WORKSHOP 2 SUMMARY REPORT (HOW CAN EARTH OBSERVATION SERVE THE FINANCIAL SECTOR?)

EO-FIN

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1.0	29/10/2023	37	This is the first and final version of this document.

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Reference Documents

The following documents, although not part of this document, amplify or clarify its contents. Reference documents are those not applicable and referenced within this document.

Table 1. Reference Documents

Ref.	Document ID.	Title	Rev.
[RD1]	Proposal	Proposal "EO-FIN Best Practice for Financial Management Support"	
[RD2]	PMP	The project management plan	
[RD3]	D1.1	Workshop-1 report	1
[RD4]	D1.2	EO-FIN-Geoinformation requirements report (draft)	0.1
[RD5]	D1.2	EO-FIN-Geoinformation requirements report (final)	1
[RD6]	D2.1	EO-FIN Current EO Capabilities Report (draft)	0.1
[RD7]	D2.1	EO-FIN Current EO Capabilities Report (final)	1

Acronyms

Table 2. List of acronyms.

Acronym	Definition
AFME	Association for Financial Markets in Europe
AI	Artificial Intelligence
BISIN	BIS Innovation Hub and Innovation Network
EARSC	European Association of Remote Sensing Companies
EGMS	European Ground Motion Service
EO	Earth Observation
ESA	European Space Agency
DEM	Digital Elevation Model
FM	Financial Management
GHG	Green House Gasses
SB	Stakeholder Board
SWIR	Short-Wave Infrared
TCFD	Task Force on Climate-Related Financial Disclosures
UN	User Need
VHR	Very High Resolution
VNI	Visible and Near-Infrared

1. EXECUTIVE SUMMARY

The activity "Best Earth Observation (EO) practices to support financial management (EO-FIN)" is an ESA fully funded project aiming to understand the current, and short-term future, EO capabilities that can support the Financial Management (FM) sector. This project studies EO best practices meeting the best responses to the FM sector's needs and requirements. The best EO practices are expected to lead to better products, greater trust from the customers, and a more competitive position in the market. For the purpose of this activity, the FM sector will be represented by stakeholders operating in the following four FM markets: Investment Management, Risk Analysis, Insurance Management, and Green Finance.

Following the successful EO-FIN workshop 1 on 17th and 18th February, aimed to collect feedback from FM stakeholders on using Geo-information and their practices. Following workshop 1, the EO-FIN team further consolidated the Geo-information requirements by conducting semi-structured follow-up interviews with key industry stakeholders. After completion of the URs gathering, the EO-FIN team conducted a series of practices including desk-based research and an online survey to identify the current mature EO products and services meeting the requirements of consolidated users' requirements. Workshop 2 is part of the WP200, and GMV was the main organiser of this event with support from London Economics. This workshop aimed to consolidate a list of EO products and services that can currently be leveraged and identify gaps that exist between requirements and EO technical feasibility. Another objective of this event to find out the potential improvement drivers for EO community to fully respond the needs of the FM sector.

The workshop was organised on 11th September 2023 as a hybrid full-day event. It was located at the Satellite Applications Catapult in the Harwell Campus in Oxfordshire, UK. In total 78 people attended the workshop and from those 19 attended in person and 59 joined the workshop remotely. The workshop formed from morning afternoon sessions. The morning session involved a series of talk and presentation from financial sectors representatives as keynote speakers and at the end of the morning session, the EO-FIN team provided an overview of the project progress and findings. The afternoon session was formed by two group discussions. For the first section of the group discussion, two different approaches were considered for EO capabilities consolidation and gaps identification. An EO capabilities questionnaire was provided for those who joined the Workshop remotely. However, in-person attendees organised in different groups to come up with their own ideas on EO capabilities and gaps. Following 20 minutes break at the end of group session 1, the second group discussion focused on discussion over the necessary improvements (technical, institutional, etc) for satellite EO to fulfil the geoinformation needs of the financial sector. the approach to ask questions to all in-person and online attendees about potential improvement derivers of general gaps and those identified gaps during the workshop activities.

We received responses from only five participants on EO capabilities, questionnaire and although these responses provided us with valuable information, this sample size was not statistically significant, leaving us with limited confidence in the results of quantitative questions. Especially, due to the anonymous nature of the questionnaire, which makes it unable to ascertain the level of experience or expertise of the participants. Considering these limitations, we have decided to initiate a new questionnaire, targeting experts within the field of EO. This approach aims to gather a more robust and specialized pool of responses to ensure the reliability and depth of insights for EO products that can contribute to fulfilling financial management needs. The results from both questionnaires will be illustrated and discussed in the D2.1 Current EO Capabilities report [RD7]. The in-person attendees were divided into four groups, each of them discussing the potential EO products responding to the UNs of each of the four financial domains. The finding of the group discussion's part one is described in Table 7. Most of the improvement derivers identified can be applied across most UNs rather than a specific UN. Therefore, recommendations are common without referring to a specific user need.

1.1. PROJECT OVERVIEW

The activity "Best Earth Observation (EO) practices to support financial management (EO-FIN)" is an ESA fully funded project aiming to understand the current, and short-term future, EO capabilities that can support the Financial Management (FM) sector. This project studies EO best practices meeting the best responses to the FM sector's needs and requirements. EO-FIN aims to promote the development of high-quality EO services, within the industry by emphasizing standardization advocating for best practices and increasing awareness. The best EO practices are expected to lead to better products, greater trust from the customers, and a more competitive position in the market. For the purpose of this activity, the FM sector will be represented by stakeholders operating in the following four FM markets: Investment Management, Risk Analysis, Insurance Management, and Green Finance.

1.1.1. PURPOSE OF EO-FIN PROJECT

The goal of this activity can be broken down into the following objectives:

1. Identify and consolidate the geoinformation needs and priorities within the domains of concern.
2. Identify and characterise EO-based products and services meeting the needs of the domains of concern, now and in the future.
3. Implement and test on a Virtual Platform at least one prototype of an identified EO-based service.
4. Define a roadmap for building EO industry guidelines for the commonly accepted best-practice use of EO-based information by companies within the Financial Management sector.
5. Disseminate the analysis results via key international associations and bodies representing the sector, like EARSC (on the EO side) or the Association for Financial Markets in Europe (AFME).

Box 1 Key terminology

Earth Observation (EO): the gathering of information about the planet's physical, chemical, and biological systems via remote sensing technology including data and processing tools.

EO practice: A service is developed using EO data and technology to respond to the needs of specific applications.

Geospatial data/geoinformation: information about where observations are about one another – any data tagged with a geographic reference is (geo)spatial data. Insights obtained from the analysis of spatial data are referred to as 'geoinformation'.

Spatial Finance: the integration of geospatial data and analysis into financial theory and practice

1.1.2. PROJECT BREAKDOWN STRUCTURE

Figure 1 shows the EO-FIN project breakdown structure by describing the entire scope of the EO-FIN project, and the distribution of the work among the three teams that form part of the consortium: GMV-NSL, London Economics, and GMV AD. Overall, there are five WPs defined, namely:

- WP1. Collection of geoinformation requirements and associated constraints (corresponding to Task 1 in the SoW).
- WP2. Definition of current EO capabilities and use (corresponding to Task 2 in the SoW).
- WP3. Development of a service prototype (corresponding to Task 3 in the SoW).
- WP4. Development of a best practice roadmap (corresponding to Task 4 in the SoW).
- WP5. Overall management.

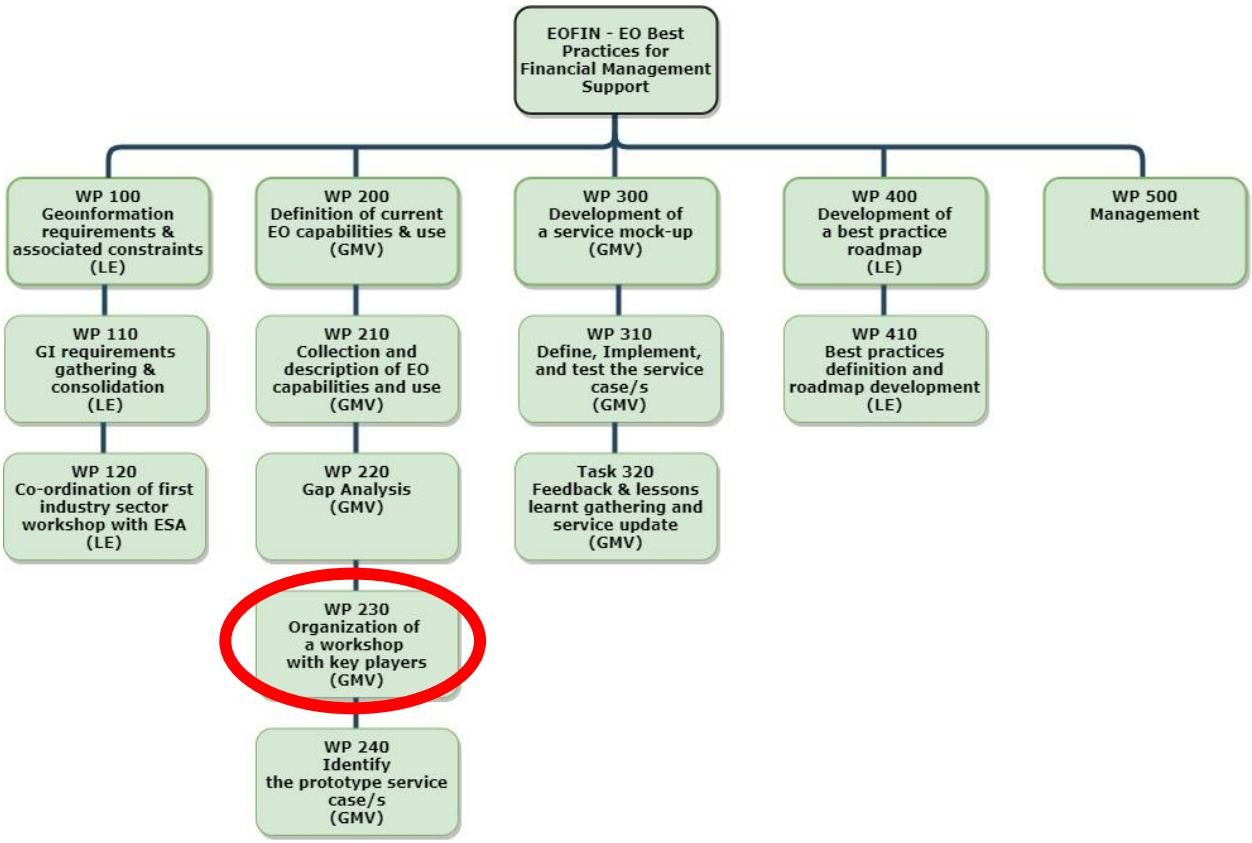


Figure 1. EO-FIN work breakdown structure.

1.1.3.STATUS OF THIS ACTIVITY

Workshop 1 was part of EO-FIN's first Work Package, WP100, which entails the gathering of detailed geoinformation requirements for business processes. This workshop sought to understand how, and under what conditions, the Financial Management sector can best benefit from geospatial data. This event aimed to collect feedback from FM stakeholders on using Geo-information and their practices. Following workshop 1, the EO-FIN team further consolidated the Geo-information requirements by conducting semi-structured follow-up interviews with key industry stakeholders.

After completion of the URs gathering, the EO-FIN team conducted a series of practices including desk-based research and an online survey to identify the current mature EO products and services meeting the requirements of consolidated users' requirements. Workshop 2 is part of the WP200 (Figure 1) with these objectives:

1. Present several of the EO use cases as a showcase showing examples of the current EO capabilities the in FM sector.
2. Consolidate a list of EO products and services that can currently be leveraged for a more sustainable, accountable, and transparent finance sector.
3. Identify gaps that exist between requirements and EO technical feasibility.
4. Identify the improvement drivers for identified gaps.

1.1.4. SCOPE OF THE PRESENT REPORT AND TARGET AUDIENCE

This document presents a summary of the Workshop 2 event as deliverable 2.3 "Workshop 2 summary report". The target audience of this report is the EO service/data providers and Financial Management (FM) stakeholders. This report provides key findings of the Workshop by describing the workshop structure for morning and afternoon sessions and details of group discussions' findings. The present report will be made public and subject to review by the EO community through the EARSC portal.

A.1.1. WORKSHOP ORGANISERS

GMV was the main organiser of this workshop with support from London Economics. Table 3 describe the roles and responsibility of the organiser team.

Table 3. Workshop 2 organisers.

NO	Organiser Name	Position and role in EO-FIN	Workshop key responsibilities
1	Rahman Momeni	Senior Earth observation project manager and engineer acting as the EO-FIN coordinator.	Preparation, speaking, and support managing group discussions
2	Ana Sebastian Lopez	Senior EO specialist, business development manager and acting as the EO-FIN consultant.	Preparation and managing group discussion
3	Rasmus Flytkjaer	Head of space at London Economics and acting as the London Economics project manager at the EO-FIN project.	Chair of the workshop
4	Enes Hisam	Earth observation engineer and acting EO remote sensing specialist at the EO-FIN.	Preparation and managing online attendees
5	Tom Goulding	Space industry economist and acting as the EO-FIN economic consultant.	Speaker and support managing online attendees

The workshop invitation was disseminated through Space4Climate EARSC, and GMV social media (LinkedIn and X). Also, this workshop was published through the organisers' social media like LinkedIn the platform.

2. WORKSHOP ATTENDESS

The workshop was organised on 11th September 2023 as a hybrid event. It was located at the Satellite Applications Catapult in the Harwell Campus in Oxfordshire. The Workshop was event advertised on the Eventbrite website (ANNEX D.) and 133 tickets have been sold in total for this event (excluding the organisers). From those 133 tickets, 27 registered to attend in person and 106 registered to attend remotely. This means 80% of those registered workshop to attend remotely, while 20% registered to attend the workshop in person (Figure 2.a).

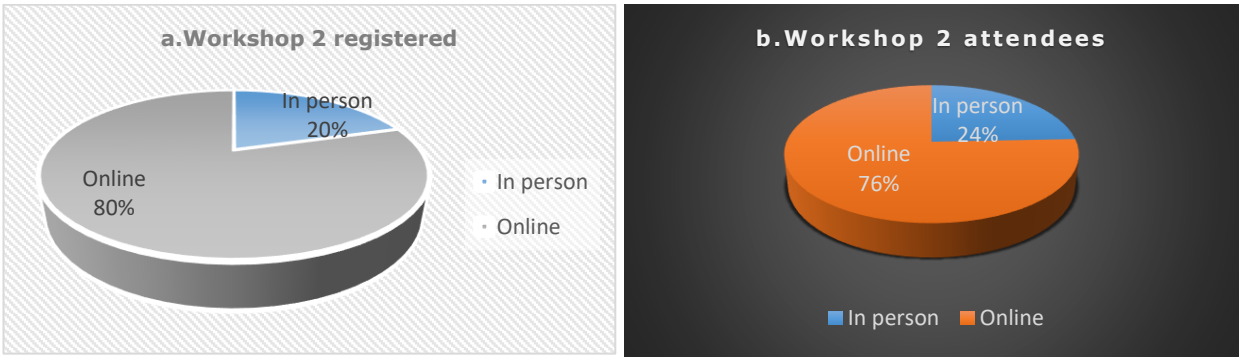


Figure 2: Percentage of those registered and those who attended Workshop 2 in person or online.

In total 78 people attended the workshop and from those 19 attended in person and 59 joined the workshop remotely (through Microsoft Teams). As (Figure 2.b) shows 76% of attendees joined the workshop remotely while 24% attended in person.

Table 4 describes the list of in-person attendees plus those who actively contributed to the workshop as speakers. The information on the EO/FM sector and relevant domains is provided in this table.

Table 4. List of in-person attendees and speakers.

ID	Full name	Affiliation	Role	Sector	Domain
1	Ahmad Abd Rabuh	University of Oxford Brookes	In-person attendee	FM	Insurance management and risk analysis
3	Anastasia Bolton	Satellite Applications Catapult	In-person attendee	EO	Service/data provider
4	Andrés Alonso	Bank of Spain	Speaker	FM	Green finance
5	Anneley Hadland	Helyx SIS Ltd.	In-person attendee	EO	Data provider
6	Claudia Vitalo	ESA	Speaker	EO	Service/data provider
7	Craig Jacobs	ARGANS LIMITED	In-person attendee	EO	service provider
8	David de la Fuente Blanco	GMV	Speaker	EO	Service/data provider
9	Dieter Wang	World Bank	Speaker / In-person attendee	FM	Green finance
10	Doyle Ray Oakey	Parametrica	Speaker / online attendee	FM	Insurance management
12	Estel Blay	GlobalTrust	In-person attendee	EO	Service/data provider
13	Estel Blay	Global trust	Speaker / In-person attendee	FM	Investment management
14	Isabelle Chatel de Brancion	Ordnance Survey	In-person attendee	EO	Service/data provider
15	Jemima Cooper	Sidos Intelligence	In-person attendee	EO	Service/data provider
16	Krupa Nanda Kumar	Space4Climate	In-person attendee	EO	Service/data provider
17	Michael Hanley	Pixxel Space	In-person attendee	EO	Data provider
18	Peter Baumann	Rasdaman GmbH	In-person attendee	EO	Service/data provider
21	Rebecca Maria Mari	Bank of England	Speaker / In-person attendee	FM	Risk analysis
22	Richard Brocklebank	Telespazio	In-person attendee	EO	Service provider
23	Richard Teeuw	University of Portsmouth	In-person attendee	EO	Service/data provider
24	Sean McCarthy	Satellite Applications Catapult	In-person attendee	EO	Service/data provider
26	Yuri Ponzani	Recycle2Trade Ltd	In-person attendee	EO	Service/data provider

WORKSHOP SUMMARY

Please refer to the ANNEX A to see the agenda of the workshop.

2.1. MORNING SESSION

The morning session started at 09:30 followed by a half-hour Welcome/Registration/Refreshment period for in-person participants. Firstly, the EO-FIN coordinator (Dr. Rahman Momeni) provides an overview of the Workshop practices and Workshop's objectives. Then, Dr. Claudia Vitalo (who acts as the EO-FIN technical officer of ESA) presented online on short talk on "the EO Science for Society opportunities" and "Collaboration with EARSC to develop Best Practices in various sectors". She finished her talk by explaining how EO-FIN fits in the context of this collaboration.

2.1.1.KEYNOTE SPEAKERS:

Three presentations were provided by keynote speakers from leading organizations in the financial sector. These presentations set the stage for 12 min, followed by three minutes of questions and discussion.

Dr Rebecca Mari, senior economist at the Bank of England - A view from the top: what satellite images can tell us about the economy. She highlighted several cases in which the economy can benefit from EO including tracking economic activity, tracking supply chain disruptions, natural disasters, and physical risk from climate change on economic activity.

Dr Dieter Wang, sustainable finance specialist consultant at the Word Bank - Title: Peering through the clouds: How sustainability-linked bonds can leverage novel cloud-penetrating LULUCF. His talk focused on using cloud-penetrating satellite data to define better deforestation metrics for sustainability-linked bonds.

Andrés Alonso, senior economist, financial innovation division, at Bank of Spain - Title: the work of BIS Innovation Hub and Innovation Network (BISIN) on green finance. He focused on using EO on green finance in three areas including increasing the quantity of climate-related information, materiality of climate-related information, and green securitization.

2.1.2.SHOWCASE EXAMPLES OF EO SERVICES & DATASETS:

Three talks were selected representing the new advancement in the EO service/data providers. These presentations set the stage for 12 min followed by three minutes of questions and discussion.

David de la Fuente Blanco, senior remote sensing specialist and geodata scientist at GMV - Title: Green biomass and yield estimation in grazing and farmland areas. He provides two showcases in his presentation including EO service for green biomass in grazing areas and EO service for yield estimation in vineyards.

Michael Hanley, sales manager for Pixxel Space – Title: Advances in Hyperspectral Satellite Imaging: Enabling new EO services with unprecedented spectral fidelity. He introduced building a constellation of high throughput hyperspectral earth-imaging microsatellites and the tools needed to mine insights from the dataset. The constellation of 24 micro satellites is designed to provide: 5m spatial resolution, up to 250 bands (VNIR and SWIR), and daily global access. These datasets can bring huge potential by developing more advanced and accurate EO products for the FM sector.

Dr. Doyle Ray Oakey, managing director of Parametrica – Title: Leveraging EO & Geoinformatics for Credit & Insurance. He talked about the EO product developed in Parametrica using Geo-information and AI with application for insurance management. He presented a use case to help Colombian farmers using Satellite Imagery data to insure their agricultural products.

2.1.3.EO-FIN PROGRESS OVERVIEW:

After a short break, the EO-FIN team presented a summary of the progress of the project. Presenting the project findings provided background information on the project status in which the participants are ready to participate in discussion activities in afternoon sessions.

Tom Goulding, space industry economist at London Economics and EO-FIN economic consultant. Title: EO-FIN so far: understanding User Requirements. He provided an overview of the consolidated user needs (UNs) collected during the first phase of the work. Part of his talk was on the approaches that were considered to gather and consolidate the FM user requirements.

Rahman Momeni, senior Earth observation engineer at GMV and the EO-FIN coordinator. Title: Introduction and objectives of the workshop. He provided an overview of the list of the EO capabilities identified during desk-based and online survey. He showed an example of using EO data to monitor stock changes in oil tanks with floating roofs.

2.2. AFTERNOON SESSION

The afternoon session started after a half-hour lunch break at 13:00 and ended at 16:30. This session was formed by two group discussion sessions. At the end of group session 2, the EO-FIN coordinator (Dr. Rahman Momeni) concluded the workshop by providing an overview of the activities performed during the workshop and sharing the findings. At the end, there was a half-hour networking period for attendees.

2.2.1. WORKING GROUP DISCUSSION

The afternoon session was formed by two group discussions. The first group discussion took 2 hours (from 13:00 to 15:00) and with objectives to consolidate the EO capabilities and identify the gaps between what EO can currently offer and the Geo-information needs of the FM sector. Following 20 minutes break at the end of group session 1, the second group discussion took 70 minutes (from 15:20 to 16:30). it aims to discuss the necessary improvements (technical, institutional, etc) for satellite EO to fulfil the geoinformation needs of the financial sector.

2.2.2. METHODOLOGY

For the first section of the group discussion, two different approaches were considered for EO capabilities consolidation and gaps identification. An EO capabilities questionnaire was provided for those who joined the Workshop remotely. However, in-person attendees organised in different groups to come up with their own ideas on EO capabilities and gaps. For the second group discussions session, the approach to ask questions to all in-person and online attendees about potential improvement derivers of general gaps and those identified gaps during the workshop activities.

2.2.2.1. EO CAPABILITI QUESTIONNAIRE

The EO-FIN Team designed an EO capability questionnaire to acquire feedback from the EO community. This feedback enables evaluation of the identified EO products and further consolidation of the current EO capabilities for the FM sector. The Team used the Google Forms platform for the EO capabilities questionnaire. The EO capability questionnaire targets the EO service/data providers as the audience by asking two questions product EO products. The first question is about the maturity level of the EO product regardless of its capability in contributing to meet the user needs. The maturity levels were defined and categorised into three categories: Mature, partially mature, and immature. Table 5 describes the maturity levels with their description providing a common understanding and uniform interpretation of these terms.

Subsequently, respondents were given information about the corresponding UNs for the EO product. The second question was about the level at which the EO product responds to the UNs. The response levels were categorized into four levels (i.e., highly respond, moderately respond, partially respond, and not at all responding) as Table 6 shows. This standardized framework enables participants to respond consistently, resulting in enhancing the reliability and comparability of the collected data.

Table 5. Maturity levels definition.

Maturity level	Description
Immature	■ The technology/methodology is in the design/research phase. ■ User feedback and customization options may be limited or underdeveloped. ■ Minimally validated and may still contain significant errors.
Partially mature	■ The technology/methodology has been demonstrated in different domains. ■ The product is partially validated, user feedback and customization options are ongoing and there is room for enhancements and updates.
Mature	■ The service offers comprehensive and sophisticated functionalities for various applications and domains. ■ Integration with diverse data sources, such as ground observations, enriches the service's capabilities and accuracy. ■ The service has a large user base, and widespread adoption, and plays a critical role in supporting decision-making, planning, and operational activities across multiple sectors.

Table 6. Definitions of the response levels of each EO product to UNs.

Level	Description
Not at all Respond	The EO product cannot respond to the Financial Management User Requirements.
Partially Respond	EO products can only address the User Requirements in a limited way (e.g., new sensors required).
Moderately Respond	EO products can often fulfil the demand, but there are some thematic content, accuracy, or delivery limitations to address the challenges and needs. In other cases, new sensors that are being developed should improve the product to meet the User Requirements.
Highly Respond	EO products can meet the current and anticipated User Requirements of the Financial Management sector. Initiatives such as standards, training, and integration tools can still benefit the EO solution.

The questionnaire focuses on the high level of the EO product rather than a specific EO product with unique predefined parameters. There can be several types of similar EO products available in the EO community and each of them is developed differently according to specifications and requirements. For example, there are different types of crop map products and instead of asking for a specific crop map product, the questionnaire asked the EO community to provide their feedback on their view of this product.

Acquiring feedback on the EO products' maturity level can indicate the development and reliability levels of these EO products and if used technology is ready and reliable. Further, finding the response level of EO products meeting UNS can suggest how realistically these EO products are beneficial in the real world. These responses show how well the current EO technology addresses the FM users' expectations, particularly in terms of practicality and reliability. This information can help users from the FM sector to better decisions on using EO products. Also, the EO community can identify gaps to further improve the remote sensing technology effectively.

Note: There was an option as 'I am not sure' for both questions in case respondents were not confident in their answers. This can potentially increase the reliability of findings.

Note: For the question on the response level, if respondents chose any of these three choices (i.e., not all respond, partially respond, or moderately respond), they asked two further questions including:

- What are the main factors preventing this EO product from fully responding to the above-mentioned User Requirement(s)?
- What are the main factors preventing this EO product from fully responding to the above-mentioned User Requirement(s)?

2.2.2.2. CONSOLIDATE EO CAPABILITIES AND IDENTIFY GAPS:

Although online attendees were asked to complete the EO capabilities questionnaire, the first group discussion was organised to be driven by in-person attendees. The idea was to provide relevant information for the experts in a way they propose the EO products for user requirements of the FM sector without any direction from workshop organisers. The result of this finding plus the feedback from the EO capability questionnaire will be used to consolidate the EO capabilities for the FM sector.

The nineteen in-person attendees were divided into four groups representing each of four financial domains including group A: investment management; group B green finance; group C: risk analysis; and group D: insurance management. 10-minute introduction to the group discussion in-person attendees presented by Dr Ana Sebastian Lopez. A series of documents were provided for each group:

1- User requirements plus definition and context sheets (Table 10 to Table 17 in Annex B). Note: Because there are lower user requirements for insurance management and to balance the number of user requirements per group, several user requirements from risk analysis merged with user requirements of insurance management forming group D.

2- EO product template sheet. Each group wrote down the proposed EO products for UNs. They had the option to propose four EO products per UN. Table 18 shows an example of these templates for group A investment management (Note: this table was modified to have three EO products per UN to better fit in this report).

3- A3 EO product/service responding to geo-information requirements of the financial management sector (Figure 4 in ANNEX C.). After internal discussion, the representative of each group selects an EO product/service that best fits to purpose of each UN and describes it in the bottom part of the template. Here a group can highlight the gaps in this EO product/service to fully respond to the associated UN. Further, the group can provide the ideal EO product/service with specifications at the top of this template.

To optimum the performance of the attendees, considering having only 30 minutes for finding of each domain, each group been asked to prioritise the UNs based on their experiences and suggest EO capabilities and gaps for those UNs with higher priority first.

Figure 3 shows the framework of the first group discussion. To ensure realistic discussion between both EO and FM sectors, each group had a relevant representative of each financial domain. After a 30-minute internal discussion, a representative of each group had a 10-munities time to share their findings. Then, there was another 10-minute for other groups and online attendees to share additional new information. All information shared was transformed into an online canvas by Workshop organisers. This online canvas was viewed by both online and in-person attendees in a way all attendees could view the findings.

2.2.2.3. IMPROVEMENT DERIVERS

The second part of the group discussion carried on the discussions further over the findings during the previous part. This part involved both online and in-person attendees. In particular, this part focused on asking questions about improvement derivers for identified gaps. The organisers team used the 20-minute break time after the first part of the group discussion to review the findings and come up with questions to be asked in the second part of the group discussion.

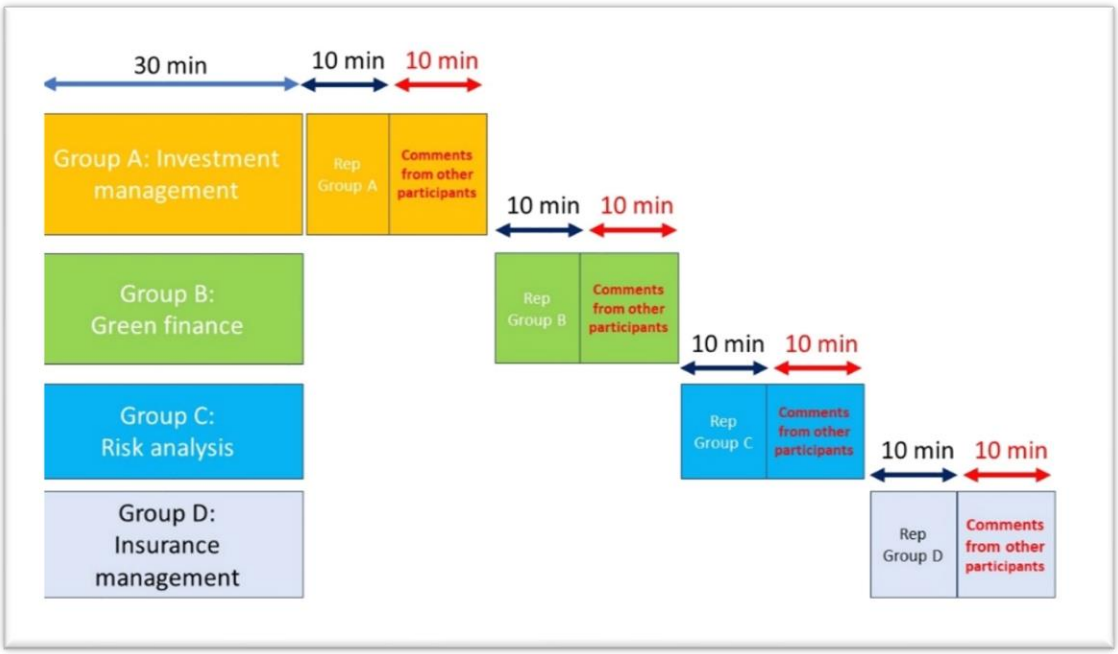


Figure 3. The framework of the first group discussion

2.2.2.4. LIMITATIONS OF THE EXERCISE

The organisers team noticed a series of limitations for this workshop. Here is the list of limitations:

1- Because groups prioritised UNs based on expertise, the EO capabilities and associated gaps were identified for seventeen UNs from a total of thirty-two UNs.

2- Despite the effort of the organisers, the number of people per group was distributed unequally ranging from four to six.

3- The second part of the group discussion about improvement derivers was mostly limited to general EO practices rather than specific EO products.

4- The organisers found that transferring findings from each group's representative to an online canvas can be challenging in general.

5- Engaging online and in-person attendees to discuss their opinions on a specific topic can be challenging in general.

2.2.3. FINDING

2.2.3.1. EO CAPABILITIES QUESTIONNAIRE:

Our objective from the online questionnaire was to gather feedback from the workshop online attendees about 30 EO products. These products had been identified through extensive desktop research as having the potential to address various financial management needs. We received responses from only five participants, and these responses provided us with valuable information about the maturity of the products, and the level at which these products respond to UNs. They also provided valuable comments about the gaps and the improvements needed to meet the financial management needs. However, it became evident that this sample size was not statistically significant, leaving us with limited confidence in the results of quantitative questions. Especially, due to the anonymous nature of the questionnaire, which makes it unable to ascertain the level of experience or expertise of the participants.

Considering these limitations, we have decided to initiate a new questionnaire, targeting experts within the field of EO. This approach aims to gather a more robust and specialized pool of responses to ensure the reliability and depth of insights for EO products that can contribute to fulfilling financial management needs. The results from both questionnaires will be illustrated and discussed in the D2.1 Current EO Capabilities report [RD7].

2.2.3.2. IN PERSON GROUP ACTIVITY:

As mentioned, the in-person attendees were divided into four groups, each of them discussing the potential EO products responding to the UNs of each of the four financial domains: Investment Management, Green Finance, Risk Analysis, and Insurance Management. Table 7 provides a visual representation of user requirements within different financial domains, which were discussed during the workshop. It also outlines the EO products linked to meeting these requirements, while highlighting the identified gaps.

Table 7. Findings of the workshops from group discussions 1.

NO	User ID need expression	Corresponding EO products/solutions	Identified Gaps
		Investment Management	
1	UN9: Understanding stock levels and monitoring supply chains.	• Measure capacity of oil storage with daily monitoring • Traceability using EO for high value products (mining) • Scan the surface of the mining sites and acquire spectral data.	Has not been discussed
2	UN11: Realistic assessment of accessibility to assets.	Using EO data products like: • Very high-resolution SAR data for monitoring regardless the weather conditions • Digital Elevation Model (DEM) • Thermal and LIDAR data to identify energy transformation. • Traceability using medium resolution imagery (~10m) is enough for that need ,for example, monitoring transportation infrastructure, except for some small infrastructure that needs sub metric resolution	Has not been discussed
3	UN12: Analysis of potential risks in specific regions.	• Climate risk monitoring	Has not been discussed
4	UN13: Need to geo-map clients	• Mapping clients to their assets	• Many times, the specific location of the asset of the clients is not available
5	UN14: Need to screen the feasibility of projects against different hazards criteria.	• Flood risk analysis. Example of companies provide this product: Geosmart and ICEYE. • Drought monitoring using products from the European Commission's Joint Research Centre (JRC). • Drought products from Planet. • Land subsidence product like European Ground Motion Service (EGMS) from ESA.	• Low resolution of ESA product (EGMS) for land subsidence • High resolution DEM is not available at the large scale
6	UN16: Nighttime light monitoring	• Visible Infrared Imaging Radiometer Suite (VIIRS) from NASA	• Low spatial resolution of VIIRS nighttime light product (750 m)
7	UN17: Need near real-time tracking of marine vessels to understand their routes and estimate fuel usage.	• EASOS product from Catapult with 5m spatial resolution and sub-daily revisit	Has not been discussed

Green Finance			
8	UN27: Need to assess historical trend and baseline of natural assets.	• Land Use Maps • Monitoring Reforestation and Deforestation Activities	• Difficulties in historical data accessibility • Low accuracy despite sufficient data resolution.
9	UN30: Need for monitoring with accurate measurements the growth and health of trees.	• Tree inventory • Trees counting • Tree height • Trees volume • Trees basal area • Sentinel1-2 for phenology	• Global inconsistency of this products for tree or habitant • Difficulties in counting tree in homogonous forests. • Uncertainty measurement • Lack of training data and validation • Lack of spectral resolution
Risk Analysis			
10	UN37: Projection of risk to portfolio assets into future.	Machine learning for prediction by using historical data like MODIS	Has not been discussed
11	UN40: Need to monitor the risk of sea level rise threatening coastal property, infrastructure, and supply chains.	• Coastal storms activity • DEMs • Land use and land cover boundaries • Open street map data • NOAA-NASA Sea level rise monitoring programs • Bing population maps	Has not been discussed
12	UN42: Need to monitor the impact of droughts on assets.	• Vegetation indices, 10 by 10 m is enough (Maturity high but capability low-medium)	• Accessing exact asset's locations due to ownership of land data. • For UK case, Ordnance Survey data is extensive, however, it provides centroid coordination but not the extension of the asset (organisation gaps rather than EO related gap).
13	UN43: Need to monitor changing precipitation patterns and flood risk in vicinity of vulnerable assets.	• Past flood and precipitation data • Flood risk maps	• Vulnerability assessment of assets is missing.
14	UN44: Need to measure the area vulnerable to wildfires before events.	• OroraTech's Wildfire Solution • Fuel availability	• No EO data to monitor fire spread as quickly as required.
15	UN45: Need to measure the area affected by wildfires after the fact.		

Insurance Management			
16	UN55: Detecting crop damage at the level of individual farms/fields.	• Detect land use in building level. • SAR for flat areas • DEM is essential. • Mobile phones for the farmer to take photos, linked to the satellite data. • GRACE data • Catchment hydrological model • Flood maps • Landslides monitoring	• Limitations of radar data in hilly terrain. • Grace possibly not useful for individual fields. • Insurance is a business that requires real time processing, which is a limitation for EO data. • Limitations in fraud detection.
17	UN57: Automatically update changes in population density estimates based on observable land use changes.	• USGS and NASA databases on population 100x100m grid (global)	Has not been discussed

2.2.3.3. IMPROVEMENT DERIVERS:

It has been noticed that most of the improvement derivers discussed can be applied across most UNs rather than a specific UN. Therefore, recommendations are common without referring to a specific user need.

Training datasets for AI models, the attendees raised the issue of the difficulties of obtaining datasets to train AI models. They highlighted that many organizations/companies have data, but they are not sharing it for privacy reasons. They suggested increasing the use of Privacy-Enhancing Technologies (PET) which allows the sharing of data without violating data sovereignty. They also suggested making datasets available for R&D purposes. In addition, they suggested more investigations of using models that do not rely on large amounts of training data.

Pricing models for commercial EO data, there was a need to decrease the cost of commercial data like Very High Resolution (VHR) which are necessary to address some of the financial needs.

New constellations offer data with very high frequency, which is important to monitor moving assets that need high revisit time (in hours) like vessels.

Higher resolution hyperspectral data, by providing data that cover several portions of the electromagnetic spectrum, hyperspectral data can be greatly beneficial for applications related to multiple sectors like agriculture, forestry, and mining.

A global higher resolution Digital Elevation Model (DEM) model, which is important for multiple applications like flood modelling.

Higher resolution multispectral thermal data, by raising the need for a new ESA mission for that purpose.

3. ACKNOWLEDGEMENTS

We would like to extend our sincere gratitude to the following individuals and organizations for their invaluable contributions to this report:

EARSC and Space4Climate for disseminating the workshop invitation to their members.

Satellite Applications Catapult to host this event and shared its facilities generously to better organise this event.

To all online attendees in particular those five attendees who completed anonymously the EO capabilities questionnaire.

To all in-person attendees to arrive at the workshop venue and enrich the discussions by sharing their experience and knowledge on how EO can benefit the financial management sector. Further, their contributions to the group's discussions in the afternoon session.

To all speakers (according to agenda order) Claudia Vitolo, Rebecca Mari, Dieter Wang, David de la Fuente Blanco, Michael Hanley, Doyle Ray Oakey, and Andrés Alonso.

EO-FIN Stakeholder Board members: For their dedicated contributions and insights. Their input, feedback, and expertise have during Workshop 2 and meetings been invaluable in shaping the direction and scope of this report. We are grateful for their contribution towards the utilisation questionnaire.

The collaborative efforts of these individuals and organizations have been instrumental in the success of this report, and we acknowledge their significant contributions with the utmost gratitude.

EO4I, EO4OG, and EO4RM projects: For serving as an essential reference throughout the development of this report. Their exemplary structure, informative tables, and product specifications template greatly informed our work and played a pivotal role in shaping the content and presentation of this document.

ANNEX A.

Table 8. The morning session agenda of the EO-FIN Workshop 2.

Time		Activity/Topics	Resource Person
09:00 – 09:30	*Welcome/Registration/Refreshment*		
09:30 – 09:40	Opening	Introduction and objectives of the workshop.	Dr. Rahman Momeni, senior Earth observation engineer at GMV and the EO-FIN coordinator.
09-40 – 09:45		ESA's Future Earth Observation programme.	Dr. Claudia Vitolo, the EO-FIN ESA technical officer.
09:45 – 10:00	Keynote Speakers	A View from the Top: What satellite images can tell us about the economy.	Dr. Rebecca Mari, senior economist at the Bank of England and member of the EO-FIN SB.
10:00 – 10:15		Peering through the clouds: How sustainability-linked bonds can leverage novel cloud-penetrating LULUCF.	Dr. Dieter Wang, sustainable finance specialist consultant at the World Bank and SB member of the EO-FIN SB.
10:15 – 10:30	Showcase examples of EO services & datasets	Green biomass and yield estimation in grazing and farmland areas	David de la Fuente Blanco, senior remote sensing specialist and geodata scientist at GMV.
10:30 – 10:45		Advances in Hyperspectral Satellite Imaging: Enabling new EO services with unprecedented spectral fidelity.	Michael Hanley, the global sales manager for Pixxel Space.
10:45 – 10:55		Space-based innovation on Task Force on Climate-Related Financial Disclosures (TCFD), plus announcing the S4C project.	Dr. Estel Blay, senior business development manager at GlobalTrust Ltd.
10:55 – 11:10		Leveraging EO & Geoinformatics for Credit & Insurance.	Dr. Doyle Ray Oakey, managing director of Parametrica and member of the EO-FIN SB.
11:10– 11:25	Keynote Speaker	The work of BIS Innovation Hub and Innovation Network (BISIN) on green finance.	Andrés Alonso, senior economist, financial innovation division, ADG payments and market infrastructures at Bank of Spain and member of the EO-FIN stakeholder board.
11:25 – 11:35	*Break*	*Coffee/Tea/Refreshment*	
11:35 – 12:05	EO-FIN findings & overview	EO-FIN so far: understanding User Requirements.	Tom Goulding, space industry economist at London Economics and EO-FIN economic consultant.
12:05 – 12:30		EO-FIN Overview: Earth Observation capabilities.	Dr. Rahman Momeni, senior Earth observation engineer at GMV and EO-FIN coordinator.

Table 9. The afternoon session agenda of the EO-FIN Workshop 2: How can Earth Observation Serve the Financial sector?

Time (BST)		Activity/Topics	Resource Person
13:00 – 13:10	Group discussions	Introduction to the group discussion in-person attendees.	Dr. Ana Sebastian Lopez, senior EO specialist, business development manager and EO-FIN consultant.
13:10 – 15:00		Consolidate EO capabilities and identify gaps between what the financial sector needs and what EO can currently offer.	All in-person and online attendees.
15:00 – 15:20		Coffee/Tea/*Refreshment*	
15:20 - 16:20		Once gaps have been identified, discuss the necessary improvements (technical, institutional, etc) for satellite EO to fulfil the geoinformation needs of the financial sector.	All in-person and online attendees.
16:20 – 16:30	Closing	Conclusions	Dr. Rahman Momeni, senior Earth observation engineer at GMV and the EO-FIN coordinator.
16:30 – 17:00	Networking		

ANNEX B.

Table 10. Group A: Geo-information user requirements: investment management.

ID	User's Expression of the need	Area to Monitor	Temporal Coverage	Temporal Frequency
UN9	*Understanding stock levels and monitoring supply chains*	Storage facilities and single-sites - 1km x 1km	Historical period to be covered (highly case-dependent)	High refresh rate to understand rate of change
UN10	*Need to understand population density when making investment decisions*	Districts within a city - 1km x 1km	Multiple years of historical data useful for model calibration	Low refresh rate needed
UN11	*Realistic assessment of accessibility to assets*	Asset location with appropriate buffer zone	NA	NA
UN12	*Analysis of potential risks in specific regions*	Project location	Dependent on risk type and level	Dependent on risk type (flood, drought, land subsidence, etc) and level
UN13	*Need to geo-map clients*	Business operational geography	NA	NA
UN14	*Need to screen the feasibility of projects against different hazards criteria*	Project location	Dependent on hazard type (flood, drought, land subsidence, etc) and level	Dependent on hazard type (flood, drought, land subsidence, etc) and level
UN15	*Need to monitor carbon intensity of portfolio assets*	Asset location	Multi-year coverage	Appropriate refresh rate to capture different phases of asset use
UN16	*Nighttime light monitoring*	Regions within a country	Low temporal coverage needed	Low refresh rate needed
UN17	*Need near real-time tracking of marine vessels to understand their routes and estimate fuel usage*	Entire shipping routes / seas likely to sail in	Constant coverage required for duration of analysis	High refresh rate allows better route approximations
UN18	*Need to monitor crop productivity*	Entire agricultural region - 100s of square km	Annual coverage	Higher refresh rate at key planting / harvesting periods

UN19	*Identifying types of crops being grown is essential*	Entire agricultural region - 100s of square km	Annual coverage	Higher refresh rate at key planting periods

Table 11. Definition and context of Geo-information user requirements for investment management.

ID	User's Expression of the need	Context
UN9	*Understanding stock levels and monitoring supply chains*	It is crucial for assessing the performance and potential risks of companies they invest in. This information helps them make informed decisions regarding investments and manage potential supply chain disruptions that could impact the value of their holdings.
UN10	*Need to understand population density when making investment decisions*	Investment managers need to consider population density (per small geographic units) when making investment decisions. By monitoring population density in small geographic units, they can gain insights into consumer demand, market potential, and growth prospects for specific regions or industries. This information helps them assess the viability and potential profitability of their investments.
UN11	*Realistic assessment of accessibility to assets*	Are important for investment managers to understand the true characteristics of assets. More specifically, users referred to the collection of information on reach and catchment areas of businesses, positioning of assets near transportation hubs and key infrastructure, and to assess property
UN12	*Analysis of potential risks in specific regions*	
UN13	*Need to geo-map clients*	Users identified the need for geo-mapping clients. This allows investment managers to assess and manage risks associated with specific geographic areas. By analysing client locations and mapping them against various risk factors such as political stability, economic conditions, or environmental risks, investment managers can identify potential risks and tailor their investment strategies accordingly.
UN14	*Need to screen the feasibility of projects against different hazards criteria*	For example, extreme weather events; climate change derived hazards (e.g., sea level rises), and natural hazards (exacerbated by climate change, like floods or forest fires). This enables them to propose corrections and modifications in a project design before it is executed or reject the project when needed.
UN15	*Need to monitor carbon intensity of portfolio assets*	As environmental considerations become increasingly important, investment managers often identify the need to monitor the carbon intensity of their portfolio assets. This involves tracking the carbon emissions and release of other gases associated with the companies or assets they invest in, helping them align their investment strategies with sustainability goals and regulatory requirements.

UN16	*Nighttime light monitoring*	As an indicator of economic activity and urban development, nighttime light monitoring provides valuable insights for investment managers. By analysing changes in nighttime light intensity, investment managers can gain insights into the growth or decline of specific regions or industries, helping them identify investment opportunities or potential risks.
UN17	*Need near real-time tracking of marine vessels to understand their routes and estimate fuel usage*	These are crucial inputs into estimates of their emissions of GHGs, which professionals identified as increasingly important data.
UN18	*Need to monitor crop productivity*	This information allows them to assess the performance and potential risks associated with agricultural investments, such as crop yield, market demand, and commodity prices.
UN19	*Identifying types of crops being grown is essential*	

Table 12. Group B: Geo-information user requirements: green finance.

ID	User's Expression of the need	Area to Monitor	Temporal Coverage	Temporal Frequency
UN26	*Need to monitor GHG emissions of projects funded*	Project location	Multi-year coverage	Appropriate refresh rate to capture different phases of asset use
UN27	*Need to assess historical trend and baseline of natural assets*	Asset location	Multi-year coverage	Depending on the type of natural asset
UN28	*Need to classify the types of crops being grown in order to assess the Sustainability and Environmental impact of agricultural investments*	Entire agricultural region - 100s of square km	Annual coverage	Higher refresh rate at key planting / harvesting periods
UN29	*Need to accurately measure the planted area for crops*	Entire agricultural region - 100s of square km	Annual coverage	Higher refresh rate at key planting periods
UN30	*Need for monitoring with accurate measurements of the growth and health of trees and verifying the sustainability of forest management practices*	Entire forests - 1000s of square km	Regular monitoring throughout year	Low-Medium refresh rate needed
UN31	*Need to link tree planting parcels to estimate the number of trees planted*	Entire forests - 1000s of square km	Regular monitoring throughout year	Low refresh rate needed

UN32	*Need to periodically estimate the growth of above-ground and soil carbon stocks (in forests).*	Entire forests - 1000s of square km	NA	Low-to medium refresh rate, but higher rate in regions of faster growth (e.g., tropics); quarterly in colder climates, monthly or more regular elsewhere

Table 13. Definition and context of Geo-information user requirements for green finance.

ID	User's Expression of the need	Context
UN26	*Need to monitor GHG emissions of projects funded*	This helps ensure that the financed activities align with sustainability goals and contribute to reducing carbon emissions, providing transparency and accountability in green finance initiatives.
UN27	*Need to assess historical trend and baseline of natural assets*	This helps determine the additionality of projects, ensuring that they go beyond business-as-usual practices and deliver tangible environmental benefits.
UN28	*Need to classify the types of crops being grown in order to assess the Sustainability and Environmental impact of agricultural investments*	Understanding the crop composition helps in evaluating resource usage, potential deforestation risks, and compliance with sustainable practices.
UN29	*Need to accurately measure the planted area for crops*	This allows them to assess the scale and impact of agricultural activities, monitor land use changes, and evaluate the potential environmental risks and benefits associated with specific crops.
UN30	*Need for monitoring with accurate measurements the growth and health of trees and verify the sustainability of forest management practices*	Accurate measurements are essential for tracking carbon sequestration, ecosystem restoration, and overall project success.
UN31	*Need to link tree planting parcels to estimate the number of trees planted*	This linkage helps in tracking and verifying the environmental impact of tree planting projects, such as biodiversity enhancement and carbon offsetting, and can provide a powerful marketing tool.
UN32	*Need to periodically estimate the growth of above-ground and soil carbon stocks (in forests).*	Carbon credits issued for voluntary projects are validated, verified, and accredited by carbon credit agencies. Satisfying the initial and ongoing verification requirements of these organisations is a key part of confirming to investors in green projects that their investment is being used appropriately. Thus, recognition by voluntary carbon credit agencies and the rating of these credits validates the impact of Green Finance projects in reducing carbon emissions and enables access to additional funding and incentives for sustainable initiatives. Green Finance stakeholders need to achieve recognition by voluntary carbon credit agencies, and to that aim they need to periodically estimate the growth of above-ground carbon stocks (in forests).

Table 14. Group C: Geo-information user requirements: risk analysis

ID	User's Expression of the need	Area to Monitor	Temporal Coverage	Temporal Frequency
UN38	*Need for trustworthy time series of reliable data on assets*	Asset location	High need for historical data to calibrate predictive models	
UN39	*Need to assess the potential impact of business activities or investments on ecosystems and biodiversity*	Wide area around business assets	Annual coverage	Medium refresh rate to ensure full understanding of seasonal changes in ecosystem monitored
UN41	*Need to monitor the impact of increased temperatures on assets*	Asset location	High need for long term coverage to understand trends	Low refresh rate needed
UN42	*Need to monitor the impact of droughts on assets*	Asset location	High need for long term coverage to understand trends	Low refresh rate needed
UN43	*Need to monitor changing precipitation patterns and flood risk in vicinity of vulnerable assets*	Asset location	High need for historical data to calibrate predictive models	NA
UN44	*Need to measure the area vulnerable to wildfires before events*	Asset location	High need for historical data to calibrate predictive models	NA
UN45	*Need to measure the area affected by wildfires after the fact*	Asset location	High need for small amount of historical data for pre-event comparisons	NA

UN47	*Need up-to-date geospatial data on residential and industrial infrastructures' locations*	Business operational geography	Low temporal coverage needed (to match changes in asset locations)	Low refresh rate needed

Table 15. Definition and context of Geo-information user requirements for risk analysis.

ID	User's Expression of the need	Context
UN38	*Need for trustworthy time series of reliable data on assets*	This data helps in assessing historical performance, identifying trends, and evaluating the risk associated with specific assets, enabling informed decision-making and risk mitigation strategies.
UN39	*Need to assess the potential impact of business activities or investments on ecosystems and biodiversity*	This involves a need to assess the potential impact of business activities or investments on ecosystems and biodiversity, understanding regulatory requirements, and incorporation of biodiversity considerations into risk assessments and mitigation strategies.
UN41	*Need to monitor the impact of increased temperatures on assets*	Evaluating the potential impacts of climate change, such as monitoring the impact of increased temperatures (heat waves) on asset performance, valuation, and long-term viability.
UN42	*Need to monitor the impact of droughts on assets*	The increasing frequency and severity of droughts in parts of the world due to climate change drive a need to monitor the impact of droughts on assets among FM sector professionals seeking to understand their risk exposure
UN43	*Need to monitor changing precipitation patterns and flood risk in vicinity of vulnerable assets*	This involves evaluating flood-prone areas, assessing vulnerability and exposure of assets, and implementing risk reduction measures, such as flood protection infrastructure or insurance coverage.
UN44	*Need to measure the area vulnerable to wildfires before events*	Increasing occurrence of forest fires drives a need to measure the area vulnerable to wildfires before events and measure the area affected by wildfires after the fact
UN45	*Need to measure the area affected by wildfires after the fact*	
UN47	*Need up-to-date geospatial data on residential and industrial infrastructures' locations*	Shifting climate conditions and extreme weather events, and the need to understand the impacts of these on existing and future assets implies the need for up-to-date geospatial data on residential and industrial infrastructures' locations.

Table 16. Group D: Geo-Information User Requirements: insurance management and risk analysis.

ID	User's Expression of the need	Area to Monitor	Temporal Coverage	Temporal Frequency
		Insurance management		
UN55	*Detecting crop damage at the level of individual farms/fields*	Entire agricultural region - 100s of square km	High need for small amount of historical data for pre-event comparisons	NA
UN56	*Need to detect changes in land use (at the level of individual buildings)*	Business operational geography	Multiple years of historical data useful for model calibration	Low refresh rate needed
UN57	*Automatically update changes in population density estimates based on observable land use changes*	Insured area	Multiple years of historical data useful for model calibration	Low refresh rate needed
		Risk analysis		
UN37	*Projection of risk to portfolio assets into future*	Asset location	High need for historical data to calibrate predictive models	NA
UN40	*Need to monitor the risk of sea level rise threatening coastal property, infrastructure, and supply chains*	Asset location	High need for long term coverage to understand trends	Low refresh rate needed

UN46	*Need to measure the intensity of wildfires (level of damage to assets)*	Asset location	High need for small amount of historical data for pre-event comparisons	NA

Table 17. Definition and context of Geo-information user requirements for insurance management and risk analysis.

ID	User's Expression of the need	Context
UN55	*Detecting crop damage at the level of individual farms/fields*	Insurance professionals would like to utilise geoinformation and remote sensing technologies to detect crop damage at the level of individual farms or fields. This allows for efficient (and perhaps even automatic) claims processing and accurate assessment of agricultural insurance risks, enabling timely and fair compensation for farmers.
UN56	*Need to detect changes in land use (at the level of individual buildings)*	For insurance professionals to determine whether the terms of their contracts are being honoured over time, there is a need to detect changes in land use (at the level of individual buildings)
UN57	*Automatically update changes in population density estimates based on observable land use changes*	To automatically assess risk exposure, help in pricing policies accurately, and evaluate potential changes in insurance coverage requirements, there was a stated need among some insurance management professionals for a tool to automatically update changes in population density estimates based on observable land use changes.
UN37	*Projection of risk to portfolio assets into future*	Enables anticipation of and preparation for potential challenges. This involves considering various risk scenarios, incorporating forward-looking data and trend analysis, and adapting risk management strategies accordingly.
UN40	*Need to monitor the risk of sea level rise threatening coastal property, infrastructure, and supply chains*	Risk Management stakeholders need to monitor the risk of sea level rising threating coastal properties, infrastructure, and supply chains, enabling appropriate risk management and adaptation measures.

UN46	*Need to measure the intensity of wildfires (level of damage to assets)*	Increasing occurrence of forest fires drives a need to measure the area vulnerable to wildfires before events and measure the area affected by wildfires after the fact

ANNEX C.

Table 18. Template of EO products responding to associated UNs.

ID	EO product names
UN9	
UN10	
UN11	
UN12	
UN13	
UN14	
UN15	
UN16	
UN17	
UN18	
UN19	

ANNEX C.

EO Product/Service Responding to Geo-Information Requirements of the Financial Management Sector

Financial Management Domain: .....

In your opinion, what would **the Ideal** EO Product or Service (the one that would totally cover the User Requirements) look like?

Corresponding user requirement(s) (Note: one product can answer more than one user requirement)

Product specifications	
Spatial Resolution	
Temporal Frequency	
Latency	
Accuracy (%)	
Geographical scale coverage (local, national, regional, continental, planetary)	

In contrast, how does **the current** EO Product or Service answering the above requirements look like?

Name of current EO product/service: .....

Corresponding User requirements
Description of the EO product

Product specifications	
Input data sources	
Max Spatial Resolution	
Max Temporal Frequency	
Latency	
Max Accuracy (%)	
Geographical scale coverage	
Maturity Level	
Capability to meet the User requirements (low, intermediate, high)	
Identified gaps or obstacles	
Known future mission(s) that will help to cover this gap	

Figure 4. Template of EO capability responding to geo-information requirements of the financial management sector.

ANNEX D.

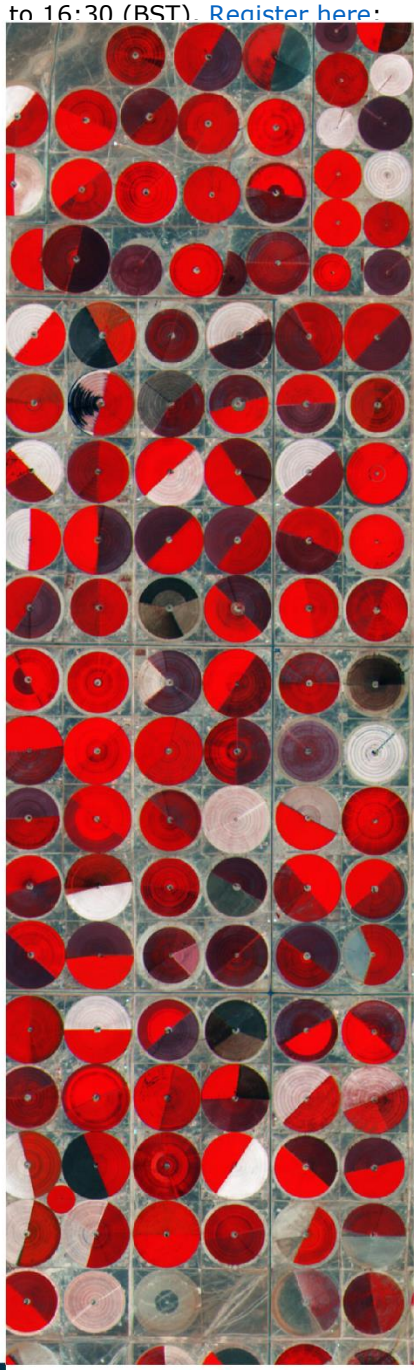
Are you an EO service provider? Are you a passionate on how EO capabilities can support financial management? Are you a member of the financial management sector looking to see who EO capabilities can address your current and short-term future? If yes, then we would like to invite you to join us on EO-FIN Workshop #2 "*How can Earth Observation Serve the Financial Sector*?"

11th September 2023 | Satellite Applications Catapult | 09:00 to 16:30 (BST). Register here:

HOW CAN EARTH OBSERVATION SERVE FINANCIAL SECTOR?

Are you an EO service provider for the financial management sector? Are you patinate on who EO capabilities can address your current and short term future of financial management sector? Join us on EO-FIN Workshop #2 organised by:

with support from:



Workshop schedule

11th September at Satellite Applications Catapult
Harwell, UK
EO services showcases and consolidation
| 09:00 - 12:30 (BST)
Groups sessions discussions
| 13:30 - 16:30 (BST)

Register for the event at:
https://www.eventbrite.co.uk/e/how-can-earth-observation-serve-the-financial-sector-tickets-690845967887?aff=oddtdtcreator

The workshop link will be sent to your email upon registration.

Part of the EO for financial management project

EO-FIN