

Federated decentralized trusted dAta Marketplace for Embedded finance



D6.4 - Use Cases Specification and Pilot Sites Preparation. II

Title	D6.4 - Use Cases Specification and Pilot Sites Preparation. II
Revision Number	1.0
Task reference	T6.1
Lead Beneficiary	UNP
Responsible	Tiago Teixeira
Partners	AL, BPFI, DAEM, INNOV, INNEUROPE, JOT, JRC, KM, MC, MOH, NOVA, NOVO, NRS, SFS
Deliverable Type	OTHER
Dissemination Level	PU
Due Date	2024-09-30 [Month 21]
Delivered Date	2025-02-20
Internal Reviewers	JRC ATOS
Quality Assurance	UPRC
Acceptance	Coordinator Accepted
Project Title	FAME - Federated decentralized trusted dAta Marketplace for Embedded finance
Grant Agreement No.	101092639
EC Project Officer	Stefano Bertolo
Programme	HORIZON-CL4-2022-DATA-01-04



This project has received funding from the European Union’s Horizon research and innovation programme under Grant Agreement no 101092639

Revision History

Version	Date	Partners	Description
0.1	2024-06-12	UNP	Initial version
0.2	2024-09-04	ALL Pilots	Initial pilot contributions
0.3	2024-10-15	ALL Pilots	Update on the Pilot Use Cases
0.4	2024-11-21	ALL Pilots	Update on the Data Assets to share with FAME Marketplace
0.5	2025-01-17	ALL Pilots	Update on the KPIs and Stakeholder Engagement
0.6	2025-02-03	UNP	Version for Internal Review
0.7	2025-02-12	ATOS JRC	Comments from Reviewers
1.0	2025-02-20	UNP	Final Version

Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Definitions

Acronyms	Definition
AI	Artificial Intelligence
AML	Anti Money Laundering
API	Application Programming Interface
ATOS	Atos It Solutions And Services Iberia SI
BNPL	Buy Now Pay Later
BOI	Bank of Ireland
BPFI	Banking and Payments Federation Ireland
CD	Continuous Development
CDS	Copernicus Data Store
CI	Continuous Integration
CMIP5	Coupled Model Intercomparison Project Phase 5
CNAE	National Classification of Economic Activities
CSV	Comma Separated Value files
DAEM	Dimos Athinaion Epicheirisi Michanografisis
DIAS	Data and Information Access Services
EF	Embedded Finance
ESG	Environmental, Social and Governance
EU	European Union
FAME	Federated decentralized trusted dAta Marketplace for Embedded finance
FDAC	Federated Data Assets Catalogue
FML	Federated Machine Learning
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GTFS	General Transit Feed Specification
HRP	Hierarchical risk parity (HRP) algorithm
IBM	International Business Machines
ICT	Information Communication Technologies
ID	Identity
IJCAI	International Joint Conference on Artificial Intelligence
INNOV	Innov-Acts Limited
ISIN	International Securities Identification Number
IT	Information Technology
JRC	Jrc Capital Management Consultancy and Research Gmbh
JSI	Institut Jozef Stefan

JSON	JavaScript Object Notation
JWT	JSON Web Token
KM	KM Cube Anonymi Etaireia Parochis Ependytikon Ypiresion
KPI	Key Performance Indicator
KYB	Know Your Business
KYC	Know Your Customer
LLM	Large language model
MC	MC SHARED SERVICES SA
ML	Machine Learning
MOH	Motor Oil (Hellas) Diilistiria Korinthou A.E.
NGEU	Next Generation EU
NLU	Natural Language Understanding
NOVO	Novomatix Idiotiki Kefalaiouchiki Etaireia
NRS	Norsk Regnesentral
NUIG	National University Of Ireland Galway
OCR	Optical Character Recognition
OEE	Overall Equipment Effectiveness
OIDC	OpenID Connect
QA	Quality Assurance
ROI	Return On Investment
SAX	Situation Aware eXplainability
SDK	Software Development Kit
SME	Small Medium Enterprise
SQL	Structured Query Language
TBD	To Be Determined
TXT	Text TeXT file
UBI	Ubitech Limited
UC	Use Case
UIA	UNIVERSITETET I AGDER
URL	Uniform Resource Locator
VAR	Value at Risk
WP	Workpackage
XAI	Explainable Artificial Intelligence

Executive Summary

This deliverable, D6.4 "Use Cases Specification and Pilot Sites Preparation II," is the final version of two deliverables under Task 6.1 "Use Cases Co-Creation and Sites Preparation." It builds upon D6.1, which laid the groundwork for pilot preparation activities. D6.4 updates and finalizes the pilot preparation plan, ensuring readiness for the implementation phase. The document is structured into four main chapters:

- **Introduction:** This chapter introduces the deliverable, highlighting its objectives and its relation to other deliverables. It outlines the changes from D6.1 and insights from other tasks and deliverables.
- **Pilot Preparation Plan:** This chapter details the plan followed in WP6 for pilot preparation activities. It includes a summary of all FAME pilots and the steps taken to ensure alignment with FAME objectives. The six steps in the preparation plan are:
 - Pilot and Use Cases Description
 - Co-Creation Requirement Collection
 - Components & Datasets
 - Pilot Architecture
 - Pilot Key Performance Indicators
 - Stakeholder Engagement
- **Pilot Sites Preparation:** This chapter provides detailed descriptions of each pilot, including their use cases, business requirements, components & datasets, architecture, KPIs, and stakeholder engagement activities. The seven pilots covered are:
 - Pilot #1: FaMLy – A powerful financial recommendation engine for families
 - Pilot #2: Embedding Finance Services in a Personalized Citizen Wallet
 - Pilot #3: Personalized Collaborative Intelligence for Enhancing EmFi Services
 - Pilot #4: The EU Funds Application Process Made Easy
 - Pilot #5: ESG Scorecard Ranking & Sustainable Portfolio Optimisation
 - Pilot #6: Embedding Climatic Predictions in Property Insurance Products
 - Pilot #7: Assessing the Quality and Monetary Value of Data Assets
- **Conclusions:** This chapter concludes the deliverable, summarizing the progress made in pilot preparation and the next steps for implementation and stakeholder engagement.

The document emphasizes the importance of stakeholder engagement, with each pilot identifying plans for workshops and feedback collection. The pilots have collectively identified 121 business requirements and 65 KPIs, ensuring a comprehensive approach to achieving FAME's objectives.

Overall, D6.4 ensures that all pilots are well-prepared for the implementation phase, with clear plans for data asset sharing, stakeholder engagement, and performance measurement.

The deliverable sets the stage for successful execution and validation of the pilots, contributing to the overall success of the FAME project.

Table of Contents

1	Introduction.....	6
1.1	Changes from D6.1 - Use Cases Specification and Pilot Sites Preparation. I	6
1.2	Insights from other Tasks and Deliverables.....	6
1.3	Structure	7
2	Pilot Preparation Plan.....	8
2.1	FAME Pilots	8
2.2	Pilot preparation plan v2	8
2.2.1	Pilot and Use Cases description	9
2.2.2	Business Requirements	10
2.2.3	Components & Dataset	10
2.2.4	Pilot Architecture	11
2.2.5	Pilot Key Performance Indicators	11
2.2.6	Stakeholder Engagement.....	11
3	Pilot Preparation.....	12
3.1	Pilot #1: FaMLy – A powerful financial recommendation engine for families.....	12
3.1.1	Pilot and Use Cases description	12
3.1.2	Components & Dataset	15
3.1.3	Pilot Architecture	17
3.1.4	Pilot Key Performance Indicators	18
3.1.5	Stakeholder Engagement.....	19
3.2	Pilot #2: Embedding Finance Services in a Personalized Citizen Wallet.....	20
3.2.1	Pilot and Use Cases description	20
3.2.2	Components & Dataset	24
3.2.3	Pilot Architecture	33
3.2.4	Pilot Key Performance Indicators	33
3.2.5	Stakeholder Engagement.....	34
3.3	Pilot #3: Personalized Collaborative Intelligence for Enhancing EmFi Services.....	36
3.3.1	Pilot and Use Cases description	36
3.3.2	Components & Dataset	39
3.3.3	Pilot Architecture	41
3.3.4	Pilot Key Performance Indicators	44
3.3.5	Stakeholder Engagement.....	46
3.4	Pilot #4: The EU Funds Application Process Made Easy.....	48
3.4.1	Pilot and Use Cases description	48
3.4.2	Components & Dataset	50
3.4.3	Pilot Architecture	52
3.4.4	Pilot Key Performance Indicators	52

3.4.5	Stakeholder Engagement.....	54
3.5	Pilot #5: ESG Scorecard Ranking & Sustainable Portfolio Optimisation	55
3.5.1	Pilot and Use Cases description	55
3.5.2	Components & Dataset	58
3.5.3	Pilot Architecture	64
3.5.4	Pilot Key Performance Indicators	65
3.5.5	Stakeholder Engagement.....	67
3.6	Pilot #6: Embedding Climatic Predictions in Property Insurance Products	68
3.6.1	Pilot and Use Cases description	68
3.6.2	Components & Dataset	70
3.6.3	Pilot Architecture	71
3.6.4	Pilot Key Performance Indicators	71
3.6.5	Stakeholder Engagement.....	73
3.7	Pilot #7: Assessing the Quality and Monetary Value of Data Assets	73
3.7.1	Pilot and Use Cases description	73
3.7.2	Components & Dataset	75
3.7.3	Pilot Architecture	80
3.7.4	Pilot Key Performance Indicators	81
3.7.5	Stakeholder Engagement.....	82
4	Conclusions.....	84
Annex A	Business Requirements – Co-Creation Workshop Collection	85

List of Figures

Figure 1 – Plan for the Pilots	9
Figure 2 – Pilot 1: Architecture Diagram.....	17
Figure 3 – Pilot 2: Architecture Diagram.....	33
Figure 4 – Pilot 3: Architecture Diagram.....	42
Figure 5 – Pilot 4: Architecture Diagram.....	52
Figure 6 – Pilot 5: Architecture Diagram.....	65
Figure 7 – Pilot 6: Architecture Diagram.....	71
Figure 8 – Pilot 7: Architecture Diagram.....	81
Figure 9 – Miro boards business requirements example.....	85

List of Tables

Table 1 – Pilots Summary	8
Table 2 – Pilot Template	9
Table 3 – Use Case Template	10
Table 4 – Components & Dataset Template	10
Table 5 – Key Performance Indicators Template	11
Table 6 – Pilot 1: Description	12
Table 7 – Pilot 1: Use Case 1	12
Table 8 – Pilot 1: Use Case 2	14
Table 9 – Pilot 1: Components & Datasets: Recommendation Engine for Universo	15
Table 10 – Pilot 1: Components & Datasets: Consumers’ Incentives and Interfaces.....	16
Table 11 – Pilot 1: KPIs	18
Table 12 – Pilot 2: Description	20
Table 13 – Pilot 2: Use Case 1	21
Table 14 – Pilot 2: Use Case 2	22
Table 15 – Pilot 2: Components & Datasets: Parking Transaction Dataset	24
Table 16 – Pilot 2: Components & Datasets: Telematics Dataset	25
Table 17 – Pilot 2: Components & Datasets: Citizen Profiler	26
Table 18 – Pilot 2: Components & Datasets: Recommender.....	26
Table 19 – Pilot 2: Components & Datasets: Loyalty Program.....	27
Table 20 – Pilot 2: Components & Datasets: Discount Service	28
Table 21 – Pilot 2: Components & Datasets: Park and Ride Service	29
Table 22 – Pilot 2: Components & Datasets: Management service.....	30
Table 23 – Pilot 2: Components & Datasets: Dynamic Pricing Scheme	31
Table 24 – Pilot 2: Components & Datasets: Digital Wallet	32
Table 25 – Pilot 2: KPIs	33
Table 26 – Pilot 3: Description	36
Table 27 – Pilot 3: Use Case 1	37
Table 28 – Pilot 3: Use Case 2	38
Table 29 – Pilot 3: Components & Datasets: Pay Facts-as-a-Service for Embedded Payments	40
Table 30 – Pilot 3: Components & Datasets: Anti Money Laundering (AML) as a Service	40
Table 31 – Pilot 3: KPIs	44
Table 32 – Pilot 4: Description	48
Table 33 – Pilot 4: Use Case 1	49
Table 34 – Pilot 4: Components & Dataset: The EU Funds Application Process Made Easy	50
Table 35 – Pilot 4: KPIs	53
Table 36 – Pilot 5: Description	55
Table 37 – Pilot 5: Use Case 1	56

Table 38 – Pilot 5: Use Case 2	57
Table 39 – Pilot 5: Components & Dataset: ESG Scorecard and Custom Ranking	58
Table 40 – Pilot 5: Components & Dataset: ESG Monthly Recommendation Ranking combined with Custom ROI algorithm.....	58
Table 41 – Pilot 5: Components & Dataset: Universal Investor Profile Form, and user centric ESG preference score	60
Table 42 – Pilot 5: Components & Dataset: ESG Portfolio Construction and Portfolio Optimisation Component.....	62
Table 43 – Pilot 5: KPIs	65
Table 44 – Pilot 6: Description	68
Table 45 – Pilot 6: Use Case 1	68
Table 46 – Pilot 6: Use Case 2	69
Table 47 – Pilot 6: Use Case 3	69
Table 48 – Pilot 6: Components & Datasets: Postprocessed Climate Projection Dataset	70
Table 49 – Pilot 6: KPIs	72
Table 50 – Pilot 7: Description	73
Table 51 – Pilot 7: Use Case 1	74
Table 52 – Pilot 7: Use Case 2	75
Table 53 – Pilot 7: Components & Datasets: IIoT-Data-Quality-Assessment	76
Table 54 – Pilot 7: Components & Datasets: SAX4BPM Library	77
Table 55 – Pilot 7: Components & Datasets: XAI Dashboard for Time Series Pattern Analysis using StreamStory and LLMs	79
Table 56 – Pilot 7: KPIs	81
Table 57 – Pilot 1: Business Requirements	85
Table 58 – Pilot 2: Business Requirements	87
Table 59 – Pilot 3: Business Requirements	88
Table 60 – Pilot 4: Business requirements.....	89
Table 61 – Pilot 5: Business Requirements	90
Table 62 – Pilot 6: Business Requirements	91
Table 63 – Pilot 7: Business Requirements	94

1 Introduction

This deliverable is part of WP6 “Integration, Validation and Evaluation of EmFi Use Cases” and it’s the final report of Task 6.1, which handles all the pilot’s pre-preparation activities, including:

- Specify the Pilots and Use cases of the project and to prepare the various sites/partners for their implementation and validation.
- To identify which Component & Datasets each use case will share with the FAME marketplace.

1.1 Changes from D6.1 - Use Cases Specification and Pilot Sites Preparation. I

This deliverable is the second, and final version, of a total of two deliverables that are part of Task 6.1 “Use Cases Co-Creation and Sites Preparation.

Several changes occurred since deliverable D6.4, "Use Cases Specification and Pilot Sites Preparation. II" is the second and final version of deliverable D6.1, "Use Cases Specification and Pilot Sites Preparation. I." Being this deliverable the second iteration, the same structure as the D6.1 was followed by integrating the changes that have occurred from the delivery of D6.1 (M10) to the delivery of D6.4 (M24).

Running the structure of deliverable:

- **Chapter 2 – FAME Pilots:** This chapter follows the same structure as D6.1, the main difference is that it includes a 2nd version of the Pilot preparation, which was updated during the 2nd year of the project.
- **Chapter 3 – Pilot Sites Preparation:** The main differences between D6.1 and D6.4 are in this chapter. Highlighting Business Requirements, the Pilot Architecture, the Pilot Key Performance Indicators and the Stakeholders engagement. That is:
 - Business Requirements did not have any updates since D6.1, so in this deliverable, the tables that characterize the Business Requirements moved to the Annexes.
 - The Pilot Architecture, the Pilot Key Performance Indicators and the Stakeholders engagement are new chapters that did not exist in the initial version of D6.1. As the KPIs were added to the re-submitted version of D6.1 (2 months before the submission of this document), there were only small updates made to the KPIs.
 - In the Stakeholder Engagement section, the Pilots identified the plan for the workshops during the project (the conclusion of this activity is possibly found in D6.3 "Techno-Economic Evaluation and Stakeholders’ Feedback").
- **ANNEX A – Business Requirements – Co-Creation Workshop Collection:** Since the Business Requirements did not change from the D6.1, in this deliverable, the tables were moved to the Annex A.

1.2 Insights from other Tasks and Deliverables

This Deliverable (D6.4) relates to Deliverable 2.1 “Requirements Analysis, Specifications and Co-Creation” which is part of Task 2.1 “Requirements, Specifications and Co-Creation”, regarding the requirements that were analysed, which will be necessary for the Pilots’ execution plan.

Moreover, this document is also related to other Work Packages in particular with the WP5 and Task 5.1 “Catalogue of AI/ML Techniques for EmFi”. This task will specify, implement, and make available in the marketplace a library of AI/ML techniques for EmFi use cases (the focus of ATOS). All the work carried out in WP6 is related with this deliverable, D6.1 "Use Cases Specification and Pilot Sites Preparation. I" and D6.2 "Integrated Pilot Systems and Pilot Operations" being the base point for all the work of the Pilots throughout the project. With this, Task 6.2, Task 6.3 and Taks 6.4 reaffirm the implementation of each Pilot and to finalize all the work. D6.3 "Techno-Economic Evaluation and Stakeholders’ Feedback", based on Task 6.5 evaluates the entire Pilot process and the impact of the Pilots' work during the project. In the case of the last task, some results of the task are

already depicted in this document, as part of the section related to Stakeholder Engagement, that each Pilot provided details on the activities already performed, and the plan for the remaining period.

1.3 Structure

This document is divided into four main chapters, which are the following:

- **Chapter 1 – Introduction:** This chapter introduces the deliverable highlighting its objective and its relation to other deliverables.
- **Chapter 2 – FAME Pilots:** In this chapter, there is a small summary of all the Pilots who are part of the project and the Pilot preparation plan v2, which is the explanation of the structure of the next chapter.
- **Chapter 3 – Pilot Sites Preparation:** This chapter is composed of a description of the Pilot and the Uses Cases, the Business Requirements, the Components & Datasets, the Pilot Architecture, the Pilot Key Performance Indicators and the Stakeholders engagement.
- **Chapter 4 – Conclusion:** This chapter concludes the deliverable.

2 Pilot Preparation Plan

This chapter is dedicated to show the plan followed in WP6 related to all the preparation activities. This includes the identification of all FAME pilots, and the identification and details of each of the steps followed in order to assure that all pilots would be completely aligned with FAME objectives and achieve all the objectives each of the set forth during the initial stages of the project.

2.1 FAME Pilots

In the table below, you will find a small summary of all the Pilots who are part of the project, with the leader, name, and Use Cases.

Table 1 – Pilots Summary

Pilot #	Leader	Name	Use Cases
Pilot #1	MC	FaMLy – A powerful financial recommendation engine for families	<ul style="list-style-type: none"> UC #1 – Recommendation Engine for Financial Decisions in MCs Business Ecosystem UC #2 – Consumers’ Incentives and Interfaces
Pilot #2	DAEM	Embedding Finance Services in a Personalized Citizen Wallet	<ul style="list-style-type: none"> UC #1 – Personalized Payment and Loyalty Programs for Smart Parking UC #2 – Extended Payments Across Multiple Services
Pilot #3	BPFI	Personalized Collaborative Intelligence for Enhancing EmFi Services	<ul style="list-style-type: none"> UC#1 – Pay Facts-as-a-Service for Embedded Payments UC#2 – Anti Money Laundering (AML) as a Service
Pilot #4	INNEUROPE	The EU Funds Application Process Made Easy	<ul style="list-style-type: none"> UC#1 – The EU Funds Application Process Made Easy
Pilot #5	KM	ESG Scorecard Ranking & Sustainable Portfolio Optimisation	<ul style="list-style-type: none"> UC#1 –ESG On-line Reporting UC#2 – Portfolio Optimization
Pilot #6	NRS	Embedding Climatic Predictions in Property Insurance Products	<ul style="list-style-type: none"> UC#1 – Climate Aware Real Estate Pricing UC#2 – VaR of an Insurers’ Portfolio UC#3 – Climate-Aware Analysis of Alternative Portfolios
Pilot #7	MOH	Assessing the Quality and Monetary Value of Data Assets	<ul style="list-style-type: none"> UC#1 – Quality Assessment and Pricing of Industrial Data Assets UC#2 – Data Analysis and Production of Value-Added assets using FAME Tools

2.2 Pilot preparation plan v2

For the 2nd version of this document, we have finalized the Pilot preparation plan, by updating the information collected in the 1st version of the document and by following extra steps that were deemed necessary for a successful preparation phase of FAME Pilots.

This plan consists of 6 steps, as you can see in the Figure 1, which are:

1. Pilots and Use Cases Description Updates
2. Co-Creation Requirement Collection
3. Components & Datasets
4. Pilot Architecture
5. Pilot Key Performance Indicators
6. Stakeholders Engagement

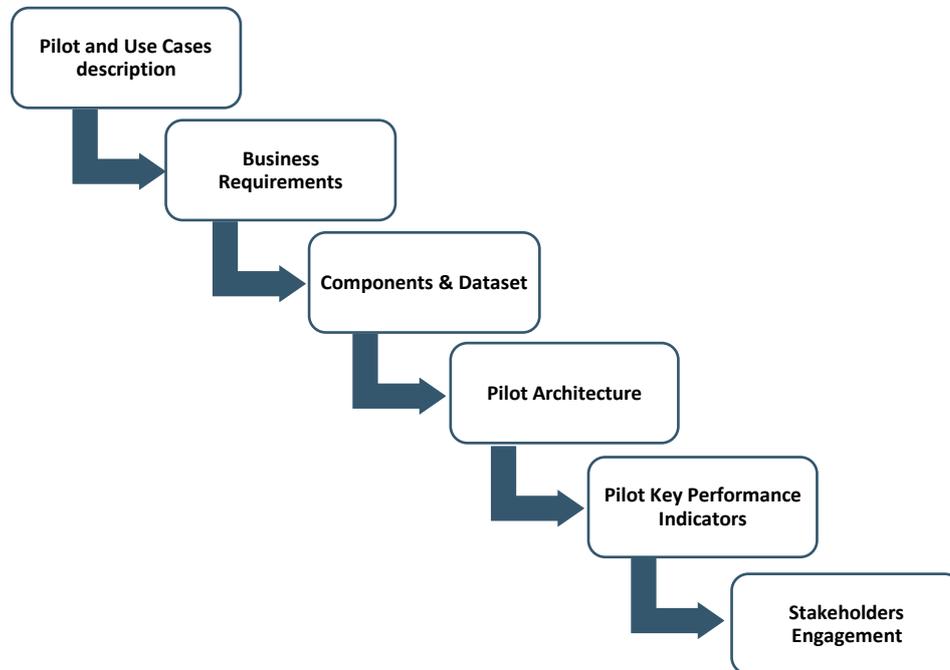


Figure 1 – Plan for the Pilots

For the final version of this deliverable, we did a 2nd iteration of this process, which provided several updates to the information made available in D6.1, which included more details of the Use Cases being targeted by the Pilots, the Components & Dataset made available to the FAME Marketplace, the updated KPIs and a current status of the Stakeholder Engagement (which will be entirely reported in D6.3). All these steps are defined in the following subchapters and will be detailed and specified for each Pilot in the following chapter.

2.2.1 Pilot and Use Cases description

This information was originally collected and reported in D6.1, however some small updates were made in the Pilots and Use Case descriptions, so we decided to keep all the information here, for the sake of the reader to have all the information of the pilots and use cases here.

Table 2 – Pilot Template

Pilot #
Pilot Name
Summary
Description
Motivation

Table 3 – Use Case Template

Use Case #
Use Case Name
Summary
Description
Value Proposition(s)
Documentation
Image(s)
Website
Keywords
Available Data Assets

2.2.2 Business Requirements

The business requirements of each pilot were identified in the earlier stages of the project, and initially reported in WP2 deliverables and in D6.1. As no updates were made to the business objectives, we opted to move this section to Annex A along with all dedicated requirements per pilot.

2.2.3 Components & Dataset

In order to identify which assets could be made available from the Pilots' perspective, a template was created and shared with all Pilots to collect all the relevant information for the FAME Marketplace.

Table 4 – Components & Dataset Template

Pilot # – Use Case #
Name
Summary
Description
Website
Manufacturer / Provider
Contact
Type
Features / Capabilities
Standards
License
TRL¹
Reference
Linked Components
Media Gallery

¹ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

2.2.4 Pilot Architecture

In this section, Pilots are asked to identify the Pilot specific architecture, focusing on each element that constitutes the Pilot implementation, including all interactions with FAME technological components.

2.2.5 Pilot Key Performance Indicators

This section is related to Pilots' specific KPIs. To collect this information, we created and shared an Excel template so that all Pilots could provide the same information regarding their Key Performance Indicators. The structure of the Excel template is as follows:

Table 5 – Key Performance Indicators Template

Pilot # KPIs
KPI Name
Description
Unit
Target
How to assess?
Category
Comments

As the KPIs were added to the re-submitted version of D6.1 (2 months before the submission of this document), there were only small updates made to the KPIs.

2.2.6 Stakeholder Engagement

This section allows each Pilot to identify the stakeholder activities already performed as well as the activities that are being planned for the remaining period. Each Pilot identified a plan for the predicted Stakeholder Engagement workshops, which will occur during the last phase of the project, where each Pilot will already have concrete results to share with their stakeholders to get valuable feedback.

3 Pilot Preparation

All the information in this chapter is the last version of the information first collected in the deliverable D6.1.

3.1 Pilot #1: FaMLy – A powerful financial recommendation engine for families

3.1.1 Pilot and Use Cases description

Table 6 – Pilot 1: Description

Pilot #1	
Pilot Name	FaMLy – A powerful financial recommendation engine for families
Summary	<p>Using Universo brand, data and expertise, it is aimed to test FAME analytical tools and capabilities by creating:</p> <ul style="list-style-type: none"> - A recommendation engine for financial products and/or other products from Universo partnership’s network for families; - Customer profiles and a ML model to address instalment risk. <p>It is also aimed to test FAME marketplace and federation capabilities by sharing and trading in FAME the data assets which will be the outputs from this work.</p>
Description	<p>Sonae is a multinational corporation managing a wide portfolio of companies. Universo Soane is the group sub-holding for financial services. Started in 2016, transforming the financial management of families and small businesses, innovating through simple financial solutions with positive impact on daily lives.</p> <p>Universo has different financial products under its portfolio, namely, payments solutions, cards, personal credits, insurances, and instalment solutions. Universo is also enriched with a vast partnership network, that promotes better purchasing opportunities for Universo clients.</p> <p>With FAME it is aimed to enlarge client’ usage of Universo products by (1) creating a recommendation engine for financial products and/or other products from Universo partnership’s network for families and by (2) generating a risk model (based on creation of client profiles) that will enable a wider client access to the Universo instalment solution (Universo Flex).</p>
Motivation	<ul style="list-style-type: none"> - Usage of innovative features of AI, ML and analytics; - Testing data marketplace and federation concept; - Product development and innovation.

3.1.1.1 Use Case #1

Table 7 – Pilot 1: Use Case 1

Use Case #1	
Use Case Name	Recommendation Engine for Families
Summary	<p>This use case will aim at developing a robust recommendation engine based on Machine Learning algorithms that will ultimately provide Universo clients with optimal offers and campaigns, by benefiting from Sonae and Universo’s partnership network - which encompasses several partners in multiple sectors that address the specific needs of families.</p>

Description	<p>Universo aims at developing a powerful recommendation engine for families, to suggest financial products and other products from Universo partnerships' network by leveraging FAME's analytical capabilities over an extensive pool of data assets originating from Universo's ecosystem. The recommendation engine will provide the user with the offers and campaigns that best suit their needs. Data used for training will include sociodemographic features, as well as transactional and digital behaviour.</p> <p>After training the model, XAI capabilities and other relevant analytical tools will be leveraged to extract valuable insights, guide marketing strategies, and provide transparent explanations to the final client.</p> <p>The model and its outputs will be appraised and negotiated in FAME's marketplace, with the objective of testing the data marketplace concept. Emphasis will be paid on the development of an intuitive way to present the recommendations, as user-friendliness of the application will impact the level of the users' engagement, and their willingness to share data. The recommendations themselves will be integrated into a mobile app, under App Universo, leveraging an already trusted brand and a vast customer base. Engagement will be measured and, to further reinforce data collection and supply, incentives may be provided to end-users. Finally, the incorporation of new partners into a Federation will be validated, as well as retrieving data from other sources, and granting secure access to proprietary assets.</p>
Value Proposition(s)	<ul style="list-style-type: none"> - Generate a powerful recommendation engine for financial and other partnerships under Universo brand - Improve the Customer Experience - Increase sales - Monetize the model and its outputs - Create a Data Federation for future use cases
Documentation	-
Image(s)	-
Website	Universo - A Nova Dimensão Financeira Conta Crédito e Seguros
Keywords	Recommendation engine; Explainable AI; Financial products
Available Data Assets	<p>The data utilized in the development of this UC will include the following assets, which have already been shared with the WP5 team for model development:</p> <p>Individual and family profiles: This includes demographic and socioeconomic data such as client age, monthly net salary, family size, marital status, employment contract date, and residence status.</p> <p>Transaction and engagement data: This encompasses information on the client's financial transactions, including transaction types, channels, categories, dates, amounts, and the number of transactions over the last 3 and 12 months. It also includes data on app interactions such as app logins, actions on app pages, and distinct events over different time periods (3 months and 12 months).</p> <p>Client behavior and usage patterns: Information regarding the client's financial behavior, including credit limit usage, revolving credit</p>

percentage, withdrawals, transfers, online transactions, installments, and communication interactions (number of communications received, opened, and clicked over the past months). This data will support the understanding of client habits and interactions.

Data limitations: It is important to note that, while detailed transaction data has been shared, data on purchase history (including products or services acquired, merchants, and frequency) has not been included in the current dataset. Additionally, some client information, such as detailed personal preferences or specific user feedback, is limited.

The shared data will be used to address key questions related to customer segmentation, risk propensity, engagement levels, and other behavioral insights. These questions, proposed for analysis through clustering, include identifying customer groups by household composition, risk behavior, technical literacy, price sensitivity, and more.

All shared data will adhere to compliance and applicable privacy and data security regulation.

3.1.1.2 Use Case #2

Table 8 – Pilot 1: Use Case 2

Use Case #2	
Use Case Name	Consumer interfaces for families
Summary	This use case will 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 instalments availability.
Description	<p>Universo Flex is the solution from Universo that enables the instalment of online shopping. The service materializes in a payment method that merchants can include in their website checkout. After closing his purchase cart and selecting this payment method, the customer is guided through a simplified onboarding experience – fully digital. To this day, it is identified two main onboarding blocks: customer data + bank card data. Customer must provide a document ID photo (capture by the platform) and a valid credit card.</p> <p>Regarding data required for customer onboarding, there are 3 sources that may be used:</p> <ul style="list-style-type: none"> - pre-filled fields as per data shared by merchant (automatic, through API) - captured by OCR, retrieved from customer document ID photo captured in real-time - manually inserted by customer in the interface <p>This data, despite being required for KYC/AML, is also valuable to segment customers in different profiles. The challenge in this use case is to use this customer data to generate customer profiles that will feed Universo business.</p>

With this first step of profiles generation, it is aimed to develop a risk model to address the enlargement of instalment solution use. The current solution has the limitation of only using credit cards with blocked amounts to reduce internal risk. The objective is to test the impact of opening the risk in some profiles, allowing them to use debit cards and/or not block the purchase full amount. The final goal will be to create a credit risk model, using all possible variables to have the highest accuracy possible. With this aim in mind, it is aimed to use external data sources, included in FDAC, to enrich the training data for the risk model. As a nice-to-have, it is also objective to test new approaches to improve customers conversion goals. Some of them will be with a A|B test approach – e.g. test screen changes to check impact on customer conversion rate.

Value Proposition(s)	Generate data to define different customer and transactional profiles, that will feed ML models Generate data to create a highly accurate risk model
-----------------------------	---

Documentation

Image(s)

Website	Universo Flex Universo - A Nova Dimensão Financeira
----------------	---

Keywords	Customer profiles; Instalment risk
-----------------	------------------------------------

Available Data Assets	<p>The dataset shared with the WP5 team contains 10,075 records and includes demographic, financial, and behavioral information relevant for developing a risk-scoring model focused on delinquency and fraud. The data enables the assessment of customer default probability and the identification of fraudulent behaviors, allowing for a more precise adjustment of credit offers.</p> <p>The dataset includes customer demographics (e.g., age, marital status, profession), financial indicators (e.g., income, expenses, debt commitments), and transaction-related information (e.g., requested amounts, payment status, and fraud flags). Additionally, it contains key target variables for model development, including indicators of general default, payment delays beyond 30 days, and early fraud suspicion.</p> <p>All shared data is handled in compliance with privacy regulations and data security policies. The WP5 team is responsible for analyzing the dataset and developing the risk model based on the provided information.</p> <p>This dataset will serve as the foundation for risk-scoring models and fraud detection strategies, supporting Universo's efforts to optimize credit policies and enhance the StorePay customer experience.</p>
------------------------------	---

3.1.2 Components & Dataset

The following tables show the Assets (Components & Datasets) that Pilot #1 plans to share via the FAME Marketplace. This information is divided into Use Cases.

Table 9 – Pilot 1: Components & Datasets: Recommendation Engine for Universo

Pilot #1 – Use Case #1	
Name	Recommendation Engine for Universo

Summary	This project aims to develop a robust recommendation engine using Machine Learning algorithms to deliver optimal offers and campaigns to Universo clients. By leveraging Sonae and Universo's extensive partnership network across multiple sectors, the engine will cater to the specific needs of families.
Description	The model will be trained on various data sources, including tabular, textual, and time series data, incorporating client behavior insights from transactions (e.g., type, location, date, and amount), digital interactions (e.g., app downloads and logins), and sociodemographic information (e.g., age, address, and income).
Website	-
Manufacturer / Provider	-
Contact	-
Type	Dataset / Recommendation model
Features / Capabilities	[Contains] Client behavior, digital interactions and sociodemographic data
Standards	CSV (Coma Separated Value)
License	License TBD
TRL²	TRL 6
Reference	Data available in the internal Repository of the project
Linked Components	-
Media Gallery	-

Table 10 – Pilot 1: Components & Datasets: Consumers' Incentives and Interfaces

Pilot #1 – Use Case #2	
Name	Consumers' Incentives and Interfaces
Summary	This use case aims to create diverse customer profiles by analyzing consumer data and assessing instalment risk, expanding the scope of Buy Now Pay Later (BNPL) solutions. By leveraging analytical tools and Machine Learning techniques, it will develop a risk-scoring model to optimize instalment availability.
Description	The FaMly financial recommendation engine will process tabular, textual, and time-series data, incorporating client transactions, store and district information, and broader customer data insights to enhance decision-making.
Website	-
Manufacturer / Provider	-

² https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Contact	-
Type	Dataset / Scoring risk model
Features / Capabilities	[Contains] Client transactions, Store and District information, and broader Customer data
Standards	CSV (Coma Separated Value)
License	License TBD
TRL³	TRL 2
Reference	Data available in the internal Repository of the project
Linked Components	-
Media Gallery	-

3.1.3 Pilot Architecture

The architecture of Pilot 1 connects Universo's systems to the services provided by the FAME platform, ensuring support for the Pilot's defined objectives. The data flow and main components are described below.

3.1.3.1 Architecture Diagram

The diagram below illustrates the overall structure of Pilot 1, including the systems involved, data flows, and key interactions between components:

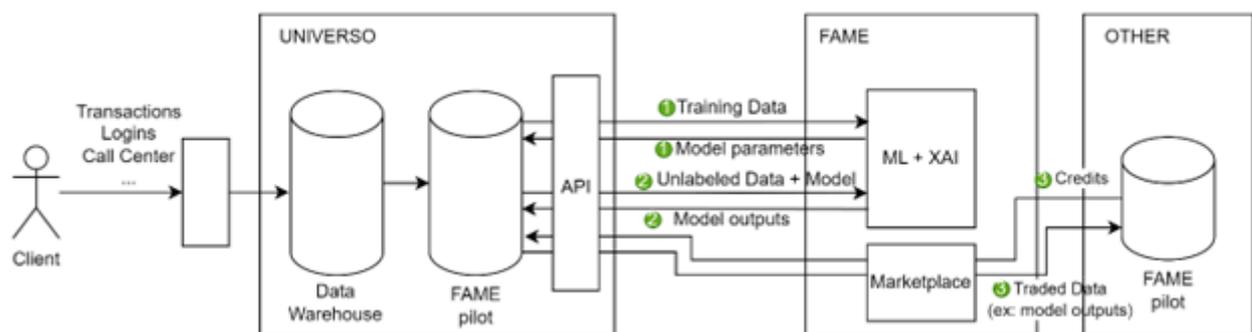


Figure 2 – Pilot 1: Architecture Diagram

3.1.3.2 Architecture Description

1. Universo System:

- Universo's data warehouse stores client data, including transaction details, access logs, and call centre records.
- The implementation of an API is planned to expose relevant data to FAME, ensuring secure access and control over information. Its development will begin once concrete results from the FAME platform are available, ensuring that the integration is tailored to the identified needs.

2. FAME Platform:

- The FAME platform offers Machine Learning (ML) and Explainable AI (XAI) capabilities that can be used for model training, fine-tuning, and inference if provided with the pilot's data.

³ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

- b. Through the Marketplace, the platform manages the negotiation and exchange of assets, such as datasets and model outputs, ensuring traceability and efficient use of credits.

3. Interactions with Other Systems:

- a. The FAME Marketplace also enables integration with external systems, facilitating the exchange of data and the use of models by other Pilots or stakeholders.

3.1.3.3 Data Flows and Operations

- **Input Data:** Includes historical and unlabelled data provided by the Universo system via the API.
- **Processing in FAME:** The data is used to train ML models, whose results are purchased through the Marketplace.
- **Asset Exchange:** Processed data, model outputs, and parameters are made available for transactions and use through the Marketplace.

This architecture is designed to ensure efficient, secure operations aligned with the goals of Pilot 1, promoting interoperability between systems and optimizing the use of technological assets and data.

3.1.4 Pilot Key Performance Indicators

These are the KPIs that the Pilot is aiming to achieve. The KPIs identified in the table below refer to Pilot #1.

Table 11 – Pilot 1: KPIs

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Model Performance	Performance measured in standardized metrics such as accuracy, r^2 , RMSE, precision, recall, $f1_score$, roc_auc	Percentage	80% ROC-AUC	-	Business	-
Performance increase of ML Models using external FAME Data assets	ROC_AUC Increase by using external data assets	Percentage	5ppp	-	Business	-
Number of Analytical Solutions integrated in FAME Marketplace	-	No of solutions	>2	-	Business	-
FDAC used	FDAC usage to complement model performance	No of data assets used	>3	-	Operational	-
Use cases in production	Use case completion under Pilot 1	No of use cases	=2	-	Strategic	-

3.1.5 Stakeholder Engagement

The FAME project workshop took place on August 13th 2024 and was attended by key teams from Universo, including members of the Customer Service and Data Science departments. The primary objective of the workshop was to align stakeholders with the project's goals, gather valuable feedback, and ensure active engagement to support the development of Pilot 1 and its use cases.

3.1.5.1 Methodology for Stakeholder Engagement

To involve stakeholders in the workshop, a convenience sampling approach was employed, selecting participants with relevant experience and knowledge essential to the project's objectives. The selected stakeholders included:

- Customer Service Team: Responsible for client segmentation in campaigns, contributing expertise on customer behaviour and interactions.
- Data Science Professionals: Provided analytical insights crucial for the design and development of the recommendation engine and risk models.

The engagement process was structured as follows:

1. Preliminary Briefing: Participants were briefed on the importance of their collaboration and the overall significance of the FAME project.
2. Workshop Scheduling: Invitations were sent via email, and an in-person meeting was scheduled to maximize interaction and collaboration.
3. Detailed Presentation: During the workshop, a comprehensive overview of the FAME project was provided, covering the objectives, scope, and potential impact of Use Case 1 (*Recommendation Engine for Families*) and Use Case 2 (*Consumer Interfaces for Families*).
4. Questionnaire Introduction: The workshop included an explanation of the questionnaire's purpose and instructions for completion, ensuring participants were well-prepared to contribute meaningful feedback.

3.1.5.1.1 Criteria for Stakeholder Selection

The stakeholders were selected based on their:

- Relevance to the Project: Team members directly involved in areas critical to the FAME project's success, particularly Customer Service and Data Science.
- Experience and Knowledge: Familiarity with customer segmentation and data analysis, essential components of the recommendation engine and risk model development.

The selection was made with a focus on stakeholders who possessed deep knowledge of the business areas. These stakeholders were invited for their experience in identifying the advantages of applying the use cases and for providing valuable insights on other relevant topics that could contribute to enhancing the customer experience. The goal was to ensure that decisions made were aligned with business needs and practical perspectives for the continuous development of the project.

3.1.5.1.2 Workshop Objectives

The workshop aimed to achieve the following:

1. Alignment with Project Goals: Provide a detailed overview of the FAME project, including the scope, objectives, and expected impact of the Pilots.
2. Stakeholder Awareness: Highlight the importance of participant collaboration and their critical roles in the project's success.
3. Questionnaire Guidance: Explain the purpose of the questionnaire, its alignment with the project's objectives, and provide clear instructions to ensure accurate responses.
4. Feedback Collection: Gather practical and actionable insights from participants to guide the project's development.

3.1.5.1.3 Feedback Summary

The workshop yielded valuable insights and contributions from the stakeholders, which were categorized as follows:

1. Project Relevance and Impact:
 - a. Participants recognized the innovative potential of the FAME project, particularly in leveraging federated data and advanced analytics.
 - b. The recommendation engine's ability to enhance customer personalization was highlighted as a key benefit.
2. Data and Model Requirements:
 - a. Stakeholders emphasized the need for high-quality, diverse data to improve model accuracy.
 - b. Suggestions included exploring external data sources to complement Universo's existing datasets.
3. Technological Integration:
 - a. Questions arose regarding the integration of FAME systems with existing Universo infrastructure.
 - b. Recommendations included scheduling technical sessions to address API connectivity and data flow.
4. Output Usability:
 - a. Participants stressed the importance of creating clear, user-friendly outputs for the recommendation engine, such as interactive dashboards tailored to different user profiles.
5. Compliance and Ethics:
 - a. Ensuring data security and adherence to GDPR and other regulations was identified as a priority.
 - b. Transparency in data usage and privacy protection were emphasized as critical factors for user trust.
6. Ongoing Engagement:
 - a. Stakeholders expressed a desire for continued involvement, suggesting additional workshops and co-creation initiatives to refine solutions collaboratively.

3.1.5.1.4 Outcomes and Next Steps

Based on the workshop's feedback, the following actions were outlined:

1. Enhance Data Resources: Investigate external data sources and address gaps in the current datasets.
2. Strengthen Technical Integration: Organize follow-up sessions to resolve integration challenges and ensure seamless data exchange.
3. Improve Communication: Develop intuitive dashboards and reports to enhance the usability of outputs for various stakeholders.
4. Reinforce Compliance: Implement robust measures to ensure adherence to regulatory requirements and maintain data privacy.
5. Maintain Engagement: Plan regular updates and collaborative sessions to keep stakeholders informed and involved throughout the project lifecycle.

3.2 Pilot #2: Embedding Finance Services in a Personalized Citizen Wallet

3.2.1 Pilot and Use Cases description

Table 12 – Pilot 2: Description

Pilot #2	
Pilot Name	Embedding Finance Services in a Personalized Citizen Wallet (NOVO, DAEM, UBI)

Summary	Offer more citizen-centred financial services and extend in additional services (e.g. transportation), based on existing data produced from myAthensPass smart parking app.
Description	Since 2019 the City of Athens (DAEM) and its technology partner NOVO have re-branded the popular smart parking app of the city (myAthensPass). The new app enables drivers to buy parking time quickly, easily and conveniently. It also enables motorists to find their exact location, to select their desired parking duration, to extend their parking time remotely, to access information about how much they need to pay, and to reserve parking time in advance. Relevant payment transactions can be carried out via NOVO's app, which serves as a mini citizen wallet. DAEM is also collecting large amounts of data about citizens' parking activity, including their payments. DAEM and NOVO are interested in using the collected data for offering more citizen-centred financial services and for extending the paradigm in additional services (e.g., transport, medical needs).
Motivation	Provide citizen centric services. Extend supported services.

3.2.1.1 Use Case #1

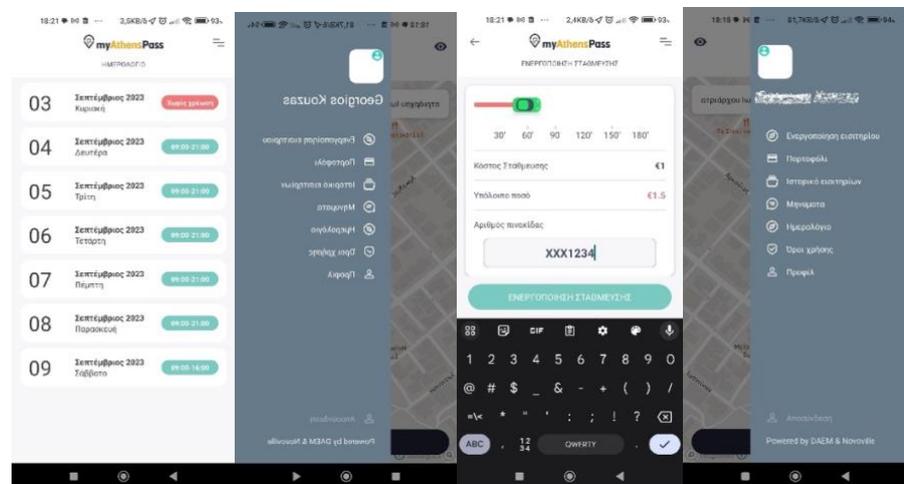
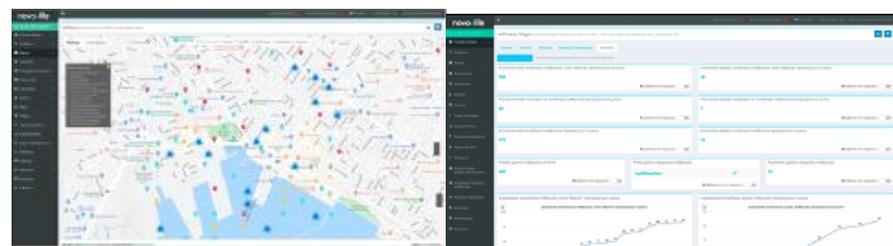
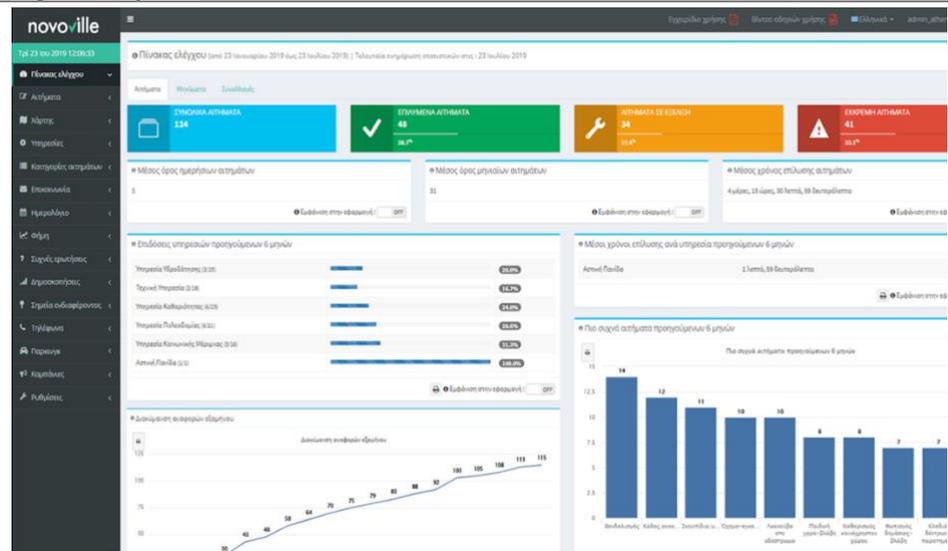
Table 13 – Pilot 2: Use Case 1

Use Case #1	
Use Case Name	Personalized Payment and Loyalty Programs for Smart Parking
Summary	Provide personalized user centric services. Data from user activities (with the consent of user) will be traded through platform and combined with data from external sources will provide model loyalty programs.
Description	<p>In this use case, we aim to create a comprehensive EmFi profile for citizens by utilizing existing parking data (e.g., payment frequency, timeliness, and parking duration and location), along with behavioural insights from other NOVO app services. We will complement this with external data related to public transportation traffic. This robust profile will serve as the foundation for generating a wide array of personalized, citizen-centred offers and recommendations such as “Park & Ride” options.</p> <p>These recommendations will offer citizens incentives such as discounts on bulk parking ticket purchases, reduced fares for using public transportation, or suggestions for utilizing eco-friendly public transportation options, thus promoting sustainable urban mobility. To make customer profiling and recommendation provision possible, different types of citizen data will be securely traded through our marketplace and shared with DAEM/NOVO, contingent on each citizen's consent to include their data in the marketplace. Furthermore, it's imperative that public transportation traffic data be made accessible to the FAME platform to enable seamless processing.</p>
Value Proposition(s)	<p>Bullet list with value proposition(s) of the Use Case:</p> <ul style="list-style-type: none"> - Improve citizen services (personalized citizen centric services) - Increase user experience. - Increase parking areas utilization. - Increase the green mobility maturity level.

Documentation

<https://www.cityofathens.gr/dimos-athinaion-anavathmizetai-to-myathenspass/>

Image(s)



Website

<http://parkinathens.gr/>

Keywords

Smart Cities, citizen centric, citizen wallet, green mobility

3.2.1.2 Use Case #2

Table 14 – Pilot 2: Use Case 2

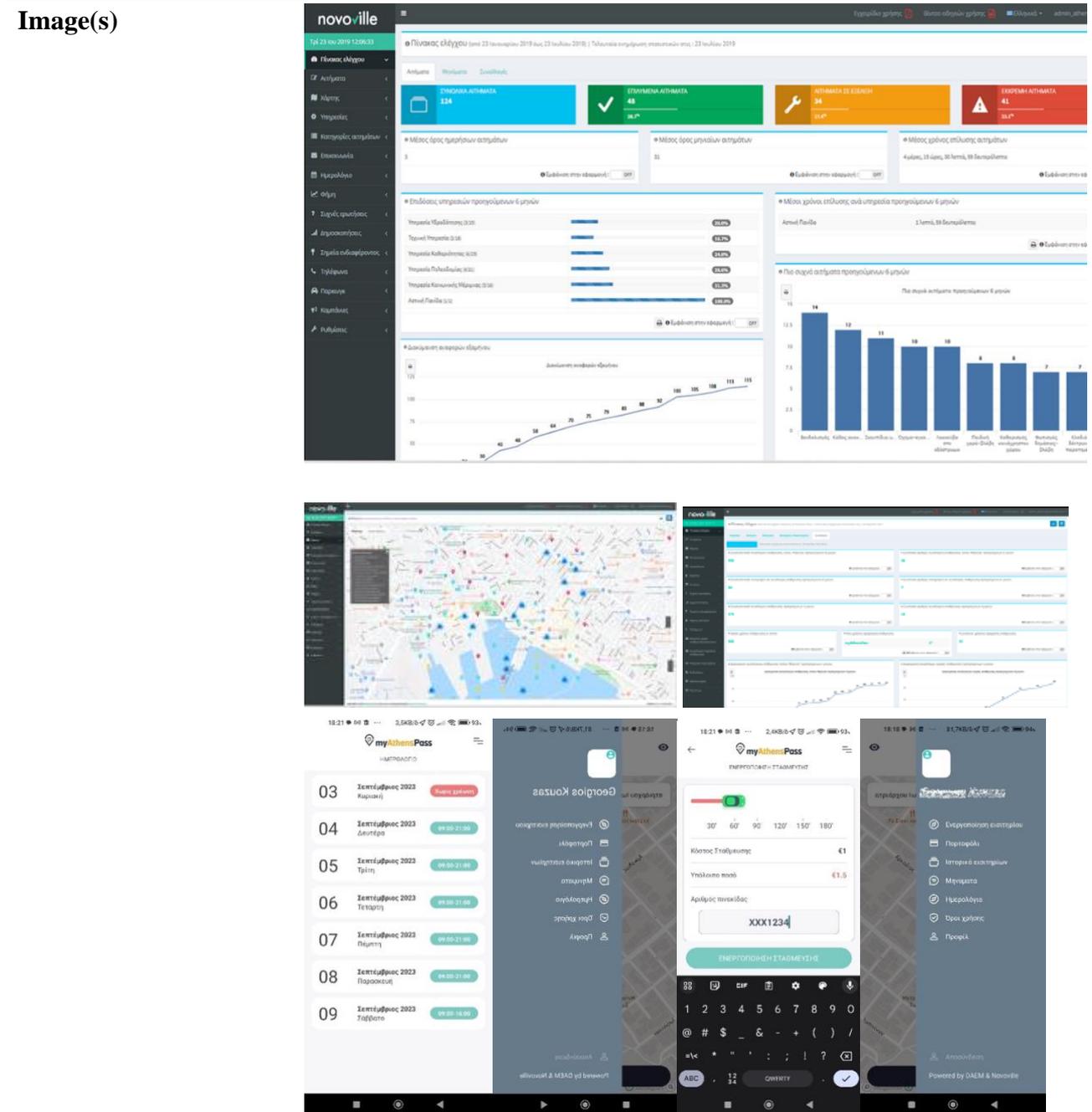
Use Case #2	
Use Case Name	Extended Payments Across Multiple Services
Summary	Extent payments to other services. Data of user activities or other sources will be traded to support the extension of the financial services

Description The use case aims to expand NOVO's citizen wallet to encompass a wider array of services, including transportation services and fine payments. This will empower citizens to conveniently fund their citizen wallet using their credit/debit cards and subsequently utilize these credits for various services. Moreover, within their wallet, citizens will have the option to purchase discounted e-tickets for public transportation by leveraging the "Park & Ride" loyalty scheme offered by UC 1. Similar to the previous scenario, there will be an exchange of citizens' behavioural data among the developers, facilitating the provision of cross-service offers.

Value Proposition(s) Bullet list with value proposition(s) of the Use Case:

- Expand financial services.
- Increase supported services to citizens.

Documentation <https://www.cityofathens.gr/dimos-athinaion-anavathmizetai-to-myathenspass/>



Website	http://parkinathens.gr/
Keywords	Smart Cities, citizen centric, Emended financial services, data sharing

3.2.2 Components & Dataset

The following tables show the Assets (Components & Datasets) that Pilot #2 plans to share via the FAME Marketplace. This information is divided into Use Cases.

Table 15 – Pilot 2: Components & Datasets: Parking Transaction Dataset

Pilot #2 – Use Case #1	
Name	Parking transaction dataset
Summary	The dataset contains on-street parking transaction data for the city of Athens, detailing time, location, and duration of parking sessions. It includes, wallet transaction timestamps, and parking zones, providing insights into parking demand and patterns across the city.
Description	<p>Parking transactions dataset from myAthensPass application. It consists of two subsets:</p> <ul style="list-style-type: none"> - Actual Parking transactions/ticket activation - Wallet transactions <p>Actual Parking transactions sub-dataset deals with parking slots' utilization through myAthensPass application. It is a time series-based dataset that includes: userID, parking location data, duration time/date, amount etc. On the other hand, wallet transactions deal with money transaction data such as: UserID, time/date, amount.</p>
Website	-
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	Dataset
Features / Capabilities	[Depicts/Contains] Parking transaction data
Standards	CSV (Coma Separated Value)
License	Proprietary License
TRL⁴	<p>If the component is in development, select the Technology Readiness Level (TRL) target of the Component according to the European Commission.</p> <p>TRL-9</p>
Reference	Data are available only in the internal Repository of the project
Linked Components	[Produced] by myAthensPass application/ Novoville parking platform

⁴ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Media Gallery

-

Table 16 – Pilot 2: Components & Datasets: Telematics Dataset

Pilot #2 – Use Case #1 and #2	
Name	Telematics dataset
Summary	This dataset contains telematics data from OASA (transport for Athens), including bus routes, bus stops, and bus timetables in Athens.
Description	<p>The dataset contains the schedules for the Urban Public Transportation in Athens. It includes bus and trolleybus stops and routes. The data is provided in the General Transit Feed Specification (GTFS) format. The published data approximately reflects the operational status of the Urban Public Transportation Network of the capital as of the stated issue date only. This status may have changed or could change at any time without notice and without any liability on the part of Athens Public Transport. The geographical accuracy of the data is limited, as the digitization was not done with topographical precision but based on purely descriptive data (e.g., the side of the block where a stop is located). Consequently, the accuracy of stop locations may typically be within ± 20 meters in urban areas (where blocks are clear and relatively small). For express lines, there are boarding and alighting restrictions at certain stops along their routes.</p> <p>Available datasets include:</p> <ol style="list-style-type: none"> 1. Bus stops 2. Bus routes 3. Calendar of routes and bus lines 4. Stop times (schedule and passing times data)
Website	
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	Dataset
Features / Capabilities	-
Standards	GTFS standard TXT. files
License	Proprietary License
TRL⁵	TRL-9
Reference	-
Linked Components	-

⁵ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Media Gallery

-

Table 17 – Pilot 2: Components & Datasets: Citizen Profiler

Pilot #2 – Use Case #1 and #2

Name	Citizen Profiler
Summary	The Citizen Profiler generates detailed parking profiles based on historical parking transaction data, offering insights into citizen parking behaviours and patterns in different areas.
Description	<p>The Citizen Profiler is an analytics service that generates parking profiles across three dimensions:</p> <ul style="list-style-type: none"> - frequency of parking usage, - locality of chosen parking areas, and - actual parking duration. <p>The profiler is trained using historical data from the "Parking Transaction dataset" sourced from the myAthensPass application / Novoville Parking Platform.</p>
Website	TBD
Manufacturer / Provider	TBD WP5 partner
Contact	TBD
Type	Analytics Component, Machine learning Model
Features / Capabilities	[Provide] Citizen profile
Standards	TBD
License	Proprietary license (TBD)
TRL⁶	TRL-4
Reference	-
Linked Components	[Uses/Based on] Parking transaction dataset [Used] by Discount Service
Media Gallery	-

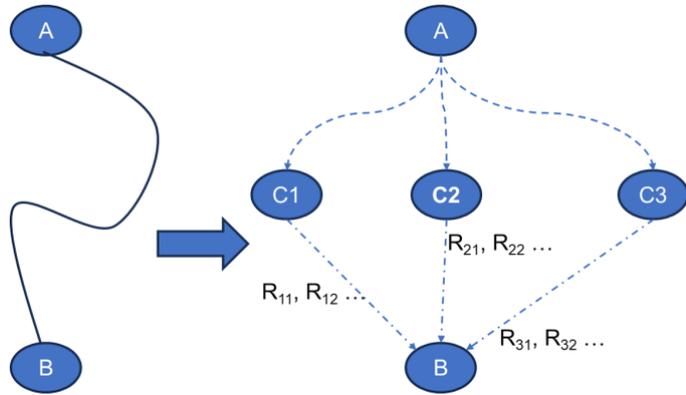
Table 18 – Pilot 2: Components & Datasets: Recommender

Pilot #2 – Use Case #1

Name	Recommender (Route planner)
Summary	This component is a route scheduling recommender that utilizes telematics data, including bus stops, routes, and timelines, to optimize transit planning).
Description	Route planner is an algorithm that suggests alternative routes of moving between a starting point (A) and a destination point (B) using public transportation

⁶ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

instead of using the car. The algorithm is trained with telematics data (Bus stations, Bus routes, bus timelines) and given the existing location (start point A) and the destination one (B) suggests an intermediate location (C_i) for parking the car and taking the public transportation for final destination (B).



Under definition and development

Website	TBD
Manufacturer / Provider	WP5 TBD
Contact	TBD
Type	Machine Learning Model, Algorithm As a service
Features / Capabilities	[Suggests] alternative routes
Standards	-
License	License TBD with WP5
TRL⁷	TRL-3
Reference	TBD
Linked Components	[Uses] Telematics dataset Is used by Park and Ride Service
Media Gallery	-

Table 19 – Pilot 2: Components & Datasets: Loyalty Program

Pilot #2 – Use Case #1	
Name	Loyalty Program
Summary	The Loyalty Program component rewards users for frequent bus usage by offering free parking hours. As users ride more, they accumulate points that can be redeemed for complimentary parking, encouraging public transit use while enhancing the overall commuting experience.

⁷ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Description	The Loyalty Program component rewards users for frequent bus usage by offering free parking hours. It utilizes data from Park and Ride to gather insights from wallet transactions related to bus ticket purchases. As users ride more, they accumulate points that can be redeemed for complimentary parking, encouraging public transit use while enhancing the overall commuting experience.
Website	-
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	As a Service, Dataset
Features / Capabilities	[Integrate] Park and Ride historical data for enhanced user profiling. [Analyse] wallet transactions for bus ticket purchases. [Calculate] accumulated loyalty points based on bus rides
Standards	JSON CSV
License	Proprietary License
TRL⁸	TRL-5
Reference	-
Linked Components	[Uses] historical data [Used by] discount service
Media Gallery	-

Table 20 – Pilot 2: Components & Datasets: Discount Service

Pilot #2 – Use Case #1	
Name	Discount Service
Summary	The Discount Service component provides users with personalized discounts on parking fees based on their parking habits. By analysing historical transaction data, it encourages frequent use of parking facilities while promoting cost savings for users.
Description	This service offers personalized discounts to citizens based on their parking habits. Users who frequently purchase parking time through the myAthensPass app will receive tailored discounts reflecting their usage patterns. The citizen profiler is utilized to calculate these personalized discounts effectively.
Website	TBD

⁸ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	As a Service
Features / Capabilities	[Provides] discount [Calculate] personalized discounts based on parking habits. [Award] discounts to users who frequently purchase parking time. [Integrate] with the myAthensPass app for seamless discount application.
Standards	Restful API/ JSON
License	Proprietary License
TRL⁸	TRL-3
Reference	-
Linked Components	[uses] Citizen profiler [uses] Loyalty program [Used by] Citizen Wallet
Media Gallery	-

Table 21 – Pilot 2: Components & Datasets: Park and Ride Service

Pilot #2 – Use Case #1	
Name	Park and Ride Service
Summary	The Park & Ride Service (EmFi) component allows myAthensPass users to conveniently purchase bus tickets directly from their wallet. This seamless integration enhances the commuting experience by simplifying access to public transport, encouraging the use of buses alongside parking services
Description	The Park & Ride Service component enhances the myAthensPass experience by allowing users to purchase bus tickets directly from their wallet. It provides routing from Point A to Point B and rewards users with discounts and loyalty points for using public transportation, promoting efficient and eco-friendly commuting in Athens.
Website	TBD
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	As a Service
Features / Capabilities	[Facilitate] bus ticket purchases from the wallet. [Provide] routing from Point A to Point B for users. [Offer] discounts

Standards	Restful API
License	Proprietary License
TRL⁹	TRL-3
Reference	-
Linked Components	[Uses] Recommender (route planer) [Uses] Profiler [Used by] Citizen Wallet
Media Gallery	-

Table 22 – Pilot 2: Components & Datasets: Management service

Pilot #2 – Use Case #1	
Name	Management Service
Summary	The Management Component is a visualization tool that presents parking data to Municipal employees, offering insights into the utilization of parking areas. This information helps optimize the management and control of parking spaces, improving efficiency and enhancing overall parking operations.
Description	The Management Component offers: <ul style="list-style-type: none"> - Data Visualization: Displays parking data for municipal employees, enhancing decision-making. - Density Map: Highlights parking usage patterns across various parking areas. - Optimized Control: Recommends which areas should be monitored more frequently by municipal police. - Dynamic Adjustments: Provides almost real-time recommendations throughout the day based on parking demand.
Website	-
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	Platform, Extension, Other Service
Features / Capabilities	[Visualize] parking data for enhanced decision-making. [Generate] density maps to highlight parking area utilization. [Recommend] areas for increased monitoring by municipal police.

⁹ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Standards	Restful API
License	Proprietary License
TRL¹⁰	TRL-4
Reference	-
Linked Components	[uses] internal analytics [uses] wallet transactions
Media Gallery	-

Table 23 – Pilot 2: Components & Datasets: Dynamic Pricing Scheme

Pilot #2 – Use Case #2	
Name	Dynamic pricing scheme
Summary	The Dynamic Pricing Component supports flexible pricing for parking areas based on demand during predefined time periods throughout the day. By analysing real-time data and usage patterns, it adjusts parking rates dynamically to optimize occupancy and maximize revenue, ensuring efficient use of available spaces.
Description	The Dynamic Pricing Component supports flexible pricing for parking areas based on demand during predefined time periods throughout the day. By analysing real-time data and usage patterns, it dynamically adjusts parking rates to optimize occupancy and maximize revenue. This adaptive pricing strategy encourages efficient use of available spaces while providing users with cost-effective options that reflect real-time demand fluctuations. Additionally, it enhances overall parking management by ensuring that high-demand areas are effectively monitored and utilized.
Website	-
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	As a service
Features / Capabilities	[Offers] dynamic pricing to parking areas [Analyse] real-time parking demand data
Standards	Restful API
License	Proprietary License
TRL¹¹	TRL-5

¹⁰ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

¹¹ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Reference	-
Linked Components	[Uses] Internal analytics [Used by] Citizen Wallet
Media Gallery	-

Table 24 – Pilot 2: Components & Datasets: Digital Wallet

Pilot #2 – Use Case #2	
Name	Digital wallet
Summary	The Digital Wallet component facilitates digital payments and offers personalized EmFi (Enhanced Financial) services to citizens. This component enhances user convenience by streamlining transactions while providing tailored financial solutions to meet individual needs.
Description	<p>The Digital Wallet component facilitates digital payments and offers personalized EmFi (Enhanced Financial) services to citizens. This component enhances user convenience by streamlining transactions while providing tailored financial solutions to meet individual needs.</p> <ul style="list-style-type: none"> - Process debit and credit card transactions - Maintain transaction history - Facilitate different ticket purchases for parking and bus services
Website	-
Manufacturer / Provider	NOVO
Contact	Theodore Kakardatos: theo@novoville.com
Type	Other Software
Features / Capabilities	[enables] Financial Services [enables] EmFi [Process] card payments [Facilitate] ticket purchases
Standards	Restful API
License	Proprietary License
TRL¹²	TRL-7
Reference	-
Linked Components	Based on myAthensPass/Novoville Parking Platform Uses EmFi <ul style="list-style-type: none"> - Dynamics pricing scheme

¹² https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

	- Loyalty program
	- Discount
	- Park and Ride
Media Gallery	-

3.2.3 Pilot Architecture

The Pilot architecture follows a 4-layer approach:

- **Data layer:** In this layer are presented the actual data that are necessary for proposed EmFi services. Historical data are the transactions from the existing myAthensPass system as described in (Table 15). This data will be used from the analytics service and citizen profiler and is exposed as a data asset to the FDAC. External telematics data are described in (Table 16) and come from an external resource through FDAC.
- **Analytics layer:** This layer processes data from the previous layer and is mainly the outcome from WP 5. Route planner, Citizen profiler, are the component of this layer and are described in Table 18 and Table 17 respectively. Both components are exposed as analytics assets in FCAD and FAME platform. Analytics is an internal service that processes historical data.
- **Backoffice layer:** This layer corresponds to the actual EmFi services that are provided by FAME project. Four EmFi services are defined: park and ride (Table 21), loyalty program (Table 19), discount (Table 20), and dynamic pricing scheme (Table 23). Additionally, the management service (Table 22) is related to employees presenting a management dashboard of parking areas. All services to this layer are exposed as assets to the FAME marketplace.
- **User front-end:** There are two different user front-end components: the citizen wallet and the employee dashboard. Citizen wallet (Table 24) is the enabler of EmFi services to the citizens and also supports other services such as payment transactions that are related with the defined EmFi services. On the other hand, the employee dashboard is part of the management service. Citizen wallet service is exposed as an asset to the FDAC and to the FAME marketplace.

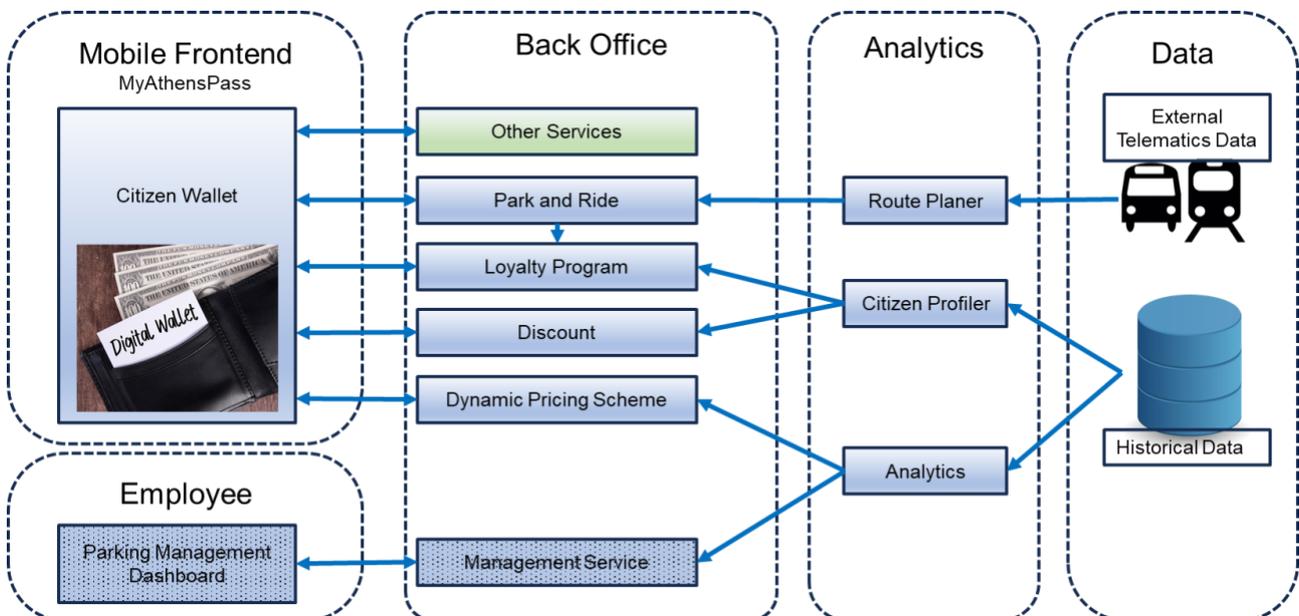


Figure 3 – Pilot 2: Architecture Diagram

3.2.4 Pilot Key Performance Indicators

The KPIs identified in the table below refers to Pilot 2.

Table 25 – Pilot 2: KPIs

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
User engagement & retention	Analyse active users, track retention rate and frequency of use	Percentage	50% of users, 3 active sessions per week		Operational, Business	-
Discount utilization and user benefits (loyalty)	At least 10% of users take advantage of discounts	Percentage	10% adoption		Operational, Business	-
Alternative transportation adoption	At least 10% of app users access alternative transportation data weekly. / loyalty/credits	Percentage	10% adoption		Environmental	-
Parking occupancy monitoring	75% accuracy of parking occupancy data	Percentage	75% accuracy of analytics		Operational, Smart Cities	-
Improvement of enforcement	10% increase in resolved parking violations using platform data	Percentage	10% reduction of time of enforcement officers for targeted inspection		Operational, Economic	-
User satisfaction	10% increase in app satisfaction rating	Percentage	10% increase in user satisfaction		Operational, Economic	-
increase of personalised services (discounts/loyalty etc)	2 personalised services	Number	2 new personalised services		Economic	-
Expansion financial services	Offer new financial services: pay fines, buy bus tickets	Number	2 new financial services embedded in the digital wallet		Operational, Business	-

3.2.5 Stakeholder Engagement

A workshop was organized by DAEM in mid of JAN 2025 in the DAEM facilities. The goal of the workshop was to engage stakeholders and receive feedback from them related to business and technical perspective of the FAME project and to the functionality of the solution of the Pilot system in the topic of EmFi services to the citizens.

3.2.5.1 Stakeholders profile

For this workshop, we tried to engage people that are relevant to the Pilot's use case topic. For this reason, employees of the parking control department of the municipality were invited:

- Operators of the existing back-office parking system: Experienced employees with a complete business view of the Pilot use cases.
- Employees from the municipal police: Employees that are dedicated to the management of the parking areas.
- Technical staff from IT department.

3.2.5.2 *Workshop structure*

Following, a brief structure of the workshop is depicted:

- FAME project overview: A detailed presentation of the FAME project, objectives vision, project progress, and a brief description of business sectors of the involved Pilots.
- Pilot 2 presentation: A detailed view of the Pilot # 2 included use cases, Pilot architecture, supported EmFi services and the interaction with FAME marketplace.
- Open discussion: An open discussion with participants related to the FAME outcomes.
- Questionnaire introduction: Presentation of the questionnaire and detailed guidelines for the completion.
- Feedback collection: Notes about the key points of the discussion and questionnaire collection.

3.2.5.3 *Workshop objectives*

The main objectives of the workshop were:

- Alignment with the FAME Project Goals: Provide an overview of the FAME project (scope, objectives, expected impact to the EmFi services sector).
- Stakeholder Awareness: Engage stakeholders and force their active participation in the project and Pilot's evaluation.
- Questionnaire introduction: Introduce the questionnaire and analyse its sections to the participants, in order to fill out accurately.
- Participant's Feedback: Collect and process the feedback provided by the participants and use these outcomes for Pilot and project improvement.

3.2.5.4 *Feedback*

The workshop yielded valuable insights and contributions from the stakeholders, which were categorized as follows:

- **Business perspective:** From a business point of view, the feedback can be organized in two categories: a) monetization of existing data and b) usage of the developing EmFi services. For the first category the main concern is focused on how existing data can be introduced and monetized through the FAME platform, while the designed EmFi services could provide an added value to the municipal.
- **Technical perspective:** An extensive discussion was carried out related to the technical aspects of the FAME project and Pilot use cases.
- **User acceptance:** Since the audience of this workshop is potential back-office users of Pilot 2 outcomes, it pointed out that the system usability is a crucial factor. From system management point of view simple and accurate user interfaces will boost the acceptance of the proposed solutions.
- **Ethics and compliance:** Stakeholders particularly highlighted the data security and adherence to GDPR and other regulations. Transparency in data usage and privacy protection were emphasized as critical factors for user trust.

3.2.5.5 *Next steps*

This workshop focused on receiving feedback from internal stakeholders that evaluate the FAME project from the public sector point of view (use the FAME marketplace to share data assets and develop EmFi service for citizens). As for the next steps we plan to organize another two workshops: one for the end users (citizens) of the developed EmFi services, and another one with other municipalities and/or companies that are focused on the development of financial services. The actual users' or citizen's feedback will be valuable to validate the functionality of EmFi service that are under development and related to the Pilot use cases. On the other hand, the expected feedback of

companies and public sector will evaluate the business value proposition of FAME project to the sector of EmFi.

3.3 Pilot #3: Personalized Collaborative Intelligence for Enhancing EmFi Services

3.3.1 Pilot and Use Cases description

Table 26 – Pilot 3: Description

Pilot #3	
Pilot Name	Personalized Collaborative Intelligence for Enhancing Embedded Finance (EmFi) Services
Summary	<p>Embedded Finance (EF) is the process of adoption of financial services or products into non-finance company's business model. In words, EF is when non-financial companies or organizations include financial services as part of their services. In this way, financial operations such as loans, insurance, debit cards, savings and investment instruments are integrated into a non-finance company, organization, or institution operations. Therefore, when products, services or processes of non-financial companies are financialized it is called EF.</p> <p>It is important to note that the process of EF is done through partnership of a non-finance company with technology providers instead of banks or other traditional financial institution. Winners are already emerging in the race to provide banking and payments infrastructure for embedded finance, but incumbents and new entrants still have time to claim a share of this dynamic market. So, there is a real opportunity for SMEs and large institutions to adopt EF infrastructure.</p> <p>Embedded finance reached \$20 billion in revenues in the United States alone in 2021, according to McKinsey's market-sizing model. According to McKinsey's estimates, the market could double in size within the next three to five years.</p> <p>Despite the scale of this opportunity, many banks, payments providers, FinTechs, investors, software firms, and potential distributors are unsure what embedded finance involves, how they can participate, and what it takes to win.</p>
Description	The pilot #3 will demonstrate how the federation of customer data from different sources can increase the accuracy of embedded services i.e. loans, payments etc. as a solution for enabling

an Embedded Financial services under the facts-as-a-service paradigm.

The pilot #3 will integrate, link, and analyze data from different organizations (i.e., payment providers, banks, EmFi providers) within the federate FAME marketplace. Two UCs will be implemented, 1 personalized Services and Anti Money Laundering.

Motivation

EmFi provides a tremendous opportunity for finance industry to provide solutions to real-world problems. For example, in the era of Open Banking, payment providers have significant opportunities to gain value-added information about their services and their customers based on the aggregation, consolidation and sharing of data across institutions and organizations. The consolidation of analytics across financial organizations enables them to gain timely and accurate insights for processes like onboarding, services personalization, and credit risk scoring.

3.3.1.1 Use Case #1

Table 27 – Pilot 3: Use Case 1

Use Case #1	
Use Case Name	Pay Facts-as-a-Service for Embedded Payments
Summary	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, BPF), 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.
Description	There are a number of internationally published & recognized Red-Flag transaction indices which are used by the financial sector for monitoring the transactions of their customers for anti-money laundering (AML) patterns. However, these Red-Flag indices are not specific to human trafficking and very often do not include compound red-flags (something referred to as a “Red-Flag Typology” - which is a collection of red-flags alerts which are often present in Human Trafficking). KYC process is also digitalized and called electronic Know Your Customer (eKYC). Processes digitalization in all industries have managed to boost productivity, diminish costs, eliminate bureaucracy, and reduce waiting times from weeks to minutes. Both KYC & KYB follow AML standards. AML5 or (5AMLD), together with electronic Identification, Authentication and Trust Services (eIDAS), set the digitalization of KYB/KYC processes and grants legal guarantees and

	<p>total security to carry out client and businesses’ digital onboarding processes in a secure way and with a high level of trust.</p> <p>Typologies Identification Models are very useful in the scope of this phase, the pilot #3 will focus on developing & training a custom NLU-based model to identify red-flag transactions & generate typologies from the TAH negative news data sources which include sources such as newspapers, blogs, websites and forums.</p> <p>The Typologies approach will also provide an additional typology strength indicator, which will be influenced by a combination of the types of red-flag indicators included in the typology and the frequency with which the typology is identified. We will then review the approach and the initial results generated (typologies) with industry stakeholders through a series of workshops & demonstrations and gather stakeholder feedback as we progress.</p>
Value Proposition(s)	<p>An innovative way to exchange and share data across different institution and services.</p> <p>Cross domain and cross institutions for financial and other financial services.</p> <p>Improve Services and Customer Experience.</p> <p>Increase sales and monetize the model and its outputs.</p> <p>Deploy Data Federation for future use cases.</p>
Documentation	It will be available in the FAME Gitlab
Image(s)	Available in the first E2E service prototype.
Website	Available in the first E2E service prototype.
Keywords	Data Collection, Query Engine, Personalized Services, Financial Services, Data Exchange and Data Sharing.
Available Data Assets	<p>The data used in this UC will include information such as:</p> <p>e-Form contained data: Personal profiles, encompassing demographic and socioeconomic data, such as age, income, etc.</p> <p>Data related to financial transactions i.e., detailed information on spending patterns (daily, monthly, or yearly) of individuals and groups.</p> <p>Data associated with financial transactions, including transaction types, channels, categories, dates, and locations.</p> <p>All shared data will adhere to compliance and applicable privacy and data security regulation. Purchase history, containing information on products or services acquired, merchants and frequency.</p>

3.3.1.2 Use Case #2

Table 28 – Pilot 3: Use Case 2

Use Case #2	
Use Case Name	Anti Money Laundering (AML) as a Service
Summary	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.
Description	In finance, the Black-Litterman model is a mathematical model for portfolio allocation developed in 1990 at Goldman Sachs by Fischer

Black and Robert Litterman, and published in 1992. It seeks to overcome problems that institutional investors have encountered in applying modern portfolio theory in practice. The model starts with an asset allocation based on the equilibrium assumption (assets will perform in the future as they have in the past) and then modifies that allocation by taking into account the opinion of the investor regarding future asset performance.

According to discussion with JRC representative we arrived at the decision to define Model 1 in Risk- Return Profiling Framework consistent with robo free Black-Litterman Model.

A robo-advisor (also sometimes spelled as roboadvisor) is a digital platform that provides automated, algorithm-driven financial planning and investment services with little to no human supervision. A typical robo-advisor asks questions about your financial situation and future goals through an online survey. It then uses the data to offer advice and automatically invest for you. Other common designations for robo-advisors include "automated investment advisor," "automated investment management," and "digital advice platforms." The best robo-advisors offer easy account setup, robust goal planning, account services, and portfolio management. Additionally, they offer security features, comprehensive education, and low fees.

Value Proposition(s)	<p>Collect Digital data to define different customer and transactional profiles, that will feed ML models for AML and fraud identification.</p> <p>Generate data to create a highly accurate risk model following Black-Litterman model.</p> <p>An innovative way to exchange and share data across different institution and services.</p> <p>Improve Services and Customer Experience.</p> <p>Increase sales and monetize the model and its outputs.</p> <p>Deploy Data Federation for future use cases.</p>
Documentation	It will be available in the FAME Gitlab
Image(s)	Available in the first E2E service prototype.
Website	Available in the first E2E service prototype.
Keywords	Data Collection, Query Engine, Personalized Services, Financial Services, Data Exchange and Data Sharing.
Available Data Assets	<p>The data used in this UC will include information such as:</p> <p>e-Form contained data: Personal profiles, encompassing demographic and socioeconomic data, such as age, income, etc.</p> <p>Data related to financial transactions i.e., detailed information on spending patterns (daily, monthly, or yearly) of individuals and groups.</p> <p>Data associated with financial transactions, including transaction types, channels, categories, dates, and locations.</p> <p>All shared data will adhere to compliance and applicable privacy and data security regulation. Purchase history, containing information on products or services acquired, merchants and frequency.</p>

3.3.2 Components & Dataset

The following tables show the Assets (Components & Datasets) that Pilot #3 plans to share via the FAME Marketplace. This information is divided into Use Cases.

Table 29 – Pilot 3: Components & Datasets: Pay Facts-as-a-Service for Embedded Payments

Pilot #3 – Use Case #1	
Pilot Leader	BPFI
Name	Pay Facts-as-a-Service for Embedded Payments
Category	Personalized Collaborative Intelligence for Enhancing EmFi Services
Data Main Characteristics	Available Tabular data (Modelled). Recorded Timeseries (Historical and/or Synthetic). Data format Csv, Json data (Price, JRC score, metadata). Data format Txt, for the formulas of JRC weightings (Modelled).
Input Data Main Types	<p>1) Price data (in txt and Json) formats to be discussed and provided by JRC as examples and pending approval for formatting in order to expand the formats according to a data model.</p> <p>2) Customer profiles for indicative scenarios (UC 3.1 and UC 3.2), including risk client profile and JRC client profile to be provided by both partners (synthetic and indicative scenarios).</p> <p>3) Profiles being prepared by JRC and NUIG partners until end of year.</p> <p>4) JRC scorecard data (UC 3.1 and UC 3.2), this list includes JRC scorecard data from approx. 50 EU companies in tabular format – Status Uploaded, pending approval for formatting.</p> <p>5) Metadata, such as (example) News data for potential fraud and money laundering extraction (UC 3.1) and other metadata (UC 3.2) from companies - news on ESG scores – Indicative datasets provided.</p>
Data Model in use	Timeseries containing Datetime and numerical values.
Data Accessibility	Planning to Generate Synthetic data at the moment. Indicative JSON and txt Data available on SharePoint repository for evaluation.
Data Assets	Market Data, JRC Scores, Synthetic portfolio data based and constructed from combinations of anonymized portfolio data, risk profiles and JRC preference profiles of synthetic clients and synthetic portfolios, Market Metadata, Newsfeeds.
Historical Data	Have to check the volume and how it can be provided. Only indicative data for back-testing will be needed.

Table 30 – Pilot 3: Components & Datasets: Anti Money Laundering (AML) as a Service

Pilot #3 – Use Case #2	
Pilot Leader	JRC
Name	Anti Money Laundering (AML) as a Service

Category	Personalized Collaborative Intelligence for Enhancing EmFi Services.
Data Main Characteristics	Available Tabular data (Modelled). Recorded Timeseries (Historical and/or Synthetic) Data format Csv, Json data (Price, JRC score, metadata). Data format Txt for the formulas of JRC weightings (Modelled).
Input Data Main Types	1) Price data (in txt and Json) formats to be discussed and provided by JRC as examples and pending approval for formatting in order to expand the formats according to a data model. 2) Customer profiles for indicative scenarios (UC 3.1 and UC 3.2), including risk client profile and JRC client profile to be provided by both partners (synthetic and indicative scenarios). 3) Profiles being prepared by JRC and NUIG partners until end of year. 4) JRC scorecard data (UC 3.1 and UC 3.2), this list includes JRC scorecard data from approx. 50 EU companies in tabular format – Status Uploaded, pending approval for formatting. 5) Metadata, such as (example) News data for potential fraud and money laundering extraction (UC 3.1) and other metadata (UC 3.2) from companies - news on ESG scores – Indicative datasets provided.
Data Model in use	Timeseries data containing Datetime and numerical sensor values.
Data Accessibility	Not at the moment. Indicative JSON and txt Data available on SharePoint repository for evaluation.
Data Assets	Market Data, ESG Scores, Synthetic portfolio data based and constructed from combinations of anonymized portfolio data, risk profiles and ESG preference profiles of synthetic clients and synthetic portfolios, Market Metadata, Newsfeeds.
Historical Data	Have to check the volume and how it can be provided. Only indicative data for back-testing will be needed. Full stream of Bloomberg Data is too big and not fully needed.

3.3.3 Pilot Architecture

The architecture of Pilot #3 connects data and security systems using some of the core services used in the FAME platform, ensuring support for the pilot's defined objectives. The Pilot #3 Architecture and data flow and main components are described below.

3.3.3.1 Architecture Diagram

The diagram below illustrates the overall structure of Pilot #3, including the three layer approach i.e. Data, Technology and Application together with their systems involved, data flows, and key interactions between components:

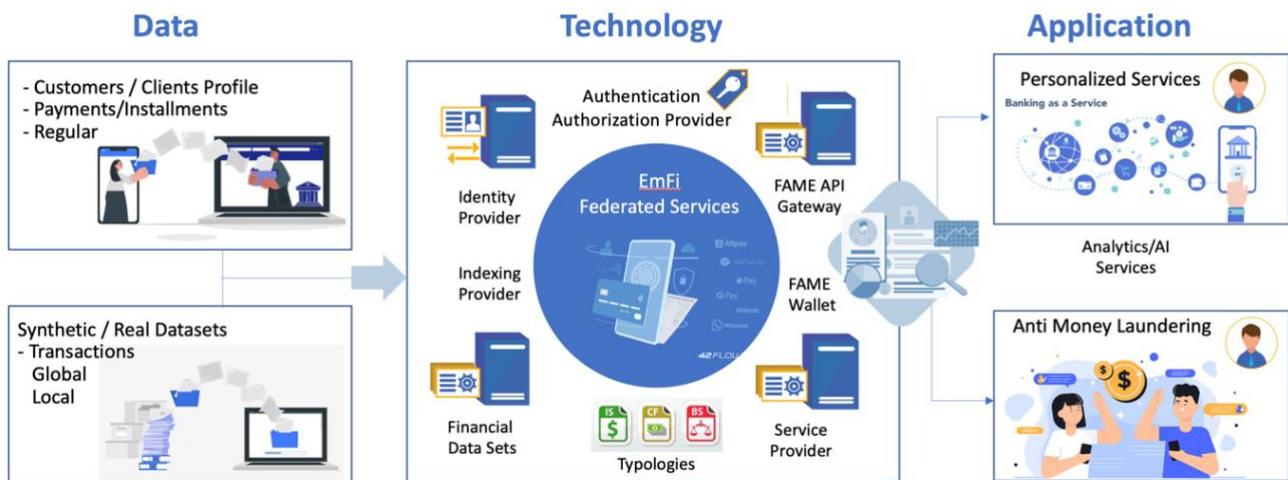


Figure 4 – Pilot 3: Architecture Diagram

3.3.3.2 Architecture Description

The Pilot #3 functional blocks described, follows the FAME Reference Implementation architecture, This architecture is designed to ensure efficient, secure operations aligned with the goals of Pilot #3, promoting interoperability between systems and optimizing the use of technological assets and data.

3.3.3.2.1 Authentication & Authorization Infrastructure

In the current Backplane API Gateway implementation, OAuth 2.0 authentication flow is used. Combined together with OpenId Connect (OIDC), that provides a simple identity layer on top. Using OAuth Authorization Code flow, a JWT Token is generated at the end of the login flow, that later, can be used in subsequent queries to authenticate clients against subsystems endpoints, using the Backplane API as gateway.

Clients are expected to request their JWT Token through a given login endpoint, to further request secured endpoints using those credentials. Thanks to the OpenId Connect identity layer, scopes and claims can be used. Each endpoint can declare a set of scopes, that will be later used to ensure the requesting user has enough privileges, in a claim-based authorization fashion.

After performing the whole authentication flow, clients will end up with 2 JWT Tokens. Clients are expecting to provide those tokens in the header part when querying a secured endpoint.

3.3.3.2.2 Data Provenance & Traceability

Data provenance, a record that describes the origins and processing of data, offers new promises in the increasingly important role of artificial intelligence (AI)-based systems in guiding human decision making. Organizations can focus on three key areas: establishing organizational data governance, demanding data traceability, and leveraging technological advances, such as explainable AI. Data traceability is gaining increasing attention as managers become aware of its importance. For example, it usually takes Walmart 6 days and 14 hours to identify the source of a farm product. When the supply chain data are maintained in a blockchain, however, it takes only 2.2 seconds to establish complete data traceability. Therefore, platform providers need to enhance the traceability characteristic of data provenance in order to improve the efficiency of business and decision making.

3.3.3.2.3 Ranking-based Search Engine

A search engine ranking refers to the spot a URL takes on the results page of a search engine. A wide variety of factors determine a website's ranking. These factors can be influenced by search engine optimization as well as by the purchase of ads. Links are listed from most relevant to least relevant, with the most relevant results being listed at the top of the first search results page. Relevant web

pages that don't rank as well may appear on the bottom of the first page, or on one of the search result's subsequent pages. A higher ranking corresponds with a lower number on the results page. For example, the highest ranking piece of content will appear in the number one spot, while a lower ranked page may appear in the number nine spot. Most search results pages highlight ten URLs, in addition to ads and other features that are listed on the page. It is the general goal of most marketers to place their content on the first page of the search engine's results.

3.3.3.2.4 Data Assets' Catalogue

A provider registers its offerings on the marketplace by providing an offering description. An offering description is an instance of the Data Offering class, (that can be mapped to common subclass of schema:Offer). It contains the information about the Data Assets, data service, categories of data assets, sub classes components of catalogues and resources, data services, categories of the offering (:category). All relevant communication metadata are provided on how the offering can be accessed through the data service and service extension descriptions. Data catalogues to describe their dataset collections using a standardised description, while keeping their own system for documenting and storing them.

3.3.3.2.5 Semantic Interoperability

Semantic interoperability is the ability of computer systems to exchange data, with unambiguous meaning. It is a requirement not only for health data be shared between different systems or applications, but for them to be understood. Semantic interoperability refers to the transmission of the meaning of data. This is achieved by linking each piece of data to a shared, controlled vocabulary. This shared, standardized vocabulary, in most cases agreed at the international level, is what provides the capacity for unambiguous interpretation of information.

3.3.3.2.6 Data Management Utilities

Data Management Utility is a tool capable of managing copy protect data, stamp data, and font/macro data of this machine from a computer on the network.

The Database Management Utility is a powerful tool that modifies large sections of data in the current configuration.

3.3.3.2.7 AI/ML Analytics

The Artificial Intelligence and Machine Learning analytical tools that is the cloud-based, open IoT operating system from Siemens that connects products, plants, systems, and machines, enabling harnessing the wealth of data generated by the Internet of Things (IoT) with advanced analytics in the cloud.

3.3.3.2.8 Energy Efficient Analytics

Cloud computing and green computing are two most emergent areas in information communication technology (ICT) with immense applications in the entire globe. Due to tremendous improvements in computer networks, the people prefer the Network-based computing instead of doing something in an in-house based computing. In any business sectors, daily business and individual computing are now migrating from individual hard drives to internet servers. Therefore, more and more companies are investing in building large datacenters to host Cloud services. These datacenters not only consume huge amount of energy but are also very complex in the infrastructure itself.

3.3.3.2.9 Data Flows and Operations

Input Data: Includes historical and unlabeled data provided by the Universo system via the API.

Processing in FAME: The data is used to train ML models, whose results are stored and can be shared through the Marketplace. Asset Exchange: Processed data, model outputs, and parameters are made available for transactions and use through the Marketplace.

3.3.4 Pilot Key Performance Indicators

The KPIs identified in the table below refer to Pilot #3. These are the KPIs that the pilot is aiming to use, but over the course of the project these may change.

Table 31 – Pilot 3: KPIs

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
P3-KPI-01 Applications and Use Cases Definition	A solid foundation for applications and use cases definition. To provide a detailed description of use cases and provide prototypes in specific and demonstrate the results with videos.	2 UC 2 App's	The final goal includes an establishment of online services and last make the application of the use cases marketplace ready	- Use cases specification - Prototype - Demonstrator with video - Online services - Marketplace ready	Non-Technical	The applications and service will be available online and as offering for marketplace.
P3-KPI-02 Data Services Infrastructure	to build services infrastructure. The infrastructure covers 5 distinct activities. Data & Platforms Management. The continuous monitoring tool which covers the whole process for the Pilot is developed along with onboarding CI/CD compliance. The last activity is to provide services using onboarding methods.	2	To provide services Using FAME SDK / Micro-Services and APIs	- Services using micro-services. - Data & Platform management services. - Monitoring tool. - Onboarding CI/CD compliance. - Services using onboarding methods.	Non-Technical	Online services and profile building including the admin module will be deployed using CI/CD methods.
P3-KPI-03 Data Modelling and Processing	The identification of the vocabulary, preparing taxonomy and providing data model logic and physical annotated data schema.	>50 1 1 >50 >10	To provide the data model as final product.	- Data sets samples. - Metadata repository. - Data offering catalog. - Query data test. - Data sharing & exchange.	Non-Technical	The data model will be proprietary following the JRC vocabularies and taxonomies.
P3-KPI-04 Data / Information Services Platform	Services Platform which includes offering registration for assets offering discovery federated query mode cross-consumption and	>10 >10 >20	To provide online services for services validation.	- Offering registration. - Offering discovery. - Semantic query.	Technical Operational	Technically it is possible to use generic semantic engine for semantic queries.

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
	delivering data transfer.					
P3-KPI-05 Data Smart Services & Visualisation	Service(s) provided are data management services and online data services visualization.	1 >50 1 >6	To include identification of the vocabulary preparing taxonomy and providing data model logic and physical annotated data schema	- Data model logic & physical - Annotated data schema - Data model and analytic services - Online visualisation service.	Technical Operational	Technical development can be done with graphana or data360 open source.
P3-KPI-06 Architecture Definition	Identifying and orchestrating the components, software elements, tools and data infrastructures to support APIs and services.	1	To design and specify the methods for deploying components, utilities and services.	- Diagram representation. - Functional and Logic diagram. - software components and - software libraries and frameworks.	Technical Operational	Technical deployment can be done following FAME CI/CD.
P3-KPI-07 Trustworthiness, Security & Privacy	to deploy Data protection methods, identity management, access control tools, platform access control and self-sovereign identity.	1 1 1 1	To provide services Using FAME Authentication & Authorisation Infrastructure Deployment (FAAID including wallet services and APIs.	- Data protection. - Identity management. - Access control tool. - Platform access control. - Self-sovereign identity.	Technical Operational	Authentication and Authorisation Infrastructure is fully integrated.
P3-KPI-08 Data Services Deployment	To deploy data services including identification of the vocabulary preparing taxonomy and providing data model logic and physical annotated data schema and providing data model as final product.	>50 >10 1 1	To include data sets and sample deployment of metadata storage and preparing data offering catalog with query data test performed and last deliver on Cross-Domain Query	- Vocabulary selection - Taxonomy ready - Data model - Query system	Operational	Development is possible using data schemas and financial vocabularies
P3-KPI-09 Infrastructure Deployment	To provide software and IT infrastructure to run the application and services.	1	To provide local host/ lab test client-server mode and hybrid-developer service mode with industrial cloud environment and testing the scale up to be the last activity.	- Local host configuration / Lab test. - Client-server mode. - Hybrid-developer service mode. - Industrial cloud environment. - Scale up test / validation.	Operational	Deployment of the tools/application are possible following standard CI/CD or cloud-based infrastructures.

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
P3-KPI-10 Stakeholders Engagement	To define the number of activities and events that will involve stakeholders including workshops, consultancy with experts and validation activities/events.	2 >25 >30 >10 1	To execute surveys and questionnaires, workshop and seminar or webinars, including dissemination events such as conferences, booths, etc. and consultancy and expert panel interviews.	2 surveys and questionnaires, 2 workshop seminar or webinars, 1 dissemination events such as conferences, booths, etc. and 2 consultancy and expert panel interviews 1 agreements and/or potential contracts	Operational Business	Activities and events can be organised to achieve these objectives

3.3.5 Stakeholder Engagement

The FAME pilot#3 project interactions with different stakeholders have been organised along the fourth quarter in 2024 and took place approximately once a month during the BPGI expert meeting. These meetings are attended by members of the BPGI and include members from the Customer Service and C-Level departments. The primary objective of the interactions with stakeholders was to explore the requirements from different stakeholders and gather valuable feedback and ensure active engagement to support the development of Pilot #3 and the two use cases. The FAME pilot#3 project also has plans for short demonstrations and introduction of FAME pilot#3 project prototypes with the different stakeholders during the BPGI expert meetings and specific stakeholders workshops during the first semester of 2025.

3.3.5.1 Methodology for Stakeholder Engagement

To interact with different stakeholders in the BPGI expert meeting, a one-to-one approach was employed, selecting participants with relevant experience and knowledge essential to the FAME pilot #3 project's objectives. The selected stakeholders included:

- Customer Service Team: Responsible for client segmentation in campaigns, contributing expertise on customer behaviour and interactions.
- C-Level Professionals: Decision makers crucial for the introduction of new designs and development of the digital modelling assessment, query engine and AML risk models.

The engagement process is so far structured as follows:

1. Preliminary Briefing: Stakeholders were briefed about the importance of their collaboration and the overall significance of the FAME project and the Pilot#3 primary objectives.
2. Scheduling: Invitations will be circulated via email, and in-person meetings will be scheduled to maximize interaction and collaboration.
3. Showcase demos and detailed presentations with the different stakeholders: During the experts meetings and the workshops, a comprehensive overview of the FAME project and Pilot #3 will be provided, covering the objectives, scope, and potential impact of Use Case 1 (*Pay Facts-as-a-Service for Embedded Payments*) and Use Case 2 (*Anti Money Laundering (AML) as a Service*).

3.3.5.2 Criteria for Stakeholder Selection

The stakeholders were selected based on their:

- Interest to the FAME project and Pilot #3: Stakeholders interested in the objectives as described in the use cases.
- Relevance to the Project: Stakeholders directly involved in areas critical to the FAME project and Pilot#3's success.

- Experience and Knowledge: Stakeholders involved with personal profiling and risk management and the recommendation of query data and risk model development.

Given that the FAME pilot #3 is an ongoing activity and still in its early stage, functional system or practical results will be available by second quarter in 2025. It is important to involve additional stakeholders from different departments including R&D or commercial departments at this point.

3.3.5.3 Expert Meetings and Workshop Objectives

The Expert Meetings and workshop are aimed to achieve the following:

- Alignment with Project Goals: Provide a detailed overview of the FAME Pilot #3 project, including the scope, objectives, and expected impact of the pilots.
- Stakeholder Awareness: Highlight the importance of participant collaboration and their critical roles in the FAME Pilot #3 project's success.
- Feedback Collection: Gather practical and actionable insights from participants to guide the FAME Pilot #3 project's development.

3.3.5.4 Feedback Summary

Questionnaire Introduction: The experts meetings and workshop will be complemented with a survey or questionnaire's purpose (including instructions for its completion), ensuring that participants are well-prepared to contribute meaningful feedback.

The expected outcomes from the expert meetings and workshop yield valuable insights and contributions from the stakeholders, which were categorized as follows:

1. Project Relevance and Impact:
 - a. Participants recognition about the innovative potential of the FAME project, particularly in leveraging federated data and advanced analytics.
 - b. Participants about the query engine's ability to enhance personalization highlighted as a key value proposition.
2. Data Model and Data Collection Requirements:
 - a. Stakeholders emphasized the need for high-quality, diverse data to improve model accuracy.
 - b. Suggestions included exploring external data sources to complement FAME Pilot #3 existing datasets.
3. Technological Integration:
 - a. Questions regarding the integration of FAME systems with existing FAME reference Implementation software tools.
 - b. Technical sessions to address API connectivity and data flow demonstrations and showcase.
4. Output Usability:
 - a. Stakeholders stressed the importance of creating clear, user-friendly outputs for the recommendation engine, such as interactive dashboards tailored to different user profiles.
5. Compliance and Ethics:
 - a. Ensuring data security and adherence to GDPR and other regulations was identified as a priority.
 - b. Transparency in data usage and privacy protection were emphasized as critical factors for user trust.
6. Ongoing Engagement:
 - a. Stakeholders shown large interest on the presented/explained solution and expressed a desire for continued involvement, suggesting additional workshops and co-creation initiatives to refine solutions collaboratively.

3.3.5.5 Outcomes and Next Steps

Based on the FAME Pilot #3 experts meeting and workshop's feedback, the actions outlined are:

- **Enhance Data Resources:**
Investigate external data sources and address gaps in the current datasets.
- **Strengthen Technical Integration:**
Organize follow-up sessions to resolve integration challenges and ensure seamless data exchange.
- **Improve Communication:**
Develop intuitive dashboards and reports to enhance the usability of outputs for various stakeholders.
- **Reinforce Compliance:**
Implement robust measures to ensure adherence to regulatory requirements and maintain data privacy.
- **Continuous Engagement:**
Plan regular updates and collaborative sessions to keep stakeholders informed and involved throughout the project lifecycle.

3.4 Pilot #4: The EU Funds Application Process Made Easy

3.4.1 Pilot and Use Cases description

Table 32 – Pilot 4: Description

Pilot #4	
Pilot Name	The EU Funds Application Process Made Easy (INNEUROPE)
Summary	Parametrizing the financial supporting schemes between financial institutions and clients to facilitate the effectiveness of all the EU Funds innovation projects implementation.
Description	<p>Pilot 4 aims to streamline the access to Next Generation EU (NGEU) funds for companies, SMEs, and self-employed individuals in Spain through FAME. FAME marketplace will facilitate optimizing the interaction between financial institutions and beneficiaries of public aids/funding. Leveraging FAME's advanced functionalities, the Pilot will enhance efficiency in accessing and managing public and complementary financing. Its key focus is to offer customized financial advisory services to banks, helping them determine when and how to offer/provide additional financing to companies that have received public funding. The solution automates financial intervention planning—such as loan types, timing, and amounts—via advanced simulations, enabling banks to support public financing processes effectively. It also simplifies the workload for bank employees by delivering clear, contextualized information to assist clients more efficiently.</p> <p>Although the main target is the Spanish market, INNEUROPE and WEGRANT (its affiliated company) have experience and connections with some of the major financial entities in other markets such as France and Poland, so it could expand to them in the future. It emphasizes data privacy and anonymization, safeguarding sensitive information about beneficiary companies. Using data from grant recipients (size, region, CNAE, funding amount) and financial products (loans, leasing, guarantees), the platform generates optimized financing plans tailored to beneficiaries' needs according to their own client financial information (cash flow, creditworthiness).</p>

The Pilot's success will be measured through KPIs such as the number of analysed public funding calls, data processing speed, recommendation accuracy, and revenue from data services. It progresses through structured phases, from requirements definition and data collection to system design, implementation, and real-world validation. Powered by FAME technologies like authentication, data catalogues and AI-based analytics, Pilot 4 ensures a comprehensive and automated solution for improving access to European funds and enhancing financial institutions' performance.

Motivation	The advent of Next Generation EU (NGEU) funds has resulted in an increase in public grants and therefore a unique opportunity for self-employed, SMEs and companies to finance the twin (digital, green) transformation their businesses. Nevertheless, identifying and processing these grants is no mean feat and, on many occasions, put the brakes on investment.
-------------------	---

3.4.1.1 Use Case #1

Table 33 – Pilot 4: Use Case 1

Use Case #1	
Use Case Name	The EU Funds Application Process Made Easy
Summary	Parametrizing the financial supporting schemes between financial institutions and clients to facilitate the effectiveness of all the EU Funds innovation projects implementation.
Description	<p>When a company is granted with public funds, there are steps where they need a financial support from banks to be able to carry on with the process due to the fact that the public fund is granted in different moments of the project (depending to the Grant policy) or the company is required to provide bank guarantees in order to receive payments. Therefore, the Banks have a good business opportunity, but all the process should be harmonized and automatized delivering a methodology with which assuring the most effective approach. The objective of this Pilot is achieving this optimized model allowing a perfect business model synergy between both stakeholders (bank and granted company).</p> <p>In this sense, this Pilot proposes sharing enriched data of companies that have been granted with public funds and match it with financial products. With this data we will have the opportunity to set the methodology which allows the bank pre-financing, complementary/additional financing model and create a win-win business opportunity for both.</p> <p>As input, we have access to the raw data through open data platforms of the entities and we enrich it automatically thanks to the know-how of our consultants, which is transferred thanks to an AI-based analysis developed within FAME to finally automate the generation of recommendations. As a validator, we plan to involve banks outside the FAME consortium in this experiment.</p> <p>The resulting data assets will be placed inside the FAME Marketplace for future exploitation agreement.</p>
Value Proposition(s)	<p>Bullet list with value proposition(s) of the Use Case:</p> <ul style="list-style-type: none"> - Assuring granted company cash flow for its project, - Create a business opportunity for banks,

	- Improve the granting funding parameters (time, feasibility, bureaucracy, etc).
Documentation	- Resulting recommendations to granted companies
Image(s)	-
Website	-
Keywords	grants; public funds

3.4.2 Components & Dataset

The following is a summary of the data assets that have been prepared.

Table 34 – Pilot 4: Components & Dataset: The EU Funds Application Process Made Easy

Pilot #4 – Use Case #1	
Name	Enriched dataset of beneficiaries of public funds
Summary	<p>This dataset provides enriched information on the beneficiaries of public funding recently supported by the CDTI (Centre for Industrial Technological Development). It contains comprehensive data on the public support received by companies, as well as key details on the financial terms of this support and the co-financing requirements of the companies. The dataset focuses on companies benefiting from CDTI programmes, including individual and collaborative R&D projects, as well as projects funded under the LIC and LICA instruments.</p> <p>This dataset is a strategic resource for banks looking to expand their business in the innovation and technology sector, providing a qualified and information-rich database for attracting new customers and offering tailored financial products.</p>

Pilot #4 – Use Case #1

Description	<p>This dataset provides comprehensive information on companies that have recently benefited from the four most popular public aid programs offered by the CDTI (i.e., individual and collaborative R&D projects, as well as projects funded under the LIC and LICA instruments), representing 85% of the entity's total budget. For each beneficiary, the dataset includes key details categorized as follows:</p> <p>Company information:</p> <ul style="list-style-type: none"> - Size: Information on the company's size (e.g., SME, large enterprise). - Autonomous community: The autonomous community (region) in Spain where the company is located. <p>Project financials:</p> <ul style="list-style-type: none"> - Project budget: The total budget allocated for the company's project. - Aid received: Detailed breakdown of the financial assistance granted, including: <ul style="list-style-type: none"> - Loan amount: The portion of the aid provided as a loan. - Non-refundable tranche: The non-refundable grant portion of the aid. - Own funds needed: The amount of the company's own capital required to execute the project successfully. <p>Project timeline and milestones:</p> <ul style="list-style-type: none"> - Maximum project duration: The maximum allowable duration for the project. - Minimum project duration: The minimum possible duration for the project. - First technical milestone for first payment: Information on the first technical milestone that triggers the initial payment disbursement to the company. <p>Pre-financing options:</p> <ul style="list-style-type: none"> - Potential advance without guarantee: The amount of advance payment potentially available to the company without providing a bank guarantee. <p>Maximum advance with bank guarantee: The maximum advance payment amount the company could receive by providing a bank guarantee, along with the required amount of bank guarantee the company would need to secure.</p>
Website	www.wegrant.com
Manufacturer / Provider	Wegrant Platform S.L.U
Contact	Leandro Ciribe; leandro.ciribe@wegrant.com

Pilot #4 – Use Case #1	
Type	Dataset
Features / Capabilities	This dataset provides banks with valuable information to improve their business development and customer acquisition strategies within the innovative sector.
Standards	Not applicable
License	Not applicable
TRL¹³	Not applicable
Reference	Open data published by CDTI: https://www.cdti.es/datos-abiertos-credit-os-subs-venciones-y-lineas
Linked Components	No linked components
Media Gallery	Not applicable

3.4.3 Pilot Architecture

A schematic showcasing the flow of information for FAME Pilot 4 can be seen in the below diagram.

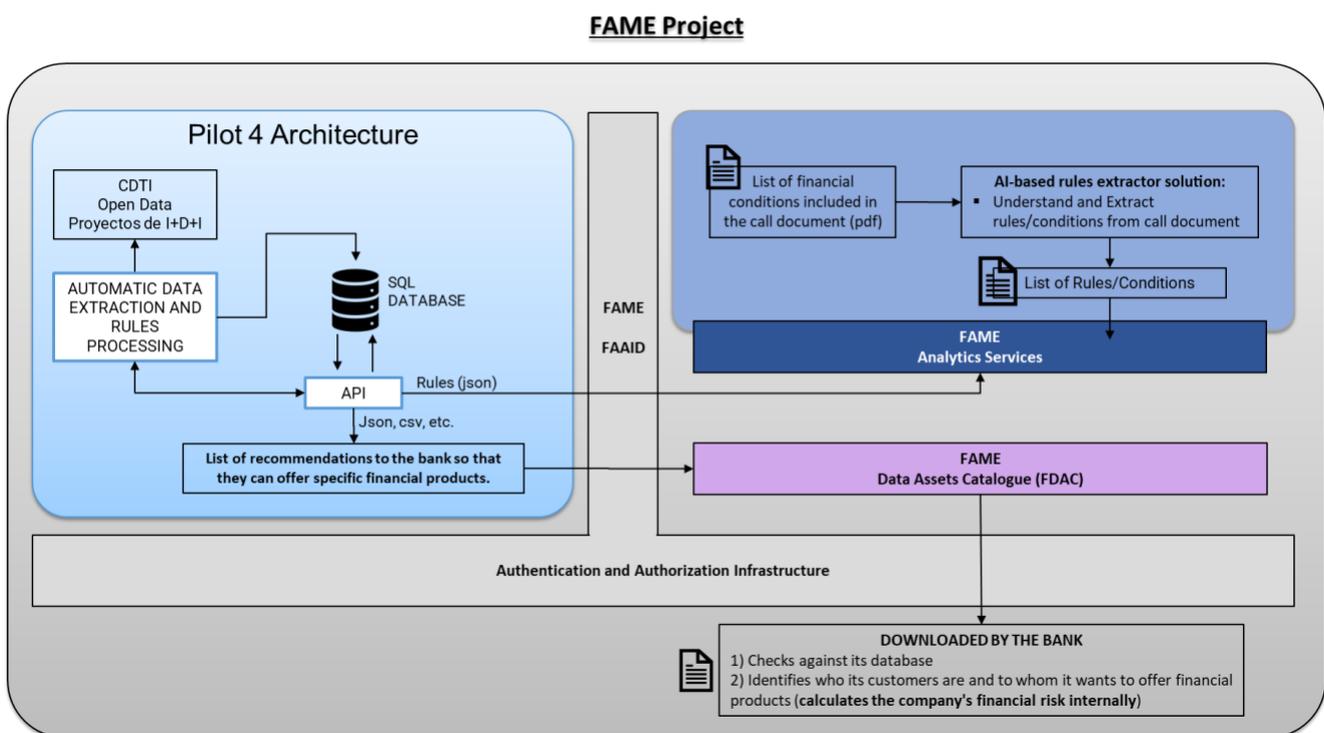


Figure 5 – Pilot 4: Architecture Diagram

3.4.4 Pilot Key Performance Indicators

The KPIs identified in the table below refer to Pilot 4.

¹³ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Table 35 – Pilot 4: KPIs

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Public funding calls considered	Number of calls analysed for recommendations.	Unit	≥ 4 calls	Monitor and track the calls processed by the system on a monthly basis.	Technical	Ensures diversity of public funding calls for diversified interests of banks
Database Entries	Number of unique entries from each public dataset of beneficiaries	%	100% entries per dataset	Validate unique records imported from each source.	Technical	Essential to evaluate completeness of information for enriched analysis.
Processing Speed	Time taken to generate the list of beneficiaries with the corresponding specific recommendations, from the publication of the beneficiaries on the portal of the funding body.	Hour	< 24 hours	Check that the verification script is working correctly and downloading when new data is detected for download.	Technical	Being agile in generating these datasets and making them available through the FAME Marketplace is essential for banks to proactively offer the right financial products at the right time.
Recommendations precision	Precision of AI-generated recommendations	% Accuracy	$\geq 95\%$ accuracy	Validate accuracy by comparing the generated recommendations with those manually generated by an expert consultant on a representative sample.	Technical	It will allow to assess the reliability of data extraction by the AI-based analytical tool (WP5)
Entries per Recommendation	Number of unique data entries considered in each AI-generated recommendation.	Unit	≥ 10 entries per recommendation	Evaluate the number of empty cells against the recommendations.	Technical	Important for assessing data density and quality in each recommendation.
Revenue per Download	Revenue generated per downloaded recommendation data asset from the platform.	€/Download	As per established business model	Track revenue through download logs and financial records.	Business	Core metric for assessing the commercial viability of recommendation data assets.

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
User Satisfaction Score	Satisfaction of banks and investors with the recommendation's dataset	Rating (1-5)	≥4	Collect regular feedback through user satisfaction surveys.	Business	Reflects ease of use, relevance, and user experience with the recommendations generated

3.4.5 Stakeholder Engagement

A workshop was organized on 4 December 2024 to gather external insights on Pilot 4, focusing on its feasibility and market potential from technical and economic perspectives. This initiative aims to maximize the impact of the Pilot and ensure its success in the marketplace. Pilot #4 is designed to facilitate access to Next Generation EU (NGEU) funding while integrating financial products, providing value to both public funding beneficiaries and financial institutions. The workshop also served as an opportunity to refine the Pilot's structure based on real-world insights from experienced consultants.

3.4.5.1 Stakeholder Profiles

The workshop brought together six experienced consultants from WEGRANT PLATFORM SL. These professionals each have over five years of experience advising companies on securing public funding and have been instrumental in integrating the WEGRANT platform with some of Spain's leading banks. Their extensive expertise in public funding processes and their strategic perspective on banking integration were critical in evaluating the feasibility and appeal of Pilot #4.

3.4.5.2 Workshop Structure

The event was conducted as a hybrid session, allowing both in-person and online participation, and lasted for 1 hour. It included the following key components:

- **Introduction to the FAME project:** A general overview of the initiative, its objectives, and its alignment with market needs.
- **Presentation of Pilot #4:** A detailed description of the selected public funding calls, focusing on their characteristics, targeted sectors, and expected market impact.
- **Roundtable discussion with consultants:** A collaborative analysis of the suitability of the funding calls and the attractiveness of the business opportunity.
- **Open discussion:** An interactive segment where participants shared comments, ideas, and suggestions for improvement.
- **Closure and next steps:** A recap of the session's outcomes, highlighting action items and extending an invitation to join a Microsoft Teams communication channel for continued engagement.

The workshop was attended by all six consultants, with remote participation facilitated through Microsoft Teams.

3.4.5.3 End Goals

The workshop set out to achieve the following objectives:

1. Evaluate the suitability of the public funding calls included in Pilot #4.
2. Assess the market appeal of the business opportunity for beneficiaries and banks.
3. Gather both specific and general feedback on the Pilot's structure and execution.
4. Collect suggestions for improvement to optimize the Pilot's potential.
5. Identify new public funding opportunities to expand the database.

3.4.5.4 Collected Feedback

Participants provided valuable feedback, including the following observations:

- The FAME market concept was considered highly useful, but concerns were raised regarding the ease of accessing the relevant data (i.e., the ease with which bank staff can access information through FAME in comparison to other means of information delivery to them.).
- Simplifying the process for banks to obtain data was identified as a key priority.
- Pilot #4 was recognized as a promising opportunity for banks, with potential benefits for both financial institutions and public funding beneficiaries.
- Specific examples of cases where enhanced communication between banks and beneficiaries could lead to better outcomes were shared.
- Ideas were contributed on how to expand the database with additional public funding calls that could increase its market relevance.

3.4.5.5 Future Steps

The session concluded with a summary of key takeaways and an invitation to join a dedicated communication channel on Microsoft Teams for further collaboration. As part of the next steps:

- The feasibility of incorporating the new funding calls suggested by participants will be evaluated.
- Recommendations for improving the data access process and user experience will be explored.
- Feedback from this workshop will guide refinements to Pilot #4, with the ultimate goal of maximizing its market potential and ensuring its alignment with user needs.

This workshop marks a significant step forward in the development of Pilot #4, with the active participation and contributions of six highly experienced consultants that are in direct contact with both companies and banks providing invaluable insights for its future success.

3.5 Pilot #5: ESG Scorecard Ranking & Sustainable Portfolio Optimisation

3.5.1 Pilot and Use Cases description

Table 36 – Pilot 5: Description

Pilot #5	
Pilot Name	ESG Scorecard Ranking & Sustainable Portfolio Optimisation
Summary	The two Fintech firms of the consortium (KM, JRC) will access data and tools from the FAME marketplace to develop a toolset for ESG investments: 1) ESG ranking 2) ESG online Reporting 3) ESG recommendations (monthly-quarterly) 4) ESG portfolio comparison tool 5) ESG portfolio optimization tool 6) Relevant ESG educational material and training
Description	(KM, JRC) provide pre-processed market and profile data to FAME and will access data and tools from the FAME marketplace to develop an online reporting tool that will provide weighted portfolio sustainability scores for ESG investments, ESG on-line reporting and recommendations, and also an ESG portfolio comparison and optimization tool which will also serve as a reference point, with focus on the particular needs and sensitivities of investors, stakeholders, FAME marketplace users-visitors- data traders. The ESG tool will be able to access and use standardized and semantically interoperable data from FAME's FDAC catalogue, which will be shared in a trusted way that ensures the sovereignty of the data.
Motivation	Despite the rising interest in ESG investing and the strong support from national and international financial and governmental authorities,

- 1) there is still a lack of data and analytical tools for assessing, benchmarking, and comparing ESG portfolios. This is a setback to constructing “alpha” portfolios that can lead to excess returns above the average benchmarks, especially with an Environmental-Social sensitivity.
- 2) Current ESG portfolios around the globe use “secret in-house recipe” weightings for the asset selection with no transparent way to third interested parties of the selection criteria and weights, and most importantly no “globally accepted” standard by big players in the investment sector. FAME has the opportunity to propose its “transparent recipe”.
- 3) Investors, and especially those with small-mid portfolios, are only offered “pre-determined” ESG funds with few options of aligning to various levels of ESG sensitivity and according to their needs and personal preference, with no customisation and no ability for optimisation metrics comparison.

Comparison of different ESG portfolios and also clear ESG recommendations based on unique client needs and client profiles, are still not properly addressed, since there is lack of such solutions to non-institutional investors.

3.5.1.1 Use Case #1

Table 37 – Pilot 5: Use Case 1

Use Case #1	
Use Case Name	UC 1 – ESG On-line Reporting
Summary	<ol style="list-style-type: none"> 1) Online ESG-Reporting Tool from the “universe” of preselected financial Assets, 2) Table of ESG recommendations made public (monthly-semester) according to the FAME “optimisation recipe”. <p>Relevant explanatory trainings on the methodologies above as well as ESG introductory courses for FAME marketplace stakeholders.</p>
Description	<p>The Fintech experts (KM, JRC) will access data and tools from the FAME marketplace, will gather, organize, and cleanse financial data from various sources (time series, ESG scores, prices, tickers etc.), expand them with curated metadata, and combine them with a distinct set of synthetic portfolios, in order to develop a toolset that will provide:</p> <ol style="list-style-type: none"> 1) weighted portfolio sustainability scores for ESG investments 2) An online ESG reporting tool that will accumulate ESG scores, and in a universe of pre-selected financial Assets (stocks, bonds, ETFs, etc) and will provide a monthly-semester recommendations, made available to the marketplace. <p>ESG recommendations Table (monthly-quarterly).</p>
Value Proposition(s)	<ol style="list-style-type: none"> 1) ESG reporting tool available to FAME marketplace users-stakeholders, 2) ESG recommendations Table (monthly-quarterly) available to FAME marketplace users-stakeholders. <p>Selection according to the novel and transparent FAME recipe that can also be exchanged and compared to other best-in-class approaches around the globe.</p>

Documentation	Documentation will be provided on: ESG selection criteria, ESG recommendations Table, ESG online reporting tool usage, including relevant trainings
Image(s)	-
Website	-
Keywords	ESG, ESG recommendations

3.5.1.2 Use Case #2

Table 38 – Pilot 5: Use Case 2

Use Case #2	
Use Case Name	UC 2 – Sustainable Portfolio Optimization
Summary	<ol style="list-style-type: none"> 1) ESG portfolio comparison tool 2) ESG portfolio optimization tool Relevant ESG portfolio analysis educational material and training.
Description	<p>The Fintech experts (KM, JRC) will first define the “universe” of preselected financial Assets, their market data and ESG data, the synthetic client profiles (risk and ESG sensitivity), and will:</p> <ol style="list-style-type: none"> 1) Build accordingly the proposed ESG portfolio based on the above requirements with specific weights. 2) Will then compare the above, as well as compare the ESG “weights recipe” with any other ESG portfolio from world renowned Financial institutions, if this is also be inserted in the same data format, as reference in the FAME marketplace/platform for comparison and knowledge exchange. <p>Will provide a tool that based on the above parametric input will provide portfolio optimization according to ESG sensitivity, risk profile and other similar parameters of each client/portfolio.</p>
Value Proposition(s)	<ol style="list-style-type: none"> 1) ESG comparison and optimisation tool outputs available to FAME marketplace users-stakeholders. 2) The unique FAME ESG “weighting recipe” can be the reference point available to FAME marketplace users-stakeholders, and a basis for further comparisons, as well as a key asset to be exploited. 3) Selection according to the novel and transparent FAME recipe that can also be exchanged and compared to other best-in-class approaches around the globe. <p>The calibration of the tool will be based on various methodologies, which range from regression analysis to AI/ML/XAI models using FAME trusted and energy efficiency tools.</p>
Documentation	Documentation will be provided on ESG selection criteria, ESG portfolio comparison and optimisation methodology, and relevant tools developed, usage, including relevant trainings and how-to guides.
Image(s)	-
Website	-
Keywords	ESG, ESG recommendations, Portfolio optimization

3.5.2 Components & Dataset

Pilot 5 will provide 4 categories of data (Market, Profile, ESG Scorecard, Metadata). Some of them are already uploaded in the project SharePoint repository indicatively.

Table 39 – Pilot 5: Components & Dataset: ESG Scorecard and Custom Ranking

Pilot #5 – Use Case #1 and #2	
Name	ESG Scorecard and Custom Ranking
Summary	Comprehensive and Transparent Monthly ESG scores of Asset Universe (SP100 US)
Description	Gathered from various diverse sources, a comprehensive table of distinct E and S, and G scores, with the ability to be weighted by custom weights for a custom cumulative ESG score
Website	FAME and KM3am.com
Manufacturer / Provider	KM
Contact	Kostas@km3am.com
Type	Dataset, Monthly instances
Features / Capabilities	Provides input for custom weighted 3-dimensional ESG scores to any optimisation algorithm, by gathering previously dispersed and not fully transparent data
Standards	-
License	Open from Yahoo, Proprietary from Bloomberg
TRL¹⁴	TRL 7
Reference	Documentation TBD in FAME platform
Linked Components	Linked with ESC investment recommendations monthly table. Linked with Portfolio Optimisation Component
Media Gallery	-

Table 40 – Pilot 5: Components & Dataset: ESG Monthly Recommendation Ranking combined with Custom ROI algorithm

Pilot #5 – Use Case #1 and #2	
Name	ESG Monthly Recommendation Ranking combined with Custom ROI algorithm
Summary	A weighted average scorecard of monthly recommendations for optimal ESG investing based on the combination of any external ROI weighting algorithm, with custom weights of ESG sensitivity
Description	Monthly publication of an ESG investing recommendation, consisting of 30 assets, ordered by custom weights of <ul style="list-style-type: none"> a) Expected ROI appeal based on user defined weights ESG sensitivity also defined by user defined weights

¹⁴ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Website	FAME and KM3am.com
Manufacturer / Provider	KM
Contact	Kostas@km3am.com
Type	Dataset, Monthly instances
Features / Capabilities	Provides output for custom weighted 3-dimensional ESG scores combined with any ROI optimisation algorithm (including 2 preset ones), into transparent monthly recommendation for ESG sensitive investing
Standards	
License	Freemium. Open with minor features, Proprietary – paid form advanced features
TRL¹⁵	TRL 7
Reference	Documentation TBD in FAME platform
Linked Components	Linked with ESG Scorecard Linked with Portfolio Optimisation Component

¹⁵ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Media Gallery

2024-02-29								
S&P100 – Mar 24								
Predicted at 2024-02-29								
	Ticker	Company	Signal	Score	Env	Soc	Gov	ES
6	JPM.US	JPMorgan Chase & Co	Buy	8.7800	7.1500	5.2900	7.5500	
7	LIN.US	Linde plc Ordinary Shares	Buy	8.5400	8.0700	3.4000	7.2700	
4	AVGO.US	Broadcom Inc	Buy	8.8000	6.6900	4.3900	7.8700	
3	AMZN.US	Amazon.com Inc	Buy	8.8000	7.9700	2.2200	7.9700	
0	MSFT.US	Microsoft Corporation	Buy	9.3000	5.6500	5.3600	7.5700	
25	GD.US	General Dynamics Corporation	Buy	8.0000	6.3400	5.8600	6.7800	
41	SPG.US	Simon Property Group Inc	Buy	7.0000	7.5700	4.0600	8.2800	
1	BRK-B.US	Berkshire Hathaway Inc	Buy	9.2000	6.3800	3.5300	6.7800	
35	ORCL.US	Oracle Corporation	Buy	7.4600	5.8700	6.5900	6.4500	
27	KO.US	The Coca-Cola Company	Buy	7.8600	7.0600	3.4600	6.9000	
17	QCOM.US	Qualcomm Incorporated	Buy	8.2600	6.2400	3.7700	7.8100	
39	NEE.US	Nextera Energy Inc	Buy	7.2600	4.2000	8.5600	7.1900	
11	NFLX.US	Netflix Inc	Buy	8.4600	6.6800	2.1100	7.7700	
37	BK.US	Bank of New York Mellon	Buy	7.4000	5.8900	5.1800	6.1600	
21	AMD.US	Advanced Micro Devices Inc	Buy	8.2000	6.5900	2.7600	6.6300	
22	CRM.US	Salesforce.com Inc	Buy	8.1600	6.2000	2.7800	8.3900	
42	WMT.US	Walmart Inc	Buy	6.9200	4.7900	6.6600	8.3100	
2	NVDA.US	NVIDIA Corporation	Buy	9.1400	4.5800	4.0800	8.1000	
40	MDLZ.US	Mondelez International Inc	Buy	7.0200	6.1100	4.4000	7.4900	
16	V.US	Visa Inc. Class A	Buy	8.3200	4.2000	5.8000	7.3800	
33	IBM.US	International Business Machines	Buy	7.5200	5.0200	4.9900	7.8600	
13	META.US	Meta Platforms Inc.	Buy	8.4000	4.3300	4.9100	6.9300	

Table 41 – Pilot 5: Components & Dataset: Universal Investor Profile Form, and user centric ESG preference score

Pilot #5 – Use Case #1 and #2	
Name	Universal Investor Profile Form, and user centric ESG preference score
Summary	A custom developed Investor Profile Form, combined with user specific ESG needs and weights to be the basis for portfolio construction and optimisation
Description	b) Investor Profile questionnaire (online form) ESG sensitivity by user defined weights
Website	FAME and KM3am.com
Manufacturer / Provider	KM

Contact	Kostas@km3am.com
Type	Dataset, used per person (GDPR sensitive)
Features / Capabilities	Provides input weights for portfolio optimisation algorithms
Standards	
License	Freemium. Open with minor features, Proprietary – paid form advanced features
TRL¹⁶	TRL 7
Reference	Documentation TBD in FAME platform
Linked Components	Linked with ESG Scorecard Linked with Portfolio Optimisation Component

¹⁶ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Media Gallery

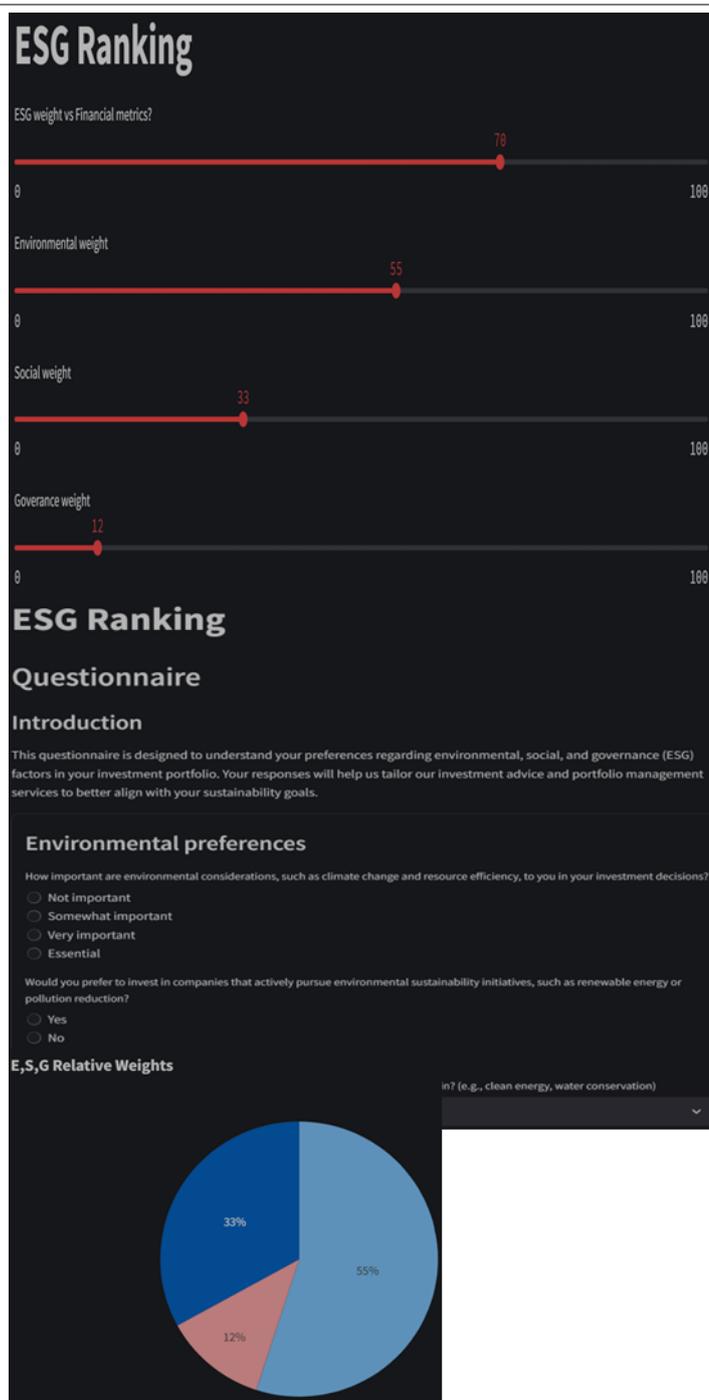
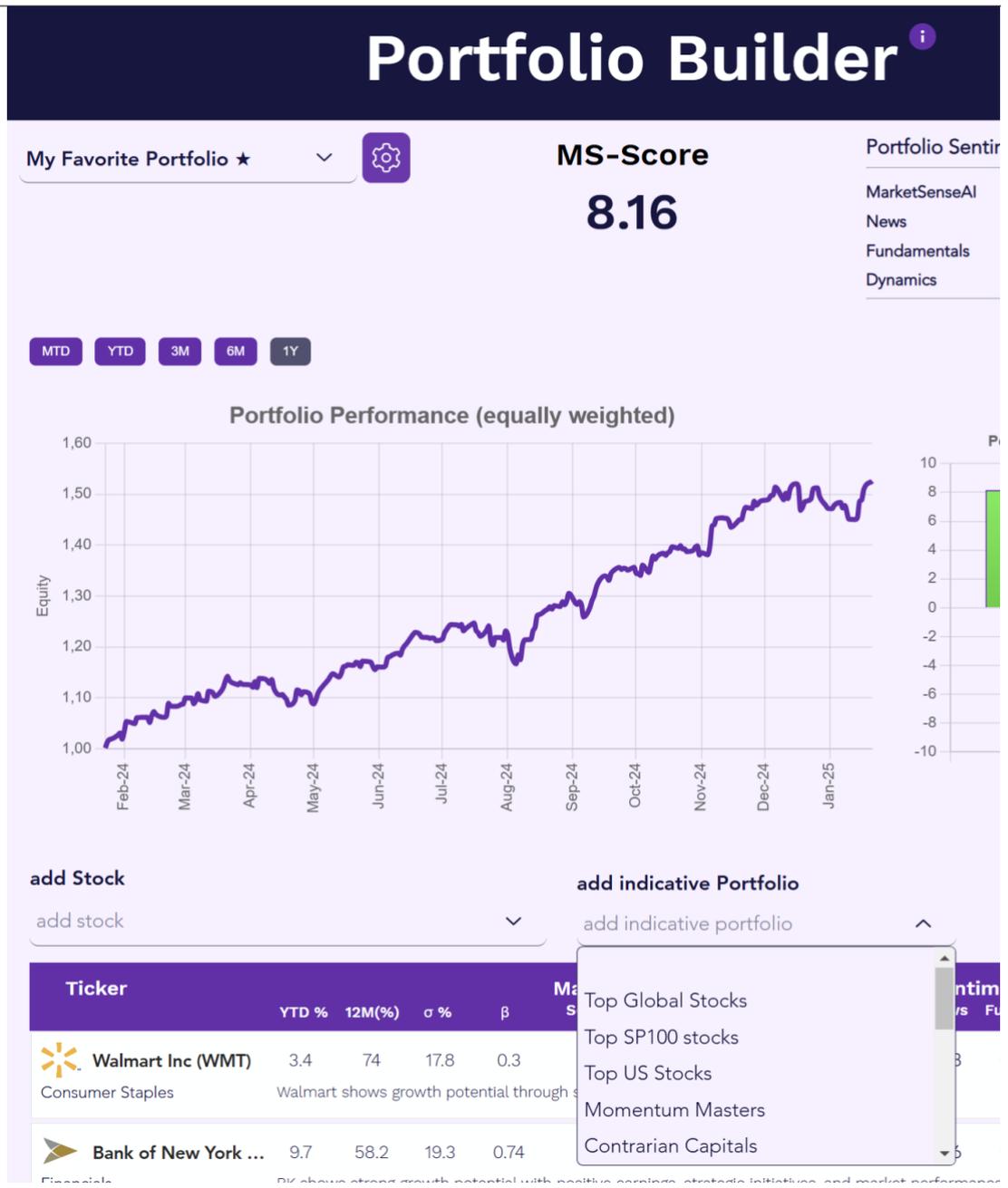


Table 42 – Pilot 5: Components & Dataset: ESG Portfolio Construction and Portfolio Optimisation Component

Pilot #5 – Use Case #2	
Name	ESG Portfolio Construction and Portfolio Optimisation Component
Summary	A custom developed web tool, to construct portfolios of assets with weights, based on the selected asset universe. And also to provide weight-rebalancing recommendations after user centric optimisation.
Description	Input and output tables based on Web tool for investment portfolio construction and optimisation
Website	FAME and KM3am.com

Manufacturer / Provider	KM
Contact	Kostas@km3am.com
Type	Datasets (tables) and /or Web tool
Features / Capabilities	Allows input weights in assets of portfolio, and re-calculates weights upon optimisation algorithms
Standards	
License	Freemium. Open with minor features, Proprietary – paid form advanced features
TRL¹⁷	TRL 7
Reference	Documentation TBD in FAME platform
Linked Components	Linked with ESG Scorecard
Media Gallery	Indicative (Beta)

¹⁷ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf



3.5.3 Pilot Architecture

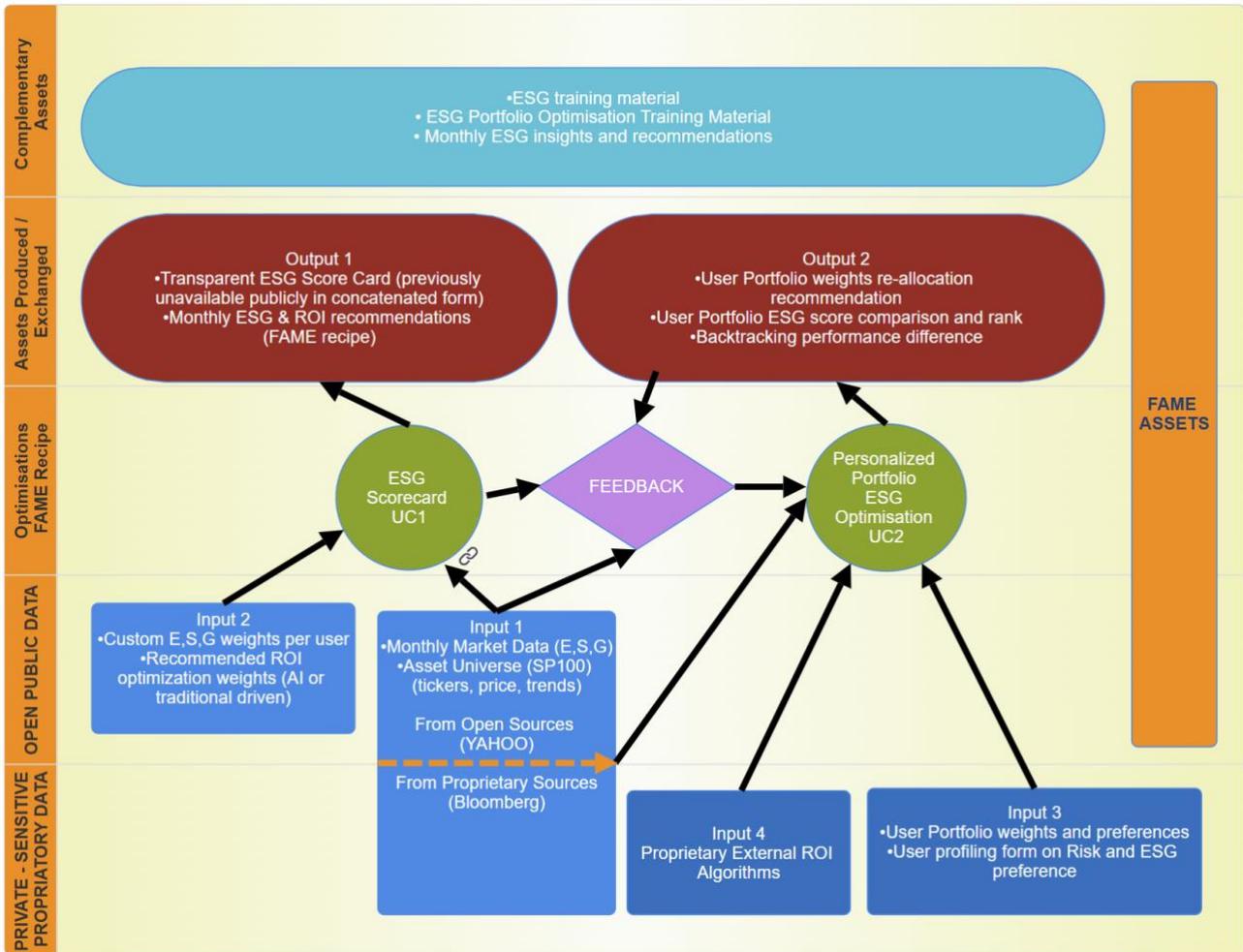


Figure 6 – Pilot 5: Architecture Diagram

3.5.4 Pilot Key Performance Indicators

The KPIs identified in the table below refer to Pilot 5.

Table 43 – Pilot 5: KPIs

KPI Name	Description	Unit	Target	How Assess?	to Category	Comments
Stakeholder Engagement (platform and using tool)	Number of stakeholders and actively engaged using tool-platform	Count	≥ 30	Measure users-members	Stakeholder Engagement	-
Stakeholder Engagement (workshops - hackathons-events)	Number of stakeholders - actively engaged with the project.	Count	≥ 50	Measure users-members	Stakeholder Engagement	-
Viewers-Users of ESG Scores		Count	≥ 20 users / ≥ 25 Assets	Measure users-members	Stakeholder Engagement	-
Viewers-Users ESG Ranking Tables		Count	≥ 20 users / ≥ 5 Rankings	Measure users-members	Stakeholder Engagement	-

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Viewers-Users Compare ESG Ranking Tables		Count	≥ 20 users / ≥ 5 Rankings	Measure users-members	Stakeholder Engagement	-
Viewers-Users of Trainings		Count	≥ 20 users / ≥ 3 Items	Measure users-members	Stakeholder Engagement	-
User Adoption Rate	Percentage of target users adopting the ESG reporting tool.	Percentage (%)	$\geq 70\%$	Measure users-members	Stakeholder Engagement	-
Compliance Rate	Percentage of portfolios meeting defined ESG criteria.	Percentage (%)	$\geq 80\%$	Audit portfolios for adherence to ESG standards.	Compliance-Sustainability	-
Portfolio Sustainability Score	Average sustainability score of portfolios using the tool.	Score (0-100)	$\geq 70\%$	Aggregate scores from portfolios analysed.	Compliance-Sustainability	-
Optimization Efficiency (Better ESG - equal or better ROI - equal Risk)	Improvement in portfolio performance post-ESG optimization.	Percentage (%)	$\geq +3\%$ increase yearly	Compare returns before and after optimization.	Performance	-
Variable ESG sensitivity in Portfolio	Variable Percentage of ESG vs ROI in portfolio	Count	≥ 5 levels of percentage	Collect various ESG sensitivity levels	Customisation-Applicability	-
Independent E+S+G Scores presentation	Ability to present custom E,S,G vector	Count	≥ 5 levels of percentage	Collect various E+S+G weights	Customisation-Applicability	-
Independent E+S+G Scores Weightings	Ability for custom weights E, S, G in recommendation	Count	≥ 5 levels of percentage	Collect various E+S+G weights	Customisation-Applicability	-
Feedback Score Tool	Average user satisfaction score from tool feedback.	Score (1-5)	≥ 4.0	Collect user ratings through surveys.	User Satisfaction	-
Feedback Score Trainings - ESG Data	Average user satisfaction score from Trainings-ESG Data feedback.	Score (1-5)	≥ 4.0	Collect user ratings through surveys.	User Satisfaction	-
Profiling Forms including ESG sensitivity	Include dedicated Profiles of users based on ESG questionnaires	Boolean (Y/N)	YES ≥ 3 profiles	Count Profiles	Customisation-Applicability	-
Profiles and Portfolio Types	Different types of portfolio weightings for different profiles	Count	≥ 3 alternatives	Measure Alternatives presented and uploaded	Customisation-Applicability	-
ESG ranking tables uploaded-compared	Number of ESG tabular recommendations compared	Count	≥ 3 alternatives	Measure Alternatives presented and uploaded	Expansion potential	-

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Portfolio weightings uploaded-compared	Number of Portfolio Weightings compared	Count	≥ 3 alternatives	Measure Alternatives presented and uploaded	Expansion potential	-
Accept external ROI recommendations to complement FAME ESG weights	Number of alternative ROI algorithms-weights considered	Count	≥ 3 alternatives	Measure Alternatives presented and uploaded	Expansion potential	-
Time to Insight	Average time taken to generate reports and insights.	Hours	≤ 1 hour	Measure time from data input to report generation.	Performance	-
Frequency to Insight	Average time between reports and insights - full rebalancing	Months	≤ 2 months	Measure Frequency of ESG Table Generation	Performance	-
Financial News Analysis Accuracy (Signal-Performance correlation)	Accuracy of market sentiment analysis signals from financial news - correlation with performance	Correlation	$\geq 50\%$	Compare and Calculate correlation of market signal with performance	Performance	-

3.5.5 Stakeholder Engagement

The Stakeholder Engagement process (as defined by Task 6.5) focused on gathering feedback to align ESG tools with the needs of financial market operators. The self-assessment questionnaire, shared by KM, JRC, and CA, was completed by stakeholders, providing valuable insights into areas for improvement, including usability, customization, and data visualization. Stakeholders highlighted the need for a more intuitive interface, with interactive tools such as sliders to adjust ESG weights for improved usability. They also emphasized simplifying profiling forms to ease user input while maintaining data accuracy.

The results from the questionnaire identified key areas for enhancement in the ESG scorecard and portfolio optimization tools. Stakeholders stressed the importance of visual clarity and accessibility in these tools, noting that clearer data would improve the user experience and support more effective decision-making. There was also a strong demand for greater customization and flexibility in portfolio optimization, including the integration of external ROI algorithms. Additionally, real-time comparison tools to evaluate ESG-weighted portfolios alongside traditional investments were considered essential for providing a more comprehensive view of portfolio performance.

The feedback from the self-assessment was shared by the Pilot partners with key decision-makers, including the Head of the Data Governance Function, who leads a team of over 30 people, and the Chief Information Officer, who oversees more than 300 staff members. Their involvement ensures that the insights gathered will be incorporated into the next development stages, with the necessary resources allocated to address stakeholder needs. This collaboration will help shape the future direction of the ESG tools, ensuring they align with both user needs and organizational objectives.

As the next step, another extra workshop will be organized with external stakeholders such as banks, investors, and other financial market operators. This workshop will provide a platform for further discussions on the feedback gathered during the self-assessment. The goal will be to refine the tools based on external input, prioritize features that align with the broader financial market, and ensure that the tools meet the needs of a diverse set of users. All these information will be reported in detail in D6.3, which is the document responsible for the Stakeholder engagement activities report.

3.6 Pilot #6: Embedding Climatic Predictions in Property Insurance Products

3.6.1 Pilot and Use Cases description

Table 44 – Pilot 6: Description

Pilot #6	
Pilot Name	Embedding Climatic Predictions in Property Insurance Products
Summary	There is a need for novel data-driven insurance services that incorporate climatic parameters in the estimation of insured liabilities, while facilitating climate aware investment decisions. This Pilot will show how the FAME platform can assist these analyses by combining climate information, statistical post processing and user-specific information.
Description	The Pilot will use data assets and tools from the FAME marketplace to develop climate aware property insurance UCs. Leveraging raw datasets about property prices and climatic parameters estimation (e.g., Copernicus/DIAS datasets) based on downscaled models from federating sources, the Pilot will produce and integrate in FAME novel value-added data assets, including: (i) Data models and datasets for risk analytics in property insurance; (ii) Models for the valuation of fixed assets enhanced with climatic parameters; (iii) Value-at-Risk (VaR) Calculation methods for real estate portfolios of assets, enhanced with climatic parameters; (iv) Local Level Climatic Predictions based on downscaled prediction models; (v) External data sources (e.g., energy prices, carbon prices, Real GDP estimation, inflation estimates, government bond yields, central bank rates, real-estate prices projections, etc.
Motivation	Understand the effect on climate change will become an increasingly important component for corporations to take into account, including financial organizations. However, climate data is currently difficult for non-specialists to access and make use of. This Pilot will show how FAME can help bridge that gap.

3.6.1.1 Use Case #1

Table 45 – Pilot 6: Use Case 1

Use Case #1	
Use Case Name	Climate Aware Real Estate Pricing
Summary	Using FAME, we will show how historical and projected climate information can be accessed that will allow an insurance company to model the changes in real estate prices expected by climate change.
Description	This use case will project valuations of real-estate assets based on local-level predictions. It will use the climatic-enhanced models for property pricing (e.g., enhanced indemnity basis method and the enhanced Reinstatement Value Basis approach) to produce the climate aware valuations of a list of assets. The differences produced as part of the asset repricing will be compared to known information about damages and compensations associated with hazardous events that impacted real estate asset.

Value Proposition(s)	- Inform pricing of real estate insurance products - Inform risk analysis related to real estate valuations
Documentation	- Documentation on statistical post processing and downscaling of climate projections to be provided. Example code showing how analysis can then be performed.
Image(s)	-
Website	-
Keywords	-

3.6.1.2 Use Case #2

Table 46 – Pilot 6: Use Case 2

Use Case #2	
Use Case Name	VaR of an Insurers' Portfolio
Summary	This use case will show how the FAME platform can be used to understand the manner by which an insurer's Value at Risk (VaR) will change on account of climate change.
Description	This use case will calculate the climate aware VaR of entire portfolios of assets possessed by insurers, including bonds, stocks and real-estate assets. It will integrate climate risk assessments in the VaR calculation, based on the enhanced VaR Calculators (e.g., Historic Method, Variance-Covariance Methods, Monte Carlo Simulations). The climate enhanced VaR calculations will be compared to conventional calculations, as well as to what happened in past hazards that resulted in lower prices for assets.
Value Proposition(s)	- Improved risk management - Better understanding of the potential for leverage
Documentation	- Documentation on statistical post processing and downscaling of climate projections to be provided Example code showing how analysis can then be performed
Image(s)	-
Website	-
Keywords	-

3.6.1.3 Use Case #3

Table 47 – Pilot 6: Use Case 3

Use Case #3	
Use Case Name	Climate-Aware Analysis of Alternative Portfolios
Summary	Each asset in a portfolio is expected to have an exposure to climate change. Taking this exposure into account will allow for alternative portfolios to be considered which may outperform current portfolios.
Description	This use case will analyse different portfolios of assets in the light of climate change. It will offer a tool for insurance companies to identify how to restructure their portfolio in order to be less susceptible to climate change.

Value Proposition(s)	Higher financial returns by incorporating climate change risk into considerations of portfolios.
Documentation	- Documentation on statistical post processing and downscaling of climate projections to be provided Example code showing how analysis can then be performed
Image(s)	-
Website	-
Keywords	-

3.6.2 Components & Dataset

Pilot #6 will be able to provide to the FAME marketplace a Postprocessed climate projection Dataset, which is detailed in the table below.

Table 48 – Pilot 6: Components & Datasets: Postprocessed Climate Projection Dataset

	Pilot #6
Name	Postprocessed Climate Projection Dataset
Summary	Dataset containing postprocessed ensembles of temperature and precipitation data from future climate projections, over a selection of European cities.
Description	This dataset contains ensembles of future projections of daily 2m air temperature and daily accumulated precipitation over a selection of European cities. The raw projections are created and published online by the Copernicus Climate Change. These projections are then statistically bias corrected and downscaled by the Norwegian Computing Centre (NRS), in order to provide more realistic and readily usable climate data. NRS also gathers simulations from different climate models and CO2 scenarios to create an ensemble of different future projections for each European city of interest.
Website	Not applicable
Manufacturer / Provider	The climate projections are created and published online by the Copernicus Climate Change Service, and further postprocessed by NRS
Contact	Silius M. Vandeskog, smvandeskog@nr.no
Type	Dataset
Features / Capabilities	Daily precipitation future projections, daily 2m air temperature future projections
Standards	Not applicable
License	The climate projections are created and published online by the Copernicus Climate Change Service, under an “unrestricted use” license (link). The projections are then postprocessed by the Norwegian Computing Centre and uploaded to FAME without any further licensing.

TRL¹⁸	Not applicable
Reference	Documentation for the climate projections published by the Copernicus Climate Change Service: link
Linked Components	No linked components
Media Gallery	Not applicable

3.6.3 Pilot Architecture

The data flow and main components are similar across the different use cases and can be summarized by the following diagram:

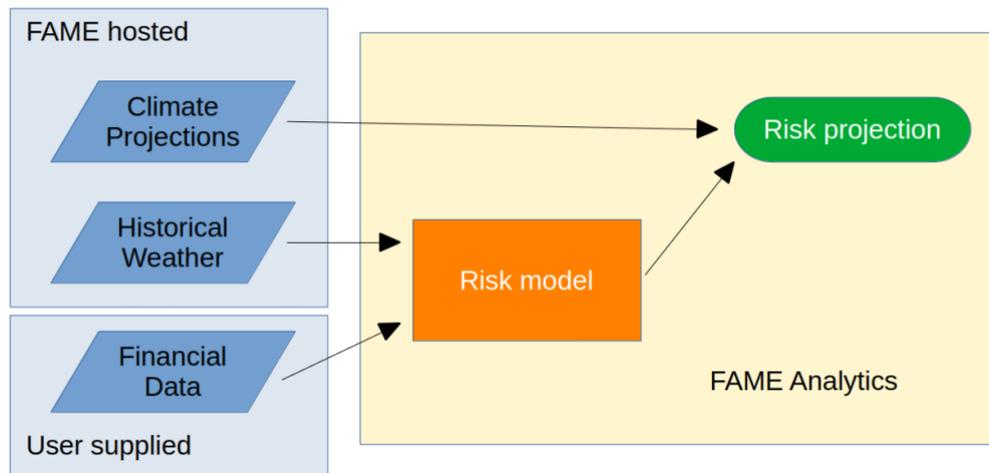


Figure 7 – Pilot 6: Architecture Diagram

- a) Input data:
 - Raw climate projections are downloaded from Copernicus Climate Change Service and statistically downscaled. The downscaled time series are hosted at the FAME platform.
 - Historical weather data are also downloaded from Copernicus Climate Change Service and used internally both as downscaling target and for building the risk model.
 - Financial data is provided by the users.
- b) Data processing:
 - For each use case, a risk model is developed and fitted to the input data that links weather data to financial risks.
- c) Output:
 - The risk model is used in combination with the localized climate model simulations to obtain projections of financial risks under different climate change scenarios.

3.6.4 Pilot Key Performance Indicators

The KPIs identified in the table below refer to Pilot 6.

¹⁸ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Table 49 – Pilot 6: KPIs

KPI Name	Description	Unit	Target	How Assess?	to Category	Comments
Cities Climate Projections Uploaded	We will upload climate projections for a number of major European (and perhaps global) cities	Number	20	Count	-	-
Global Climate Projection Uploaded	We will upload a single global climate projection on a coarse spatial resolution	Number	1	count	-	-
Climate Change Indices Uploaded	We will upload a number of climate indices (high level summaries of weather) that can be used to model subsequent weather-related risk	Number	5	Count	-	-
Stakeholder workshop and demos	We will discuss this project with practitioners in the banking and insurance industry to get their feedback about this product	Number	3	Count	-	-
-Cities Projection Downloads	We will monitor the downloads of our city climate projections	Number	10	Count	-	-
Global Projection Downloads	We will monitor the downloads of our global climate projection	Number	1	Count	-	-
Indices Downloads	We will monitor the downloads of the various indices we have produced	Number	10	Count	-	-

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Academic article submitted	We will submit an academic article that outlines the methodology used to create our climate projection product	Number	1	Count	-	-

3.6.5 Stakeholder Engagement

We conducted a digital workshop between NRS and analysts at DNB (Norway’s largest bank) and Gjensidige (Norway’s largest insurer) in Q4 2024. In this workshop we presented

- The overall concept behind the FAME marketplace
- The specific objectives of the Pilot and its use cases
- Some of the data products we planned to make available through the platform

After presenting the project and Pilot, we discussed with these stakeholders their impression of the overall idea behind the project.

3.6.5.1 Stakeholder Profiles

All stakeholders in the workshop were professionals in the financial services industry that address climate risk. They were ideally placed to discuss the concept behind both FAME and Pilot 6, as they are heavy users of data to address financial risk. At the moment, they are required to source data and analytics tools themselves in order to make their risk assessments.

3.6.5.2 Collected Feedback

The stakeholders involved all agreed that the overarching concept behind the FAME marketplace was sound and that it would be a useful resource in conducting climate risk assessments. A study of climate risk requires merging large climate projection datasets with important locally stored information. If climate projection datasets could be made available in a format that was directly useful to these analysts, and a low cost, this would substantially streamline their workflow.

The particular stakeholder we interacted with did bring up concerns related to whether their legal and compliance teams would allow them to interact with the FAME platform. Therefore, it is unlikely that they will be able to prototype the platform’s functionality directly.

3.7 Pilot #7: Assessing the Quality and Monetary Value of Data Assets

3.7.1 Pilot and Use Cases description

Table 50 – Pilot 7: Description

Pilot #7	
Pilot Name	Assessing the Quality and Monetary Value of Data Assets (MOH, INNOV, JSI, UIA)
Summary	This Pilot will assess the quality of different types of MOH’s data assets, while using the quality assessment and the type of each data asset for pricing and trading purposes inside the FAME marketplace. Information on the value of the data assets will be accordingly used to estimate premiums for potential cyber-insurance services.
Description	This Pilot encompasses a holistic evaluation of MOH's existing and potential data assets derived from the various sensors implemented in

different parts of its production chain. Leveraging the FAME marketplace, the Pilot aims to assess, price, and if judged beneficial, trade these data assets while analysing their potential for enhancing cyber-insurance services. The Pilot encompasses a meticulous quality analysis, including examining the data assets' volume, completeness, locality and context, and other relevant attributes. The ultimate objective is to unearth the hidden value in the data assets to pave the way for strategic investments and robust ML systems that can foresee potential challenges in assets' behaviours.

Motivation

For nearly a decade MOH is heavily investing in the digitization of its production based on the introduction of sensors and cyber-physical systems in its oil refineries and on the implementation of novel use cases. The company manages a great amount of raw data from various sensors (e.g., pressure, thermometers, vibration, axial displacement), which is analysed hourly to identify abnormalities, to predict compressors' behaviour for the next 24 hours and to identify potential problems ahead of time. The company's experience from the deployments has unveiled the importance of the quality of the data assets, which is critical for implementing effective ML systems that can accurately predict assets' behaviours. Leveraging the FAME marketplace, MOH is interesting in extracting valuable insights on the quality and potential monetary value of its data assets, to drive the exploitation and use of these assets in processes like cyber-insurance contracts.

3.7.1.1 Use Case #1

Table 51 – Pilot 7: Use Case 1

Use Case #1	
Use Case Name	Quality Assessment and Pricing of Industrial Data Assets
Summary	Different data assets will be assessed against their quality, including: (i) Raw sensor datasets; (ii) Pre-processed, filtered and labelled datasets; (iii) Predictive models (ML models) and algorithms. The different assets will be audited against different characteristics, including their volume, completeness, locality and context, variety of data sources, use in industrial applications etc. A quality score will be assigned to each of the assets to allow their comparative evaluation and to foster the implementation of trading and pricing schemes inside the marketplace. The pricing schemes will be confronted to the actual work allocated to advance the quality of the assets, including cleansing, pre-processing, filtering and analytics. This will provide MOH with invaluable insights on the potential ROI (Return on Investment) of tedious processes like data labelling. Likewise, an insured value/premium for the various data assets will be specified to be used for future cyber-insurance calculation.
Description	In this use case, MOH aims to carry out a comprehensive assessment of different industrial data assets, ranking them based on their quality through various established metrics, such as volume and completeness. This process involves devising a pricing mechanism for these assets, correlating with the work put into enhancing their quality. It seeks to establish a harmonious trading ecosystem within the FAME marketplace where assets can be evaluated and traded based on a defined quality

	score. Simultaneously, it lays the groundwork for establishing an insured value/premium for the cyber insurance of these data assets, founded on their calculated monetary value.
Value Proposition(s)	Bullet list with value proposition(s) of the Use Case: <ul style="list-style-type: none"> - Facilitates a systematic approach to assess the quality of different data assets. - Unlocks the potential ROI on data pre-processing activities. - Creates a system for defining insured values for cyber-insurance services based on data asset quality.
Documentation	N/A
Image(s)	N/A
Website	N/A
Keywords	data duality, IoT, data profiling, industrial sensor data
Available Data Assets	Raw data from ~150 sensors monitoring 5 machine groups

3.7.1.2 Use Case #2

Table 52 – Pilot 7: Use Case 2

Use Case #2	
Use Case Name	Data Analysis and Production of Value-Added assets using FAME Tools
Summary	The project's analytics tools, including XAI and energy efficient analytics, will be used to develop new ML models on top of existing data. The new assets will be made available in the marketplace as trusted and energy efficient assets. They will be priced, traded, and compared to other assets produced outside FAME to showcase the value of trust and energy efficiency.
Description	This use case revolves around utilizing FAME project's advanced analytics tools to craft new, trustworthy, and energy-efficient ML models from existing data. The fresh set of data assets thus created will be introduced into the FAME marketplace, emphasizing their trusted nature and energy efficiency. It envisages creating a competitive edge for assets fostered within FAME, highlighting the added value in terms of trust and energy efficiency compared to assets originating from outside FAME.
Value Proposition(s)	Bullet list with value proposition(s) of the Use Case: <ul style="list-style-type: none"> - Facilitates the creation of trusted secondary data assets. - Allows the monetization of confidential data without exposing them.
Documentation	N/A
Image(s)	N/A
Website	N/A
Keywords	XAI, predictive maintenance, analytics
Available Data Assets	Raw data from ~150 sensors monitoring 5 machine groups

3.7.2 Components & Dataset

As part of the work carried out in Pilot 7, two components are planned to be added to the FAME Marketplace. One related to the quality assessment of IIoT data, and the 2nd related to a library that was developed in cooperation with WP5 (mainly T5.2). These 2 components are detailed below:

Table 53 – Pilot 7: Components & Datasets: IIoT-Data-Quality-Assessment

Pilot #7 – Use Case #1	
Name	IIoT-Data-Quality-Assessment
Summary	A service designed to analyse and assess the quality of high frequency data collected from Industrial Internet of Things (IIoT) sensors, efficiently.
Description	<p>A service designed to analyse and assess the quality of high frequency data collected from Industrial Internet of Things (IIoT) sensors, efficiently. This service reads multiple sensor readings that monitor a machine from LeanXscale database supporting energy efficient and incremental analytics. It offers the following features:</p> <p>Data Loading: Import raw data or connect to the LeanXscale (LXS) database via Kafka for real-time data streaming.</p> <p>LeanXscale Integration: Leverage online aggregates and incremental analytics for fast and efficient data processing.</p> <p>Data Annotation: The aggregated data are automatically annotated based on the nominal sensor values and can be exported to for further exploitation.</p> <p>Data Visualization: Visualize the loaded and aggregated data to understand its structure and quality.</p> <p>Missing Values Analysis: Detect and handle missing values in the raw sensor dataset, utilizing aggregated data.</p> <p>Invalid Values Analysis: Identify and analyse invalid readings or alarms from your sensors.</p> <p>Data Quality: Perform comprehensive data quality assessments, including metrics and visualizations.</p>
Website	https://github.com/giorgosfatouros/IIoT-Data-Quality-Assessment
Manufacturer / Provider	Innov-Acts Ltd.
Contact	George Fatouros, gfatouros@innov-acts.com
Type	As a Service
Features / Capabilities	[Resample] raw data, [Analyse] sensor data, [Detect] anomalies and outliers, [Calculate] data properties (missing values, consistency, correlation, timeliness), [Annotate] data based on nominal values, [Visualise] the data (line plots, box plots, time series analysis plots) for a IIoT sensor data.
Standards	OCI (Open Container Initiative), JSON, SQL,
License	Apache-2.0
TRL¹⁹	5-6

¹⁹ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

Reference	Documentation: https://github.com/giorgosfatouros/IIoT-Data-Quality-Assessment/blob/main/README.md Repository: https://github.com/giorgosfatouros/IIoT-Data-Quality-Assessment
Linked Components	Energy Efficient Incremental Analytics (LeanXcale docker service) IoT Fast Data Importer for KPI Monitoring (LeanXcale Data Importer)
Media Gallery	

Table 54 – Pilot 7: Components & Datasets: SAX4BPM Library

Pilot #7 – Use Case #2	
Name	SAX4BPM Library
Summary	The SAX4BPM library is composed of a set of services and capabilities to support the generation of SAX explanations. The library is implemented using Python 3.9 programming language.
Description	<p>The aim of the SAX4BPM library is to produce sound and interpretable explanations about business processes. The SAX4BPM library is realized through a set of services (see features/capabilities below) that aids with the automatic derivation of SAX explanations leveraging the power of Large Language Models (LLMs).</p> <p>The services developed extend the state-of-the-art in: The causal discovery of processes, the synthesis of different types of explanations and presentation of the explanations leveraging LLMs, and the enrichment of input data with contextual data.</p>
Website	GitHub repository: https://github.com/IBM/sax4bpm
Manufacturer / Provider	IBM Research - Israel
Contact	Inna Skarbovsky, email: inna@il.ibm.com
Type	Library
Features / Capabilities	<p>The SAX4BPM library offers the following services:</p> <ul style="list-style-type: none"> - Mining4Process – generates the process model out of the event log input. - Causal4process – generates the causal model out of the event log input and generated process model. - ContextEnrichment – enriches the input with additional (background) knowledge relevant to the

	<p>condition in hand (e.g., information from process documentation).</p> <ul style="list-style-type: none"> - X4Process – generates and determines importance ranking over the set of features that are used in the process to predict the condition of interest while adhering to the constraints of the process model. - NLP4X – synthesizes the different input knowledge ingredients/views (e.g., causal, process, and XAI) by invoking the corresponding SAX4BPM services and their textual streamlining via an LLM prompt toward the eventual elicitation of the explanation narrative.
Standards	List of Standards supported by the Component. N/A
License	Open source under licence GPL 3.0
TRL²⁰	TRL5
Reference	<p>Publications:</p> <ul style="list-style-type: none"> - Monetizing Currency Pair Sentiments through LLM Explainability, AI for Finance workshop at ECAI2024. - Towards a Benchmark for Causal Business Process Reasoning with LLMs, NLP4BPM workshop at BPM2024. - How well can large language models explain business processes?, arXiv preprint arXiv:2401.12846. - The WHY in Business Processes: Discovery of Causal Execution Dependencies, https://arxiv.org/abs/2310.14975. - Why are my Pizzas late? PMAI@ IJCAI workshop 2023. - Situation-Aware eXplainability for Business Processes Enabled by Complex Events, AI4BPM workshop at BPM2022. - Model-informed LIME Extension for Business Process Explainability, PMAI@ IJCAI workshop 2022. <p>Repository: https://github.com/IBM/sax4bpm</p>
Linked Components	<p>SAX4BPM uses the following algorithms:</p> <ul style="list-style-type: none"> - Process Mining: pm4py 2.7.9.4 (GPL license) Core algorithms for discovery of process models over input event traces: https://pypi.org/project/pm4py/ - Causal discovery: An open-source (MIT licence) library for the discovery of non-gaussian linear causal models: https://github.com/cdt15/lingam

²⁰ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

- Large language model: ChatGPT A set of generative AI models by OpenAI capable of performing various natural language processing tasks: <https://openai.com/gpt-4>
- AIX360: An open-source (Apache 2.0) XAI library that supports interpretability and explainability of datasets and machine learning models and of time series data: <https://github.com/Trusted-AI/AIX360>

Media Gallery

Logo:



Movie: FAME’s Model Agnostic Sentiment Analysis Explainability Demo
<https://www.youtube.com/watch?v=YCY6DWT2-y8>

Table 55 – Pilot 7: Components & Datasets: XAI Dashboard for Time Series Pattern Analysis using StreamStory and LLMs

Pilot #7 – Use Case #3	
Name	XAI Dashboard for Time Series Pattern Analysis using StreamStory and LLMs
Summary	The XAI dashboard combines advanced hierarchical Markov chain modelling with LLM analysis to detect, visualize, and explain patterns in MOH production data.
Description	The XAI Dashboard offers two main capabilities: hierarchical Markov chain modelling for visualizing timeseries data transitions, and a pattern analysis table that uses an LLM to extract and describe patterns with their timeframes. The system integrates StreamStory through a Python package, with a Streamlit-based dashboard that preprocesses data and automates model construction in the backend. The pattern analysis component leverages an LLM to interpret Markov model visualizations and timeline data, incorporating sensor-specific information to enhance pattern understanding and explanations.
Website	GitHub repository- dashboard code is not yet available in public repository: <ul style="list-style-type: none"> - https://github.com/E3-JSI/StreamStoryPyClient - https://github.com/E3-JSI/StreamStory2
Manufacturer / Provider	JSI
Contact	Jan Šturm, email: jan.sturm@ijs.si

Type	Component, Library
Features / Capabilities	<p>XAI Dashboard offers the following primary capabilities:</p> <ul style="list-style-type: none"> - Hierarchical Markov Chain Modelling: Build hierarchical Markov chain models for any timeseries data. This feature includes a timeline of state transitions to help understand the dynamics and patterns over time. - Pattern Analysis Table: Utilize our LLM to generate a table detailing extracted patterns, their timeframes, concise descriptions, and the intuitions behind each pattern (e.g., anomalies, recurrent patterns).
Standards	<p>List of Standards supported by the Component.</p> <p>N/A</p>
License	Open source under licence MIT – not opensource yet
TRL²¹	TRL5
Reference	<p>Publications:</p> <ul style="list-style-type: none"> - StreamStory: Exploring Multivariate Time Series on Multiple Scales https://ieeexplore.ieee.org/abstract/document/8340877 <p>Repository:</p> <ul style="list-style-type: none"> - https://github.com/E3-JSI/StreamStoryPyClient - https://pypi.org/project/streamstory/ - https://github.com/E3-JSI/StreamStory2
Linked Components	-
Media Gallery	<p>Movie: StreamStory Where Time Series Meet Explainable AI</p> <ul style="list-style-type: none"> - Visual Journey Through Data https://www.youtube.com/watch?v=UWu37BCDH5o

3.7.3 Pilot Architecture

A schematic showcasing the flow of information for FAME Pilot 7 can be seen in the below diagram.

²¹ https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-g-trl_en.pdf

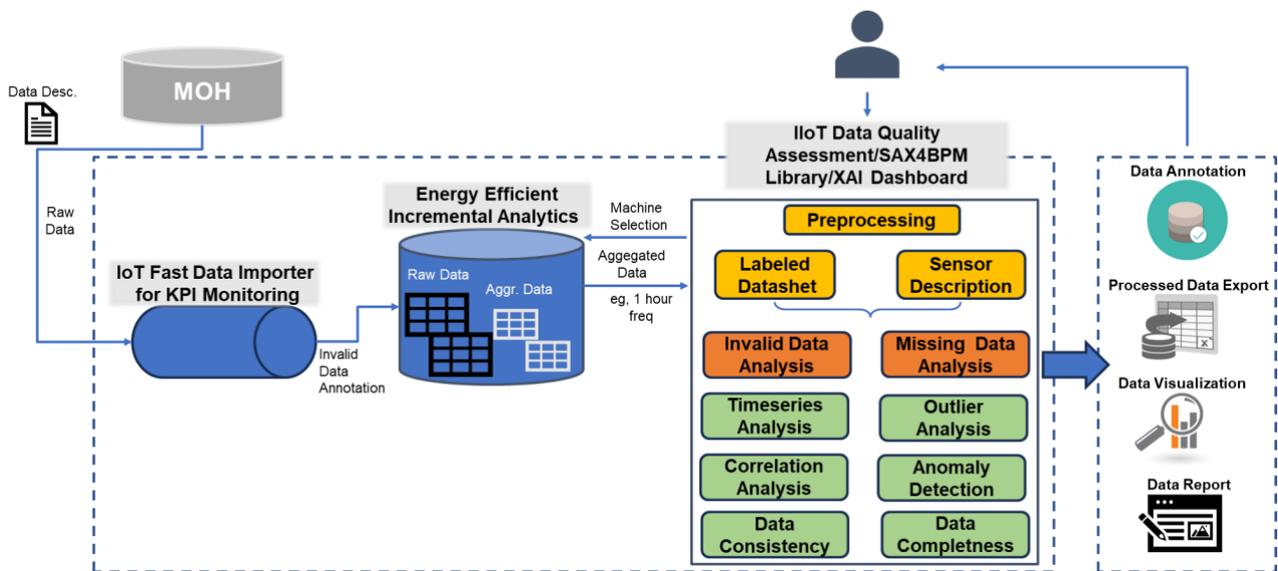


Figure 8 – Pilot 7: Architecture Diagram

Data from the equipment sensors is collected, timestamped and labelled in the refinery data collection centre. From there it is imported through an IoT Fast Data Importer to the LXS Energy Efficient Incremental Analytics database via Kafka for real-time streaming. The aggregated data are then automatically annotated and exported for further exploitation through either the IIoT Data Quality Assessment module or the SAXBPM Library.

3.7.4 Pilot Key Performance Indicators

The KPIs identified in the table below refer to Pilot 7.

Table 56 – Pilot 7: KPIs

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
Data Asset Development Efficiency	Measures the number of secondary data assets developed from primary data assets.	Number	>=2	Calculate the ratio of secondary data assets to primary data assets over a specified period.	Data Asset Utilization	The secondary data assets will be created by using FAME tools and will be of value for the end users (as in Pilot#7)
Data Assets Traded	Tracks the volume of industrial data assets successfully traded within a specific timeframe.	Number	>=3	Sum the total number or value of data assets traded within the reporting period.	Data Asset Monetization	Monetary leverage existing siloed datasets through FAME
Algorithm User Satisfaction	Gauges the satisfaction levels of refinery operators with the usability and effectiveness of the	Score	>=4 out of 5	Conduct 2 user surveys or satisfaction scores; calculate average rating and analyse	User Satisfaction	We have to ensure that sufficient time for evaluation will be within project's duration

KPI Name	Description	Unit	Target	How to Assess?	Category	Comments
	developed algorithms related to QA and XAI tools			feedback trends.		
Algorithm Training Material	Measures the number of the produced training materials for the respective algorithms developed	Number	3	-	Knowledge Sharing	Training material/documentation for the use of (QA, XAI and anomaly detection models)

3.7.5 Stakeholder Engagement

A workshop took place on the Q4 of 2024 in the MOH refinery facilities. The FAME project was thoroughly presented focusing on Pilot 7 advances and specific use cases and in particular on how the Pilot can be served through the FAME platform. The end goal was to receive valuable feedback from the stakeholders, with regards to both business and technical requirements of the Pilot, that would help to possibly confirm current course of actions within the project or adjust where necessary.

3.7.5.1 Stakeholder Profiles

In the workshop stakeholders took part from various lines of work. These included:

- Engineers from MOH refinery: The operators from the predictive maintenance department whose tasks include assessing the quality of the collected IoT sensor equipment data, critical for predicting failures and raising alarms in the refinery.
- Data scientists: Professionals specialized in data quality assessment and AI model explainability.
- Business analysts and marketing specialists: Professionals with expertise in the manufacturing section.

3.7.5.2 Workshop Structure

Initially the project was presented and its multifaceted objectives spanning various fields in the industry were communicated to let the participants have an understanding of the project's main goals and ambitions. In the following, a deep dive approach to Pilot 7 specifics was taken to fully understand individual use cases' characteristics, requirements and value proposition. Future implementations and steps were also presented to give the participants an overview of what the project's vision is for the developed tools and processes so far and request for their valuable feedback. Finally, the questionnaire was introduced to the stakeholders after the evaluation procedure was explained to them.

3.7.5.3 End Goals

The workshop aimed to accomplish the following objectives:

1. Aligning with Project Goals: Offer a comprehensive overview of the FAME project, covering its scope, objectives, and the anticipated impact of the Pilot programs.
2. Raising Stakeholder Awareness: Emphasize the importance of participant collaboration and their pivotal roles in ensuring the project's success.
3. Providing Questionnaire Guidance: Clarify the questionnaire's purpose, its connection to the project's objectives, and deliver clear instructions for accurate completion.
4. Collecting Feedback: Obtain practical and actionable input from participants to inform and shape the project's progression.

3.7.5.4 *Collected Feedback*

The stakeholders identified a significant value proposition as far as concerning the FAME platform. It could potentially cover a market niche around data sovereignty, security and regulatory compliance. Main points can be summarized as follows:

1. **Project Overall Evaluation:** Participants identified an important contribution of the project, particularly in the field of data sovereignty, security and regulatory compliance.
2. **Technical Requirements:** The interplay of model accuracy and data diversification was highlighted. Concerns were raised with respect to FAME tools integration with MOH's systems with regards to API connectivity and seamless data transfer.
3. **Easy to Use Results:** A lot of discussion was dedicated to improving user-platform interaction tools and providing clear and easy to use results from the datasets processing.
4. **Continued Engagement:** Stakeholders expressed interest in continued collaboration, with more workshops and ventures to affect provided tools maintaining alignment.

3.7.5.5 *Future Steps*

Based on the collected feedback the Pilot aims to enhance models' accuracy by examining the integration of additional data sources and ensure seamless data flow by performing extra trials. Furthermore, additional sessions and workshops will be organized during the next few months to boost user experience and allow for a more user-friendly platform. Overall, a consistent connection with the stakeholder's community is to be sought to drive future advances.

4 Conclusions

This deliverable D6.4 "Use Cases Specification and Pilot Sites Preparation. II", is the second, and the final, version of a total of two deliverables, D6.4 and D6.1 "Use Cases Specification and Pilot Sites Preparation. I", already submitted in M10 (and re-submitted in M20, after requests from the reviewer team during the M18 review meeting).

While the work reported in D6.1 created the foundations so that the Pilots could develop their work during the project, this deliverable is a kind of conclusion of the Pilots' preparation process at FAME. In Chapter 2 of the document, a brief overview of the Pilot is given, as well as the Pilot preparation plan v2 which consists of six steps:

- Pilot and Use Cases Description: The final definition of the Pilots and their respective Use Cases.
- Business Requirements: This phase was prepared in collaboration with WP2 partners, by collected information about the Business Requirements of each Pilot.
- Components & Datasets: Identification of relevant Data Assets (being technological components or actual datasets) to be made available through FAME Marketplace.
- Pilot Architecture: In this step of the preparation plan the Pilots present and explain their Pilot Architecture.
- Pilot Key Performance Indicators: List of the Pilot Specific KPIs from each of the Pilots.
- Stakeholder Engagement: Each Pilot identified a plan for the Stakeholder Engagement workshops.

In Chapter 3, each Pilot described their Pilot and Use Cases, using the template that was made available to the Pilots. In total, there are 121 Business Requirements identified by FAME Pilots (and available in Annex A). The Components & Dataset section was divided into Use Cases for each Pilot, and. In total, there are 23 Components & Datasets identified by FAME Pilots.

In the Pilot Architecture section, each Pilot presents and explains the Pilot Architecture Diagram. In the section of the Pilot Key Performance Indicators, the Pilots identified the pilot specific KPIs. In total, there is 65 Pilot Key Performance Indicators identified by FAME Pilots.

Finally, in Stakeholder Engagement, the Pilots identified the initial steps made to involve stakeholders and get their feedback. This activity will progress in the next few month and be reported in the Stakeholder Engagement report (D6.3).

Annex A Business Requirements – Co-Creation Workshop Collection

To make it possible to survey the business requirements, online collaboration tools were used that will ensure the successful execution of the collaborative and structured process required for the co-creation workshops in a productive and efficient manner. For the Specific Requirements of the Pilot, Co-creation Workshops were used, focusing on the use of User Stories. Each demonstrator participated in a co-creation workshop where both the demonstrator and technical partners collaboratively analysed business requirements and formulated corresponding technical requirements. A total of 38 Generic Requirements, which are intended to be supported by the FAME federated asset space. 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. These requirements may be updated or refined as the project progresses.

Regarding the business requirements elicitation process, the consortium decided to utilise the online collaboration platform Miro (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.

The figure below represents an example of the Miro board with collected information. The outcomes of these workshops were provided as input to the next series of workshops that were dedicated the technical requirements extraction.

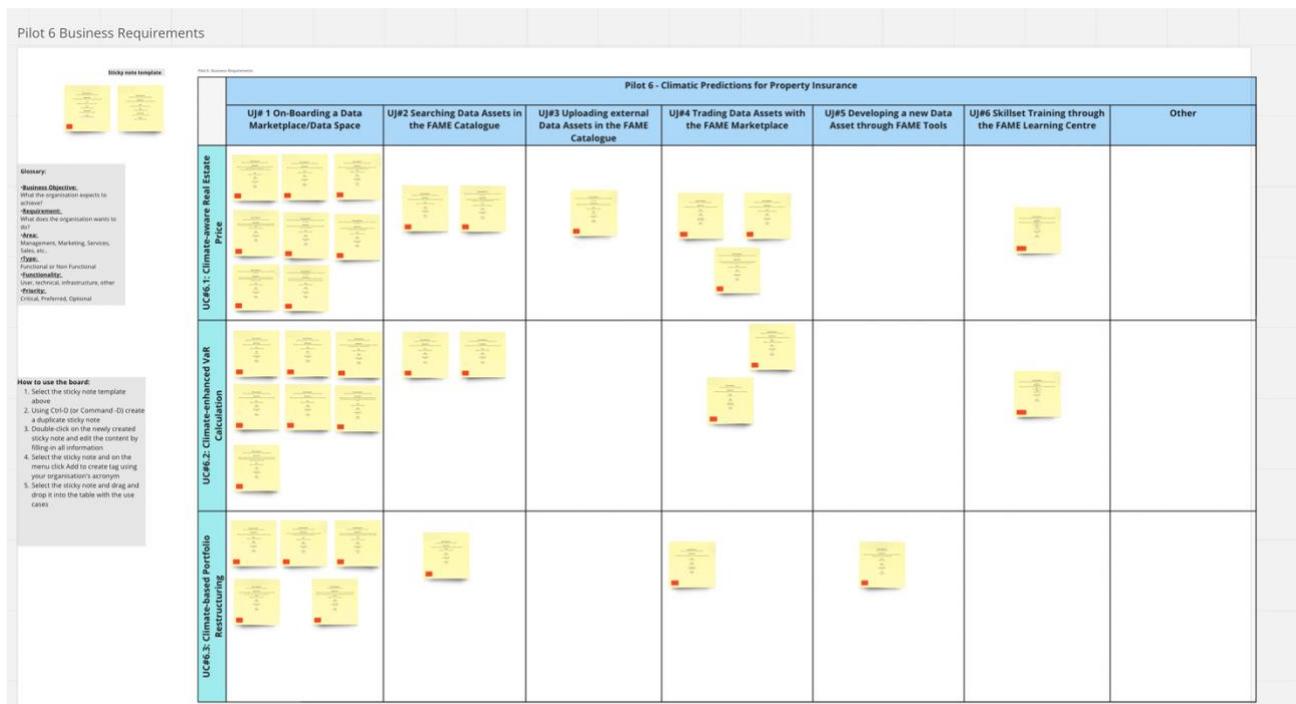


Figure 9 – Miro boards business requirements example

In chapter 3, which is dedicated to each Pilot, there is a small summary of each one and in D2.1 there is more detailed information.

A1 Pilot 1

Table 57 – Pilot 1: Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement
P1_BR1	UC 1	Generate the best recommendations for existing customers based on historical data	FAME should be able to train a recommender system based on historical data about customers and their behaviour.
P1_BR2	UC 1	Generate the best recommendations for existing customers based on historical data	FAME should be able to explain the recommendations of the recommender system, or any other model employed.
P1_BR3	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should have mechanisms to handle returns or disputes (ex: bad data asset quality, not as expected...).
P1_BR4	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should allow trading data assets, including those created through FAME tools (ex: I publish data asset X inside my private federation, transform it using FAME analytical tools into Y into Z and trade Z publicly).
P1_BR5	UC 1	Find relevant data assets for the recommender system and monetize output	FAME should support parametrization of transformation pipelines (ex: ML, anonymization, and whichever tools become available) in order to replicate the steps with new data updates.
P1_BR6	UC 1	Find relevant data assets for the recommender system and monetize output	FAME should have searching and filtering capabilities, including unstructured data. Nice-to-have would be intelligent search and not only keyword based as in classical engines. ex: "find me data about consumption patterns in Europe in 2023".
P1_BR7	UC 1	Find relevant data assets for the recommender system and monetize output	FAME should allow discussing, reviewing and inquiring about data assets.
P1_BR8	UC 1	Find relevant data assets for the recommender system and monetize output	FAME should allow publishing new data as it becomes available, possibly in streaming (to be also consumed in streaming by acquires).
P1_BR9	UC 1	Comply with regulation	FAME should have tools that identify, alert, alter or anonymise client sensitive information on publication.
P1_BR10	UC 1	Comply with regulation	FAME should have tools that can generate new data assets containing synthetic data generated from other privately owned data assets.
P1_BR11	UC 1	Ensure the sovereignty of data	FAME should have mechanisms to ensure data usage control policies.
P1_BR12	UC 1	Train finance sector professionals on customers' profiling mechanisms	FAME should provide training materials on how to use the platform and its tools (tutorials, Webinars, How-to videos, Jupyter notebooks...).
P1_BR13	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should provide statistics about data asset usage, views, and downloads.
P1_BR14	UC 1	Comply with regulation	FAME should be able to 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).
P1_BR15	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should allow buying fractional parts of data assets, possibly at reduced price (e.g.: cost per row).

P1_BR16	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should allow requesting data assets to other entities in FAME.
P1_BR17	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should provide estimates of data asset value, based on similar data assets.
P1_BR18	UC 1	Find relevant data assets for the recommender system and monetize outputs	FAME should recommend related data assets to the one currently being viewed.
P1_BR19	UC 1	Comply with regulation	FAME should have a way to manage and enforce policies at a federation level.
P1_BR20	UC 2	Generate costumer profiles, through FAME tools	FAME should be able to, through FAME analytical tools, analyse costumer data and identify different costumer profiles (e.g.: profile costumer by age, gender, location, profession. Card type, ...).
P1_BR21	UC 2	Generate costumer profiles, through FAME tools	FAME analytical tools should be able to cross various dimensions based on customer profile or merchant business type.
P1_BR22	UC 2	Generate an instalment risk model	FAME tools should be able to create a scoring ML model to predict instalment risk.
P1_BR23	UC 2	Generate an instalment risk model	FAME analytical tools should be able to consume data to predict product consumption and friction points.
P1_BR24	UC 2	Generate an instalment risk model	FAME analytical tools should be able to cross product risk with other similar products.
P1_BR25	UC 2	Understand dataset usage	FAME should provide statistics about data asset usage, views, and downloads.
P1_BR26	UC 2	All participants having the ability access FAME data marketplace	FAME should allow uploading data to the marketplace and monitor data usage by other marketplace users.
P1_BR27	UC 2	Search Data regarding similar Credit and instalment services usage	Filter aggregated or individual data that could be useful to our analytics and management team to explore and analyse.
P1_BR28	UC 2	Search Data regarding similar Credit and instalment services usage	FAME should include in the FDAC relevant data to support costumer profiles generation.
P1_BR29	UC 2	Search Data regarding similar Credit and instalment services usage	FAME should include in the FDAC relevant data to support instalment risk ML model development.
P1_BR30	UC 2	Search Data regarding similar Credit and instalment services usage	FAME should allow project participants to interact to share knowledge and data clarification.
P1_BR31	UC 2	Enrich FAME Marketplace	FAME should allow data asset download from the marketplace.
P1_BR32	UC 2	Enrich FAME Marketplace	Allow continuous upload of data to the marketplace.
P1_BR33	UC 2	Comply with regulation	FAME should have tools that identify, alert, alter or anonymise client sensitive information on publication.

A2 Pilot 2

Table 58 – Pilot 2: Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement
P2_BR1	UC 1 – UC 2	Generate a citizen profile.	Analyse historical data and generate profiles based on parking localities
P2_BR2	UC 1	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
P2_BR3	UC 1 – UC 2	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)
P2_BR4	UC 1 – UC 2	Request and onboard data from other organizations so as to leverage the services of the city e.g., traffic data	Offer data assets of municipalities related with their services
P2_BR5	UC 1	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 control from municipal police
P2_BR6	UC 1 – UC 2	Generate a citizen profile.	Analyse historical data and generate profiles based on parking time duration
P2_BR7	UC 1 – UC 2	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P2_BR8	UC 1	Reduce costs that refer to the management of the parking system of the city	FAME should offer a view of correlated data and usable visualizations for a city employee
P2_BR9	UC 1	Provide personalized citizen services (discount)	Provide recommendation for discount based on historical data and citizen profiling
P2_BR11	UC 1 – UC 2	Generate a citizen profile.	Analyse historical data and generate day-time parking profiles
P2_BR12	UC 2	Extend financial services providing a pricing scheme.	Foresee parking demand based on historical data
P2_BR13	UC 2	Offer citizen wallet to citizens	Develop a citizen wallet for citizens to consume services in one app
P2_BR16	UC 1 – UC 2	Monetize offered data sets	Allow for municipality/citizen parking data trading with external organizations
P2_BR17	UC1	Provide personalized citizen services (park and ride)	Provide data analysis enhanced with external entities to support recommendations for parking points
P2_BR18	UC 1 – UC 2	Monetize offered data sets	Provide statistics about the dataset usage

A3 Pilot 3

Table 59 – Pilot 3: Business Requirements

Non-functional requirements Use Case #1	–	<ul style="list-style-type: none"> - Profile client data on JRC-type scoring. - EU global Transactions data through FAME marketplace - Allow market data to be inserted beyond price and synthetic data sets. - Investment algorithms over the client transactions to be: <ul style="list-style-type: none"> (i) data mining-coded. (ii) run algorithms and compare with outputs. (iii) allow data output as new input (structured client portfolio scoring).
Non-functional requirements Use Case #2	–	<ul style="list-style-type: none"> - Profile client data on JRC-type scoring. - EU global Transactions data through FAME marketplace. - Allow market data to be inserted beyond price and synthetic data sets. - Investment algorithms over the client transactions to be: <ul style="list-style-type: none"> (iv) data mining-coded. (v) run algorithms and compare with outputs.

A4 Pilot 4

Table 60 – Pilot 4: Business requirements

Req #	Use Case #	Business Objective	Business Requirement
P4_BR1	UC1	Create a new business opportunity for banks.	FAME should develop and validate 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 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.
P4_BR2	UC1	Facilitate the effectiveness of the EU innovation projects implementation	FAME should be able to provide an optimised banking financing intervention plan (type of financing - loan, guarantee, prefinance, cofinance...- , time, and amount) through a tool that will perform automatic and robust simulations of different potential scenarios.
P4_BR3	UC1	Facilitate the work of bank employees in advising granted clients while reducing the time spent.	FAME should 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.
P4_BR4	UC1	Improve the bank's funding parameters (time, feasibility, bureaucracy, etc).	FAME should develop the tool so that the whole process can be harmonised and automated by implementing a methodology that ensures the most effective approach. The tool will be tailored to the targeted country target.

P4_BR5	UC1	Provide a solution available in the marketplace to be transferred to any financial entities internationally (e.g., entities with similar profiles).	FAME should parametrise the financial support schemes between financial institutions and clients, so that the tool generated can be customised 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.
P4_BR6	UC1	Ensure the anonymization of the data being used to set the methodology, especially granted company data	FAME should have mechanisms to ensure data privacy control policies
P4_BR7	UC1	Ensure the sovereignty of the data assets being traded	FAME should have mechanisms to ensure data assets usage control policies

A5 Pilot 5

Table 61 – Pilot 5: Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement
P5_BR1	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
P5_BR2	UC 1	ESG Tutorials	Provide educational content explaining its ESG approach
P5_BR3	UC 1	ESG Ranking, Weightings and Recommendation Tables Tutorials	Introduce detailed ESG "recipe" of weights and the mechanisms that govern our recommendations
P5_BR4	UC 1	ESG Reporting	Introduce detailed ESG reporting and impact analysis, allowing users to select based on E,S,G criteria
P5_BR5	UC 1	Provide ESG table of recommendations	Allow market data to be inserted beyond price and ESG data from Bloomberg etc
P5_BR6	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
P5_BR7	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
P5_BR8	UC 2	ESG-focused Model Portfolios	Create monthly ESG-powered model portfolios, offering clients a range of investment options
P5_BR9	UC 2	ESG scoring Calculator Tool	1)Customer Questionnaire during KYC, on how 'ESG' sensitive you feel, how much E,S,G; 2)Get recommendations: i) the global FAME ESG recommendation for Stock Allocation ii) Your "personalized" one (if time permits)
P5_BR10	UC 2	Optimizing Investment Portfolio with ESG	Optimize client portfolios by considering ESG criteria and client-

			specific ESG preferences, resulting in more sustainable and responsible investments
P5_BR11	UC 2	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
P5_BR12	UC 2	Whitepaper: Hierarchical risk parity (HRP) algorithm	Provide educational content explaining approach Hierarchical Risk Parity (HRP) algorithm
P5_BR13	UC 2	Portfolio Optimization Tutorials with custom ESG weights	Provide educational content explaining Portfolio Optimization methods
P5_BR14	UC 2	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
P5_BR15	UC 2	Back-testing Analysis for ESG portfolio performance	Conduct back-testing on our ESG ranking system, ensuring that the rankings support investment rationale and the profitability of portfolios
P5_BR16	UC 2	Insert 3-4 indicative portfolios as testing sample from renowned global investment sources (yahoo, Bloomberg, banks, 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
P5_BR17	UC 2	Provide indicative E,S,G weights of 2-3 comparative investment institutions.	Allow weights of E,S,G in various "recipes" to be held
P5_BR18	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
P5_BR19	UC 2	Compare ESG weights of other established investment institutions that registered in FAME marketplace with the recommendation weights of FAME	Allow for 10 custom weights of E+S+G for every Asset in a portfolio
P5_BR20	UC 2	Explanation of ESG Reporting and Recommendations	Introduce detailed ESG reporting and impact analysis, allowing clients to track the E,S,G impacts of their investments
P5_BR21	UC 2	ESG Portfolio Recommendations published through FAME to global investors	FAME marketplace can provide ESG portfolio Recommendations with custom E,S,G weights

A6 Pilot 6

Table 62 – Pilot 6: Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement
P6_BR1	UC 1	Supply featurised climate projections for a specific location	FAME must be able to train a statistical downscaling model that relates coarse grid climate projections to finer grid ERA5 Land data

P6_BR2	UC 1	Supply featurised climate projections for a specific location	FAME must connect to CDS to download historical reanalysis data (ERA5 Land)
P6_BR3	UC 1	Supply featurised climate projections for a specific location	FAME must connect to CDS (Copernicus data store) to download climate project data (CMIP5) and historical reanalysis
P6_BR4	UC 1	Supply featurised climate projections for a specific location	FAME must be able to create ML model to downscale climate projections
P6_BR5	UC 1	Supply featurised climate projections for a specific location	An Analysts can find that the climate risk feature for a specific location exists
P6_BR6	UC 1	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
P6_BR7	UC 1	Forecast the effect climate change will have on property prices for a specific asset and location	FAME should offer value to an organization that uploads property price data
P6_BR8	UC 1	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P6_BR9	UC 1	Supply featurised climate projections for a specific location	An analyst can purchase the featurised climate projection for a specific location
P6_BR10	UC 2	Train insurance sector professionals how to perform climate-aware Real Estate Pricing	Development of financial courses, Webinars, How-to videos, Jupyter notebooks
P6_BR11	UC 1	Supply featurised climate projections for a specific location	FAME must be able to take the downscaling model and future climate projections to supply a projection of changes in climate project features at any given location
P6_BR12	UC 1	Forecasts the effect climate change will have on property prices for a specific asset and location	Historical property price information will need to be uploaded that has both prices and asset characteristics
P6_BR13	UC 1	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
P6_BR14	UC 1	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 featurised climate projection for a specific location
P6_BR15	UC 1	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
P6_BR16	UC 1	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

P6_BR17	UC 2	Supply Seasonal Forecasts of Climate Risk Features	An analyst can purchase the seasonal forecast of a catalogue of climate risk features
P6_BR18	UC 2	Supply Seasonal Forecasts of Climate Risk Features	FAME must connect to CDS to download seasonal forecasts
P6_BR19	UC 2	Supply Seasonal Forecasts of Climate Risk Factors	FAME must connect to CDS to download ERA5 Reanalysis Data
P6_BR20	UC 2	Supply Seasonal Forecasts of Climate Risk Factors	FAME must bias correct seasonal forecasts relative to the ERA5 data, to then derive the corrected forecasts of climate risk features
P6_BR21	UC 2	Supply Seasonal Forecasts of Climate Risk Factors	An analyst can find that a seasonal forecast of climate risk factors exists
P6_BR22	UC 2	Determine Risk Exposure of an Asset to Climate Risk Features	An analyst can find that a climate-aware VAR calculation for a given asset exists
P6_BR23	UC 1	Train insurance/finance sector professionals how to climate-aware assess their portfolios	Development of financial courses, Webinars, How-to videos, Jupyter notebooks
P6_BR24	UC 1	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P6_BR25	UC 2	Determine Risk Exposure of an Asset to Climate Risk Features	FAME must be able to download historical assets prices for e.g. a given equity
P6_BR26	UC 2	Determine Risk Exposure of an Asset to Climate Risk Features	FAME must be able to run a quantile regression model that can determine the extent to which historical asset price volatility was correlated with climate risk features
P6_BR27	UC 2	Determine Risk Exposure of an Asset to Climate Risk Features	FAME must be able to 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
P6_BR28	UC 3	Assess the climate risk exposure of a portfolio	FAME must be able to download historical prices for a portfolio of assets
P6_BR29	UC 3	Assess the climate risk exposure of a portfolio	For each asset in the portfolio, FAME must be able to model the "risk premium" and "risk" related to climate features from (UC 1)
P6_BR30	UC 3	Assess the climate risk exposure of a portfolio	For each asset in the portfolio, FAME must be able to model the portfolio level excess return over a supplied index and risk from this portfolio related to climate risk
P6_BR31	UC 3	Assess the climate risk exposure of a portfolio	An analyst can find that this tool exists and can upload their portfolio
P6_BR32	UC 2	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P6_BR33	UC 3	Propose climate-safe indices	FAME should allow external users access to our tools to enable them to propose new stock indices which are "climate proof"
P6_BR34	UC 3	Assess the climate risk exposure of a portfolio	For a given portfolio, FAME must be able to indicate how excess returns and risk will change on account of changes in climate features
P6_BR35	UC 3	Propose portfolio Restructuring	FAME must be able to determine which assets to drop from an existing portfolio in order to improve performance based on changes in projected climate risk features

A7 Pilot 7

Table 63 – Pilot 7: Business Requirements

Business Req. ID	Use Case ID	Business Objective	Business Requirement
P7_BR1	UC 1	Quality Assessment of (IoT) Data Assets	Perform quantitative quality assessment of data assets considering various quality dimensions such as data accuracy, completeness, consistency, timeliness, and validity
P7_BR2	UC 1	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
P7_BR3	UC 1	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
P7_BR4	UC 1	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P7_BR5	UC 1	Re-purpose/reuse/sell Data Assets for Industrial Maintenance	Develop analytical models providing operational insights on equipment used in industrial environments
P7_BR6	UC 1	Re-purpose/reuse/sell Data Assets for Industrial Maintenance	Trade of industrial data assets (i.e., sensor data, AI/ML models) through FAME
P7_BR7	UC 1	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).
P7_BR8	UC 1	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
P7_BR9	UC 1	Streamline decision-making by assessing the quality and value of data assets	Identify underutilized resources and opportunities for further investment
P7_BR10	UC 1	Train industrial workers on how to assess and understand data produced by IoT devices and sensors	Develop relevant training materials
P7_BR11	UC 2	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.
P7_BR12	UC 2	Ensure the sovereignty of the data being traded	FAME should have mechanisms to ensure data usage control policies
P7_BR13	UC 2	Stakeholder Interaction	FAME should allow access to the primary data assets to develop secondary data assets and applications
P7_BR14	UC 2	Increase Trustworthiness of AI models used in IoT	Develop XAI techniques for timeseries forecasting models

P7_BR15	UC 2	Increase Trustworthiness of AI models	FAME should provide explanations of results of AI (ML) models in proper form
P7_BR16	UC 2	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
P7_BR17	UC 2	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