploit them	Unchanged
<b>P6_BR33, P6_BR34, P6_BR35</b>	TR614	N/A	Preferred	application provider	to be able to publish a service on the FAME catalogue	I can get requests from potential customers for specific analysis at a specific price	Unchanged
<b>P6_BR31</b>	TR615	N/A	Critical	data analyst	be able to purchase ML models in the marketplace	I can use them to perform an analysis	Unchanged
<b>P6_BR7</b>	TR616	N/A	Critical	data provider	be able to trade my data assets	I can monetize my data assets	Unchanged
<b>P7_BR1</b>	TR701	N/A	Preferred	data provider	be able to assess the quality of my data assets	I can validate their applicability for predictive analytics	Unchanged
<b>P7_BR2</b>	TR702	N/A	Preferred	data provider	be able to assign a quality score to each of my data assets	I can compare them among them and give them a price	Unchanged
<b>P7_BR3</b>	TR703	N/A	Preferred	data provider	be able to estimate the worth of each data asset used for maintenance	I can assign them an indicative pricing	Unchanged
<b>P7_BR5</b>	TR704	N/A	Preferred	data provider	be able to compare the performance of new analytical models against the existing ones already in use	I can identify the most performant model for further usage	Unchanged
<b>P7_BR6</b>	TR705	N/A	Preferred	data provider	be able to make my industrial data assets available through	I can re-purpose/reuse/sell	Unchanged

					FAME under my preferred license schemes	data assets for industrial maintenance	
<b>P7_BR7</b>	TR706	N/A	Critical	software developer	be able to use tools that FAME has to offer to achieve more trusted prediction results	I can analyze IIoT datasets in a trusted manner	Unchanged
<b>P7_BR8</b>	TR707	N/A	Preferred	data analyst	be able to use tools available in FAME catalogue in order to facilitate data/analytic-related tasks	I can increase the utilization of proprietary data assets	Unchanged
<b>P7_BR10</b>	TR708	N/A	Preferred	data provider	to be provided with the means to create/upload/share/index/find training materials	I can train industrial workers on how to assess and understand data produced by IIoT devices and sensors	Unchanged
<b>P7_BR11</b>	TR709	N/A	Critical	data provider	be able to allow analysts to search for available XAI solutions based on criteria such as the type of the underlying ML model and data	I can increase the trustworthiness of the current AI models used in IIoT	Unchanged
<b>P7_BR13</b>	TR710	N/A	Critical	data provider	be able to have access to the existing data assets	I can develop secondary (derivative) data assets and applications	Unchanged
<b>P7_BR14</b>	TR711	N/A	Optional	researcher	be able to identify end-user XAI techniques for timeseries forecasting models	I can increase the trustworthiness of AI models used in IIoT	Unchanged
<b>P7_BR16</b>	TR713	N/A	Preferred	data provider	be able to train industrial workers on how to assess, use	I can increase the acceptance of	Unchanged

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and interpret the outcomes of novel AI-based  
AI/XAI systems related to systems by  
machinery health industrial workers

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## 7.4 (Non-Functional) Technical Requirements Backlog

In this section, the list of extracted technical requirements, based upon non-functional generic and business requirements of FAME is presented. The table is composed by the following information (based also in the template presented in Section 4.1):

- ⟨ **Requirement ID:** The unique identifier of each business requirement is composed by the pilot number (i.e., P1, P2, etc.) and incremental number.
- ⟨ **System Requirement:** The description of the requirement the system needs to address.
- ⟨ **Type:** Functional or Non-functional requirement type.
- ⟨ **Functionality:** The category of the business need.
- ⟨ **Priority:** The assigned priority of the requirement.
- ⟨ **Status:** The status of the requirement with respect to the previous version. This column indicates whether a particular business requirement has remained unchanged, revised or been created as new.
- ⟨ **Comments:** Any comments made that define further the current situation of information presented with respect to previous versions.
- ⟨ **Previous Requirement ID:** The unique identifier of each business requirement that maps a revised Requirement ID back to its previous ID.

The following list of extracted (non-functional) technical requirements constitute the updated and final version of the FAME (non-functional) technical requirements backlog on M18. As the project evolves, and the development and piloting activities progress, updates and optimisations could arise, resulting in the translation of these enhancements into updates to the existing non-functional technical requirements, and in the addition of new non-functional technical requirements. Should this occur, the current FAME (Non-Functional) Technical Requirements backlog will also be updated online on the project's repository, so that these updates are documented, despite D2.5 constituting the final version of this deliverable series.

Table 18 - FAME (Non-Functional) Technical Requirements

Req. ID	Technical Req. ID	System Requirement	System Requirement Description	Assoc. Task	Type	Functionality	Priority	Status	Comment(s)	Previous Req.Id
GR_003	TR901	Support interfaces for data assets trading, pricing, and data policy management	Develop and/or enhance interfaces to support interfaces for data assets trading, pricing and data policy management based on various data exchange models and ontologies.	T3.1	Non-Functional	Technical, Infrastructure	Critical	Unchanged	-	N/A
GR_005	TR902	Support access to external asset policies	Support access to the security policies of the underlying data marketplaces and data spaces.	T3.2	Non-Functional	Technical	Critical	Unchanged	-	N/A
GR_006	TR903	Support consolidation of asset access policies	Support the consolidation of asset access policies at the level of the FAME federated asset space.	T3.2	Non-Functional	Technical	Critical	Unchanged	-	N/A
GR_007	TR904	Support mapping of external asset access policies to FAME asset access policies	Support the mapping of FAME policies to the lower-level policies of the underlying providers.	T3.2	Non-Functional	Technical	Critical	Unchanged	-	N/A
GR_016 b	TR905	Support trading and	Design and implement a blockchain infrastructure which	T4.3	Non-Functional	Technical, Infrastructure	Critical	Unchanged	-	N/A

		pricing of data assets	will facilitate the trading of (federated) assets, including support for (dynamic) asset trading, pricing, and monetization schemes.							
<b>GR_020_R</b>	TR907	Support operational and governance models	Implement the technical infrastructure for supporting the specified Operational and governance models, including support for users' registration, management of subscriptions, management of pay-as-you-go, Data-as-a-Service schemes and more. The system is designed to offer a seamless user experience with efficient onboarding, dynamic subscription management, and a focus on scalability, security, and regulatory compliance to establish a robust foundation for operational and governance frameworks in the marketplace.	T4.5	Non-Functional	Technical, Infrastructure	Critical	Updated-Description changes	-	N/A

<b>GR_027 b_R</b>	TR908	Support Incremental Analytics	Support Incremental Analytics, providing mechanisms that incrementally and continually compute (real-time / run-time) analytical results over previously computed snapshots of queries.	T5.3	Non-Functional	Technical, Infrastructure	Critical	Updated	-	N/A
<b>GR_028 _R</b>	TR910	Support Energy Efficient Analytics	Perform analytical query processing with reduced energy consumption compared to the vanilla implementation of the technology, since it should be able to reduce I/O and data transfer needs	T5.3	Non-Functional	Technical, Infrastructure	Preferred	Updated-Priority Change	-	N/A
<b>GR_030 _R</b>	TR912	Support the deployment of configurations that optimize CO2 emissions	Based on the assignment of cloud edge applications in different profiles provide deployment configurations that optimize CO2 emissions without compromising the functionality and the expected performance of the UC.	T5.4	Non-Functional	Technical, Infrastructure	Critical	Updated	-	N/A

## 8 Conclusions

D2.5 comprises the second and final version of the series of versions documenting the outcomes of Task 2.5, entitled “Requirements, Specifications and Co-Creation”. It constitutes the final outcome of the living document which was regularly updated throughout the duration of the task, depicting the updates in the elicitation and analysis of requirements, whether functional or non-functional, whether business, technical, or regulatory.

The document detailed the implementation of this methodology within the context of FAME. The requirement engineering framework adopted for the project was based on the Agile Scrum methodology. To elicit the Generic Requirements, the primary approach used was the Document Analysis methodology. For the Pilot Specific Requirements, Co-Creation Workshops were utilized, with a focus on using User Stories. All demonstrators participated in co-creation workshops where both the demonstrator and technical partners collaboratively analysed business requirements and formulated the corresponding technical requirements. The document has outlined a total of 50 Generic Requirements, which are intended to be supported by the FAME federated asset space, updating and refining the 38 original generic requirements presented in D2.1, while also adding additional generic requirements during the course of the project. These requirements encompass both functional and non-functional aspects and originate mainly from the FAME Description of Action, as well as functionalities existing in established marketplaces external to the project.

Furthermore, the document has outlined a total of 114 Business (Pilot-Specific) Requirements, significantly updating and refining the original business requirements presented in D2.1, after having gained a deeper and better understanding of the FAME vision and what it can offer.

The document has also elaborated on the regulatory frameworks that FAME should take into consideration and abide by, given that these regulations affect the implementation decisions and future operation of the FAME federated asset space. In total, 23 regulatory requirements have been identified and are presented. These requirements stem from these regulatory frameworks and their impact on and association with the FAME generic and business requirements.

Lastly, the document outlined the technical requirements, both functional (140 functional technical requirements, updating and refining the 106 original technical requirements presented in D2.1, while also adding additional technical requirements stemming out of the revised and new generic requirements identified during the course of the project) and non-functional (9 in total), which were identified through the analysis of the generic requirements and business requirements.

As the project evolves, and the development and piloting activities progress, updates and optimisations could arise, resulting in the identification of new business requirements (or in the updates on the existing ones), as well as in the translation of these updates and enhancements into updates to the existing technical requirements, and in the addition of new ones. Should this occur, the current FAME Generic, Business, and Technical Requirements backlogs will also be updated online on the project’s repository, so that these updates are documented, despite D2.5 constituting the final version of this deliverable series.

Table 19 – Conclusions

Objectives	Comment
Define a requirements elicitation methodology towards eliciting the business, technical and regulatory requirements of the FAME federated asset space.	The requirement engineering framework adopted was based on the Agile Scrum methodology. To elicit the Generic Requirements, the primary approach used was the Document Analysis methodology. For the Pilot Specific Requirements, Co-Creation Workshops were utilized, with a focus on using User Stories.
Elicit Generic Requirements that the FAME federated asset space will need to support, including both functional and non-functional requirements.	A total of 50 Generic Requirements including both functional and non-functional requirements that the FAME federated asset space will need to support, have been elicited.
Elicit Business (Pilot-Specific) Requirements that the FAME federated asset space will need to support.	A total of 114 Business (Pilot-Specific) Requirements that the FAME federated asset space will need to support, have been elicited.
Elicit Regulatory Requirements that the FAME federated asset space will need to support.	A total of 23 Regulatory Requirements that the FAME federated asset space will need to support, have been elicited.
Elicit (functional and non-functional) technical requirements that the FAME federated asset space will need to support.	A total of 149 (Functional and Non-Functional) Technical Requirements including both functional and non-functional requirements that the FAME federated asset space will need to support, have been elicited.

Table 20 – KPIs

KPI	Value	Comment
<b>KPI 1:</b> Generic Requirements elicited	50	These requirements may undergo updates or refinements during the project, which will be reflected in the online FAME Generic Requirements backlogs on the project's repository
<b>KPI 2:</b> Business (Pilot-Specific) Requirements elicited	114	These requirements may undergo updates or refinements during the project, which will be reflected in the online FAME Business Requirements backlogs on the project's repository
<b>KPI 3:</b> Regulatory Requirements elicited	23	These requirements may undergo updates or refinements during the project, which will be reflected in the online FAME Regulatory Requirements backlogs on the project's repository
<b>KPI 4:</b> (Functional and Non-Functional) Technical Requirements elicited	149	These requirements may undergo updates or refinements during the project, which will be reflected in the online FAME Technical Requirements backlogs on the project's repository

## References

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3. B. Wake and B. Wake, “Invest in good stories, and Smart Tasks,” XP123, <https://xp123.com/articles/invest-in-good-stories-and-smart-tasks/> (accessed Jun. 30, 2023).

## 9 Annex

### 9.1 Original Pilot 1 Business Requirements

Table 21: Original Pilot 1 Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status
P1_BR1	UC1	Generate good quality recommendations to increase customer value	Handle disputes and returns (ex: bad data asset quality, not as expected...)	Sales	Functional	User	Preferred	Revised
P1_BR2	UC1	Monetize data assets	Allow trading data assets created through FAME tool (ex: I upload data asset X, combine it with Y into Z and sell Z)	Data	Functional	User	Optional	Revised
P1_BR3	UC1	Generate good quality recommendations to increase customer value	Allow replication of data assets when they are generated online (ex: if FAME allows adding columns or combining datasets online, it should provide a way to replicate transformations in the future, ex. with updated data)	IT	Functional	Technical	Optional	Revised
P1_BR4	UC1	Generate good quality	Searching and filtering capabilities, including	Data	Functional	User	Critical	Revised

		recommendations to increase customer value	unstructured data. Ideally, searching would be intelligent and not only keyword based. ex: "find me data about consumption patterns in Europe in 2023"						
<b>P1_BR5</b>	UC1	Generate good quality recommendations to increase customer value	Allow discussing, reviewing and questioning about a data asset	Data	Functional	User	Preferred	Revised	
<b>P1_BR6</b>	UC1	Monetize data assets	Upload new versions of data assets continuously as they are available, possibly in streaming (to be consumed in streaming by buyers)	Data	Functional	Technical	Optional	Revised	
<b>P1_BR7</b>	UC1	Comply with regulation	Identify, alter and mask client sensitive information on upload	Compliance	Functional	Technical	Optional	Obsolete	
<b>P1_BR8</b>	UC1	Ensure the sovereignty of the data being traded	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR039	
<b>P1_BR9</b>	UC1	Train finance sector professionals on customers' profiling mechanisms	Development of tutorials, Webinars, How-to videos, Jupyter notebooks	Insurance	Non-Functional	User	Preferred	Revised	
<b>P1_BR10</b>	UC1	Train finance sector professionals on using recommender systems for financial decisions	Development of tutorials, Webinars, How-to videos, Jupyter notebooks	Insurance	Non-Functional	User	Preferred	Obsolete	

<b>P1_BR11</b>	UC2	Monetize data assets		Provide statistics about dataset usage / downloads	IT	Functional	User	Optional	Revised
<b>P1_BR12</b>	UC1	Comply with regulation		Trace each data object to its origin (ex: column A comes from dataset B and is a sum of column C from dataset D and E, uploaded by X)	Data	Functional	User	Optional	Revised
<b>P1_BR13</b>	UC1	Comply with regulation		Restrict data access and visibility	IT	Functional	Technical	Optional	Unchanged
<b>P1_BR14</b>	UC1	Comply with regulation		Tools that automatically anonymize data (ex: aggregations)	Compliance	Functional	User	Optional	Unchanged
<b>P1_BR15</b>	UC1	Generate good quality recommendations to increase customer value		Buying fractional parts of data assets, possibly at reduced price	Data	Functional	User	Preferred	Revised
<b>P1_BR16</b>	UC1	Generate good quality recommendations to increase customer value		Requesting data assets to registered entities in FAME	Data	Functional	User	Preferred	Revised
<b>P1_BR17</b>	UC1	Monetize data asset		Provide estimates of data asset value, based on similar data assets	Sales	Functional	User	Optional	Revised
<b>P1_BR18</b>	UC1	Generate good quality recommendations to increase customer value		Recommend related data assets when selecting another data asset	Data	Functional	User	Optional	Revised

<b>P1_BR19</b>	UC1	Monetize data assets	Support continuous updates	IT	Functional	Technical	Optional	Obsolete
<b>P1_BR20</b>	UC2	Understand dataset usage	Provide statistics about dataset usage / downloads	IT	Functional	Technical	Optional	Revised
<b>P1_BR21</b>	UC2	All participants having the ability access FAME data marketplace	Being able to provide data to the marketplace and monitor data usage by other marketplace users	Data, Credit	Functional	Technical	Critical	Revised
<b>P1_BR22</b>	UC2	All participants having the ability access FAME data marketplace	Monitor our data usage by other marketplace users	Data, Credit	Functional	Technical	Critical	Obsolete
<b>P1_BR23</b>	UC2	Search Data regarding similar Credit services usage	Filter aggregated or individual data that could be useful to our analytics and management team to explore and analyse	Product Development	Functional	User	Preferred	Revised
<b>P1_BR24</b>	UC2	Search Data regarding similar Credit services usage	Export Data in order to explore it in our data tools	Product Development	Functional	User	Preferred	Revised
<b>P1_BR25</b>	UC2	Search Data regarding similar Credit services usage	Availability from FAME and project participants to interact in order to share knowledge and data clarification	Product Development	Functional	User	Preferred	Revised
<b>P1_BR26</b>	UC2	Enrich FAME Marketplace	Being able to download data from the marketplace	IT, Data	Functional	Technical	Critical	Converted to GR040

<b>P1_BR27</b>	UC2	Enrich Marketplace	FAME	Allow continuous upload of data to the marketplace	IT, Data	Functional	Technical	Critical	Obsolete
<b>P1_BR28</b>	UC2	Enrich Marketplace	FAME	Security measures: limit access, identify, alter and mask client sensitive information on upload,	IT, Data	Functional	Technical	Critical	Obsolete

## 9.2 Original Pilot 2 Business Requirements

Table 22: Original Pilot 2 Business Requirements

<b>Business Req. ID</b>	<b>Use Case ID</b>	<b>Business Objective</b>	<b>Business Requirement</b>	<b>Area</b>	<b>Type</b>	<b>Functionality</b>	<b>Priority</b>	<b>Status</b>
<b>P2_BR1</b>	UC1	Analyse parking data in terms of locality, frequency, and time of parking	Optimize the data analysis part in order to be pinpoint parking habits	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised
<b>P2_BR2</b>	UC1	Request data from other organisations that have loyalty programs in order to analyse the rewarding mechanisms	Offer an added value to an external entity in order to add their data and offer an authorized and usable onboarding/registration procedure	Parking Management, Marketing	Functional	User, technical, infrastructure,	Preferred	Unchanged
<b>P2_BR3</b>	UC1	Acquire knowledge and training on the platform so as to leverage the city's IT personnel competencies	Offer training feature (e.g., webinars, user guide, MOOCs, online training sessions etc)	Public administration, management	Functional	User, technical, infrastructure,	Critical	Revised
<b>P2_BR4</b>	UC1	Request and onboard data from other organizations so as to leverage the services of the city e.g., traffic data	Offer an added value to an external entity in order to add their data and offer an authorized and usable onboarding/registration procedure	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised
<b>P2_BR5</b>	UC1	Reduce the costs that refer to the management of the parking system of the city	Optimize the data analysis in order to identify solutions that can make the system less costly for the city	Parking Management, Marketing	Functional	technical, infrastructure,	Preferred	Revised

<b>P2_BR6</b>	UC1	Analyse parking and behavioural data in terms of locality in order to design new services e.g. if a citizen owns a shop, then short term parking for customers could be foreseen	Optimize the data analysis part in order to be pinpoint parking and other habits and localities	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised
<b>P2_BR7</b>	UC1	Ensure the sovereignty of the data being traded	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR042
<b>P2_BR8</b>	UC1	Correlate data sources to offer new services	Offer a view of correlated data and usable visualizations for a city employee	Public administration	Functional	User, technical	Critical	Revised
<b>P2_BR9</b>	UC1	Exploit data on parking payments to design specific offers e.g., discounts	Offer an analysis of parking payments and usable visualizations e.g., time, duration, location etc	Public administration, management	Functional	User, technical	Critical	Revised
<b>P2_BR10</b>	UC2	Request and onboard data from other organizations so as to leverage the services of the city e.g. traffic data	Offer an added value to an external entity in order to add their data and offer a authorized and usable onboarding/registration procedure	Parking Management, Marketing	Functional	User, technical	Critical	Obsolete
<b>P2_BR11</b>	UC2	Analyse parking and behavioural data in terms of locality in order to foresee the addition of other municipal services	Optimize the data analysis part in order to be pinpoint parking and other habits and localities	Parking Management, Marketing	Functional	User, technical, infrastructure,	Critical	Revised

<b>P2_BR12</b>	UC2	Analyse parking and behavioural data in terms of high/low demand in order to develop a dynamic pricing scheme	Optimize the data analysis part in order to be able to foresee parking demand based on historical data	Parking Management, Marketing	Functional	User, technical, infrastructure,	Preferred	Revised
<b>P2_BR13</b>	UC2	Offer citizen wallet to citizens	Develop a citizen wallet for citizens to consume services in one app	Marketing	Functional	User	Critical	Unchanged
<b>P2_BR14</b>	UC2	Develop a dynamic parking pricing scheme	Develop a dynamic pricing mechanism based on parking demand	Parking Management, Marketing	Functional	User, technical, infrastructure,	Preferred	Obsolete
<b>P2_BR15</b>	UC2	Ensure the sovereignty of the data being traded	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Obsolete

### 9.3 Original Pilot 6 Business Requirements

Table 23: Original Pilot 6 Business Requirements

<b>Business Req. ID</b>	<b>Use Case ID</b>	<b>Business Objective</b>	<b>Business Requirement</b>	<b>Area</b>	<b>Type</b>	<b>Functionality</b>	<b>Priority</b>	<b>Status</b>
<b>P6_BR1</b>	UC1	Supply featured climate projections for a specific location	Train a statistical downscaling model that relates coarse grid climate projections to finer grid ERA5 Land data	Analysts at a Financial Services	Functional	User	Critical	Revised
<b>P6_BR2</b>	UC1	Supply featured climate projections for a specific location	Connect to CDS to download historical reanalysis data (ERA5 Land)	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR3</b>	UC1	Supply featured climate projections for a specific location	Connect to CDS (Copernicus data store) to download climate project data (CMIP5) and historical reanalysis	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR4</b>	UC1	Supply featured climate projections for a specific location	Create ML model to downscale climate projections	Analysts at a Financial Services	Functional	User		Revised
<b>P6_BR5</b>	UC1	Supply featured climate projections for a specific location	An Analysts can find that the climate risk feature for a specific location exists	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR6</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	An analysts can find that the model exists which allows climate risk to be calculated for a user-supplied location and asset	Analysts at a Financial Services	Functional	User	Critical	Obsolete

<b>P6_BR7</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	Offer value to an organization that uploads property price data	Analysts at a Financial Services	Functional	User	Optional	Unchanged
<b>P6_BR8</b>	UC1	Ensure the sovereignty of the data being traded	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR042
<b>P6_BR9</b>	UC1	Supply featurized climate projections for a specific location	An analyst can purchase the featurized climate projection for a specific location	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR10</b>	UC2	Train insurance sector professionals how to perform climate-aware Real Estate Pricing	Development of financial courses, Webinars, How-to videos, Jupyter notebooks	Insurance, Finance	Non-Functional	User	Preferred	Unchanged
<b>P6_BR11</b>	UC1	Supply featurised climate projections for a specific location	Downscaling model and future climate projections to supply a projection of changes in climate project features at any given location	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR12</b>	UC1	Forecasts the effect climate change will have on property prices for a	Historical property price information will need to be uploaded that has both prices and asset characteristics	Analysts at a Financial Services	Functional	User	Critical	Obsolete

		specific asset and location						
<b>P6_BR13</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	A model will need to be trained that links the downscaled climate features to fluctuations in historical property prices	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR14</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	An analyst can purchase a projected effect on the real estate price for a supplied location and the featurized climate projection for a specific location	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR15</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	A model will need to be trained that links the downscaled climate features to fluctuations in historical property prices that takes asset characteristics and location into account	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR16</b>	UC1	Forecast the effect climate change will have on property prices for a specific asset and location	A new asset and location will need to be provided, for which the model and downscaled climate features will be used to forecast property price changes	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR17</b>	UC2	Supply Seasonal Forecasts of	An analyst can purchase the seasonal forecast of a	Analysts at a Financial Services	Functional	User	Critical	Unchanged

		Climate Features	Risk	catalogue of climate risk features					
<b>P6_BR18</b>	UC2	Supply Forecasts of Climate Features	Seasonal of Risk	Connect to CDS to download seasonal forecasts	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR19</b>	UC2	Supply Forecasts of Climate Factors	Seasonal of Risk	Connect to CDS to download ERA5 Reanalysis Data	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR20</b>	UC2	Supply Forecasts of Climate Factors	Seasonal of Risk	Bias correct seasonal forecasts relative to the ERA5 data, to then derive the corrected forecasts of climate risk features	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR21</b>	UC2	Supply Forecasts of Climate Factors	Seasonal of Risk	An analyst can find that a seasonal forecast of climate risk factors exists	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR22</b>	UC2	Determine Exposure of an Asset to Climate Risk Features	Risk of an	An analyst can find that a climate-aware VAR calculation for a given asset exists	Analysts at a Financial Services	Functional	User	Critical	Obsolete
<b>P6_BR23</b>	UC1	Train insurance/finance professionals how to climate-aware assess their portfolios		Development of financial courses, Webinars, How-to videos, Jupyter notebooks	Insurance, Finance	Non-Functional	User	Preferred	Unchanged
<b>P6_BR24</b>	UC1	Ensure sovereignty	the of	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Obsolete

			the data being traded						
<b>P6_BR25</b>	UC2	Determine Risk Exposure of an Asset to Climate Risk Features	Download historical assets prices for e.g. a given equity	Analysts at a Financial Services	Functional	User	Critical	Unchanged	
<b>P6_BR26</b>	UC2	Determine Risk Exposure of an Asset to Climate Risk Features	Run a quantile regression model that can determine the extent to which historical asset price volatility was correlated with climate risk features	Analysts at a Financial Services	Functional	User	Critical	Obsolete	
<b>P6_BR27</b>	UC2	Determine Risk Exposure of an Asset to Climate Risk Features	Load up seasonal forecasts of the climate risk features and feed them through the asset-specific risk model to obtain a climate aware VAR estimate for the next six months	Analysts at a Financial Services	Functional	User	Critical	Obsolete	
<b>P6_BR28</b>	UC3	Assess the climate exposure of a portfolio	the risk of a Download historical prices for a portfolio of assets	Analysts at a Financial Services	Functional	User	Critical	Unchanged	
<b>P6_BR29</b>	UC3	Assess climate exposure of a portfolio	the risk of a For each asset in the portfolio, model the "risk premium" and "risk" related to climate features from (UC1)	Analysts at a Financial Services	Functional	User	Critical	Unchanged	
<b>P6_BR30</b>	UC3	Assess climate exposure of a portfolio	the risk of a For each asset in the portfolio, to model the portfolio level excess return over a supplied index and risk from this portfolio related to climate risk	Analysts at a Financial Services	Functional	User	Critical	Unchanged	

<b>P6_BR31</b>	UC3	Assess the climate exposure of a portfolio	the risk of a	An analyst can find that this tool exists and can upload their portfolio	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR32</b>	UC2	Ensure the sovereignty of the data traded	the of being	Mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR042
<b>P6_BR33</b>	UC3	Propose climate-safe indices		Allow external users access to our tools to enable them to propose new stock indices which are "climate proof"	Index Providers	Functional	User	Optional	Unchanged
<b>P6_BR34</b>	UC3	Assess the climate exposure of a portfolio	the risk of a	For a given portfolio, indicate how excess returns and risk will change on account of changes in climate features	Analysts at a Financial Services	Functional	User	Critical	Unchanged
<b>P6_BR35</b>	UC3	Propose portfolio Restructuring		Determine which assets to drop from an existing portfolio in order to improve performance based on changes in projected climate risk features	Analysts at a Financial Services	Functional	User	Critical	Unchanged

## 9.4 Original Pilot 7 Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement	Area	Type	Functionality	Priority	Status
<b>P7_BR1</b>	UC1	Quality Assessment of (IIoT) Data Assets	Perform quantitative quality assessment of data assets considering various quality dimensions such as data accuracy, completeness, consistency, timeliness, and validity	Industrial applications, IIoT, Services	Functional	User	Preferred	Unchanged
<b>P7_BR2</b>	UC1	Indicative Pricing of Data Assets (ML Models, Labelled data) used for Maintenance	FAME should be able to assign a quality score to each asset for comparison and pricing purposes	Services	Functional	User	Preferred	Unchanged
<b>P7_BR3</b>	UC1	Indicative Pricing of Data Assets (ML Models, Labelled data) used for Maintenance	Estimate the value of each data asset based on factors such as usage, impact on business processes, accuracy, and maintenance costs. The valuation should be flexible, allowing for adjustments based on specific business requirements and market conditions	Industrial applications, IIoT, Services	Functional	User	Preferred	Unchanged
<b>P7_BR4</b>	UC1	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR042
<b>P7_BR5</b>	UC1	Re-purpose/reuse/sell	Develop analytical models providing operational insights	Analytics, Marketing	Functional	User	Preferred	Unchanged

		Data Assets for Industrial Maintenance	on equipment used in industrial environments						
<b>P7_BR6</b>	UC1	Re-purpose/reuse/sell Data Assets for Industrial Maintenance	Trade of industrial data assets (i.e., sensor data, AI/ML models) through FAME	Industrial applications	Functional	User	Optional	Unchanged	
<b>P7_BR7</b>	UC1	Improving Overall Equipment Effectiveness (OEE) through Predictive Maintenance	Obtain more precise predictions in the scope of preventive/predictive maintenance by developing more accurate predictive models than the existing ones. These models should ensure zero downtime, and increase overall equipment effectiveness (OEE).	Industrial applications, IIoT, Services	Functional	User	Critical	Unchanged	
<b>P7_BR8</b>	UC1	Increase in the utilization of the available data assets for predictive maintenance purposes	FAME should provide tools that allow the curation of multi-type data produced from different sources	Data	Functional	User	Preferred	Unchanged	
<b>P7_BR9</b>	UC1	Streamline decision-making by assessing the quality and value of data assets	Identify underutilized resources and opportunities for further investment	Management	Functional	User	Preferred	Unchanged	
<b>P7_BR10</b>	UC1	Train industrial workers on how to assess and understand data	Develop relevant training materials	Training	Non-Functional	User	Preferred	Unchanged	

		produced by IoT devices and sensors						
<b>P7_BR11</b>	UC2	Increase Trustworthiness of AI models used in IoT	An Analyst can search for an XAI solution based on criteria such type of the underlying ML model and data.	Analytics, Services	Functional	User	Critical	Unchanged
<b>P7_BR12</b>	UC2	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies	Governance	Functional	Infrastructure	Critical	Converted to GR042
<b>P7_BR13</b>	UC2	Stakeholder Interaction	FAME should allow access to the primary data assets to develop secondary data assets and applications	Services	Functional	User	Critical	Unchanged
<b>P7_BR14</b>	UC2	Increase Trustworthiness of AI models used in IoT	Develop XAI techniques for timeseries forecasting models	Analytics	Functional	User	Optional	Unchanged
<b>P7_BR15</b>	UC2	Increase Trustworthiness of AI models	FAME should provide explanations of results of AI (ML) models in proper form	Management, Services	Functional	Technical	Preferred	Converted to GR043
<b>P7_BR16</b>	UC2	Increase acceptance of novel AI-based systems by industrial workers	Train industrial workers on how to assess, use, and interpret the outcomes of AI/XAI Systems related to machinery health	Analytics	Non-Functional	User	Preferred	Unchanged
<b>P7_BR17</b>	UC2	Increase Trustworthiness of AI models in order to use AI models in proper manner (AI Governance)	Provide explanations of results of AI (ML) models in proper form and users should be aware of those explanations and be able to use those explanations in order to update their business and organizational processes	Training	Functional	Technical	Critical	Obsolete