Proceedings of the
R3 Partner Workshop #2
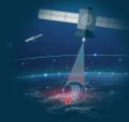
- online -
2 April 2023

Background

A 1st R3 Partners Workshop took place on 6th of October 2023, gathering more than 50 representatives of more than 15 different organisations involved in the field of Crisis Management at the international and European level. The participants had the opportunity to familiarise themselves with R3's focus areas, **concept of action and ongoing work**, as well as with its objective to **leverage multiple systems** and services with a secure, smart, federated, responsive, scalable, and interoperable approach.

Participants **actively contributed their declarations of interest**, resulting in a collection of endorsements of the R3 Accelerator, and the collective commitment to co-develop R3.

The value of space-based solutions to serve Partners' priorities was highlighted, in parallel with the **need to mobilise appropriate resources** for the development and delivery of solutions.

About the 2nd R3 Partners Workshop

The 2nd R3 Partners Workshop took place on the 2nd of April 2024 to further define the engagement of partners in R3.

Partners went **beyond statements of interest and directly contributed to consolidate the community** through the presentation of projects, review of initial findings, identified use cases and future needs. Moreover, it was an opportunity for ESA to further present the latest updates of the R3 framework activity plan and the status of MOI.

The first session of the workshop featured presentations of more advanced seed activities currently pursued under the ESA CSS Programme in support of R3, showcasing projects and developed solutions by Iceye (COSMOS) and Geoville (SMART CONNECT).

The second session of the workshop was dedicated to partner organisations' presentations, giving them the chance to present their respective identified use cases, needs, interests, and overall objectives.

The workshop concluded with a synthesis, highlighting **key takeaways and next steps.**

The Proceedings

Beyond taking stock of participants' interest in R3, the aim of these Proceedings is to provide a synthesis of the discussion points addressed during the Workshop. **Eight key elements** emerged during the course of the Workshop:

(1) Space is considered an overarching dimension, a key enabler of many activities in crisis management

(2) The high economic value of preparedness, early warning and rapid and resilient crisis response and recovery has been clearly recognised with further work to assess its value and calls for a guaranteed effective policy implementation.

(3) The relevance to R3 of ESA related seed activities (COSMOS, Smart Connect) and ongoing efforts with partners (e.g. SatCen-ESA LSP) has been confirmed

(4) The presented needs & requirements for service evolution by some partners were welcomed, while several other partners committed to developing similar outputs either through internal coordination or consultation with their respective stakeholder communities

(5) The community recognises the lack of a complete unified infrastructure of protocols, processes, and capabilities at the service of ESA Member States, Multilateral Organisations, and relevant NGOs.

(6) The critical and proven role of space in prevention, preparedness & early warning needs to be expanded, while also developing dedicated response & recovery capabilities across technology domains and sectors

(7) Adopting a more inclusive and integrated approach between the public and private sectors has been recognised as an important factor in better adapting solutions to needs.

(8) While developing European solutions, efforts should be made among partners to eventually expand solutions beyond European borders addressing global challenges.

Workshop Agenda & List of Presentations	
14:00 – 14:15	**Welcome and Introduction** • Accelerators Overview Graham Turnock, Special Advisor and Accelerators Coordinator, ESA
14:15 – 14:30	**The R3 Accelerator** • Framework Activity Plan • Progress Activities, incl. status of MOI Giorgio Solari, Senior Advisor to Civil Security for Space, ESA

14:30 – 14:50	**Current R3 Projects Presentation**
	• COSMOS
	  Jeffrey Apeldoorn, Iceye
	• SMART CONNECT
	  Christoph Czarnecki, Geoville

14:50 – 16:15	**R3 Partners Presentation** • DG ECHO, Alessandro Carrotta • JRC, Pietro Ceccato • EMSA, Sonia Santos • SatCen, Amb. Sorin Ducaru • UNDRR, Chiara Menchise • ITU, Amélie Grangeat • WMO, Jon Cox • OSCE/OCEEA/ECU, Saula Ospanova & Emomali Mirzoev • UNICEF, Jan Eijkenaar • World Bank, Edward Charles Anderson
16:15 – 16:30	**Conclusions and Closing** • Closing Remarks Giorgio Solari, Senior Advisor to Civil Security for Space, ESA • Key Takeaways Matija Rencelj, Research Manager, ESPI

List of Partners' Presentations	
DG ECHO, European Civil Protection and Humanitarian Aid Operations	JRC, Copernicus Emergency Management Service
EMSA, Requirements for Space Systems	SatCen, Climate security use cases in Large Scale Pilot- LSP- Project
UNDRR, Early Warnings for All - EW4All Pillar1	ITU, Early Warnings for All - EW4All Pillar3
WMO, MedEWSa project	OSCE/OCEEA/ECU, Critical Infrastructure & Climate Change Project / DRR Programme
UNICEF, Space technology for Critical Nutrition Emergency Challenges	World Bank, Space solutions for resilient crisis management
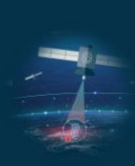
Main Takeaways

Message 1: *Space is considered an overarching dimension, a key enabler of many activities in crisis management*

Across the community, space was largely recognised as an **overarching and enabling dimension** in contributing to crisis management. Its significance lies in its capacity to provide reliable services on a wide range of needs which can play a pivotal role in supporting the management of both natural and human induced disasters.

The overarching dimension of space was acknowledged in its potential **to address the complete spectrum of crisis and disaster management**, especially prevention, preparedness, and including response phases. DG ECHO referred to this aspect, also mentioning the opportunity that space brought in facilitating data acquisition, identifying areas at risk, and improving proactive responsiveness.

Several partners held that the role and potential of space-based data was even **more prominent than in the past,** citing the advantages of awareness in preventing and limiting impacts. This is particularly crucial in situations where there's an oversaturation of human resources compared to the increasing frequency of disaster, exacerbated by climate change and other factors.

The scope of presentations held during the Workshop also strengthened this point, showcasing the **active contribution of space in supporting crisis and disaster management at large**, and enabling countries to **better anticipate, prepare and mitigate potential risks** before an eventual crisis escalates. The complementary aspect of space-based solutions with terrestrial capabilities, including the use of EO, PNT and Satcom solutions was also considered as a key element and driver to **further develop new use cases, and collaborate within the R3 framework**.

Message 2: *The high economic value of preparedness, early warning and rapid and resilient crisis response and recovery has been clearly recognised with further work to assess its value and calls for guaranteed effective policy implementation.*

The Partners' presentations highlighted the **high value of space-based data** within their identified use cases and projects aimed at mitigating the impact of disasters at large.

The foreseen value related to minimise human loss, infrastructure damages, natural ecosystems' protection, and illegal activities has been **recognised by the community.**

During the first session, Iceye presented COSMOS and showcased the potential **economic value** of their products for authorities (~15/20% of savings costs). From their first demonstrations, feedback appeared to show an economic value spread across a wide range of activities undergone prior to, during and after a disaster event such as, for example, the purchase of necessary equipment, and transportation costs. Another example emphasised was directly related to the **importance and value-added of early warning mechanisms**. Several Partners promoted the critical role of space in early warning systems (incl. messaging alerts), enabling authorities to **identify emerging threats, take appropriate measures** and **safely communicate** with their population on time.

Considering the high stakes involved, Partners recognised the need for **more cooperation, and overall efforts to further assess the added value** of these solutions, especially in ensuring that strategic priorities and policies are **effectively implemented**.

In this regard, the World Bank and UNDRR, for example, mentioned their role in supporting countries to better understand their vulnerabilities and develop adequate action plans.

Message 3: *The relevance to R3 of ESA related seed activities (COSMOS, Smart Connect) and ongoing efforts with partners (e.g. SatCen-ESA LSP) has been confirmed*

The community welcomed the presentation of two seed projects COSMOS and SMART CONNECT that are being run under ESA's CSS Programme. It was recognised that **ESA-led R3 activities are relevant** in today's context with a **growing amount of disaster occurrence**, and consequent lack of resources.

SatCen mentioned that their existing and updated Administrative Arrangement with ESA confirmed ongoing efforts to address R3 objectives, here mitigating the impact of climate change and supporting related decision-making processes.

Partners also showed interest in **interacting and engaging further with other represented stakeholders** to discuss in more detail the specificities of each project, and potentially find areas of cooperation. The Workshop marked the opportunity **to network with other stakeholders and declare potential needs and interests**. WMO, in charge of MedEWSa, specifically mentioned that they were seeking for international **"lighthouse stakeholders"**, and their will to further develop partnerships, beyond the existing MoI with ESA. In addition, OSCE clearly expressed their interest and identified **potential benefits of further engagement**, as well as in organising **follow-up meetings** with other Partners such as SatCen and UNDRR.

These are positive indicators showing that Partners are committed to continuously improving their solutions, while acknowledging that gaps remain and are yet to be overcome.

Message 4: *The presented needs & requirements for service evolution by some partners were welcomed, while several other partners committed to developing similar outputs either through internal coordination or consultation with their respective stakeholder communities*

Presentations appeared to be **extremely valuable for the R3 community as a whole**, enabling to building of the foundation of R3 framework activities, and informing other stakeholders of projects that are being undertaken.

The maturity and advancement of the specific formulation of needs and requirements varied between Partners' presentations.

For several Partners, it was confirmed that **further reflection on these matters would be beneficial and should be considered in the future**, whether through internal coordination or consultation with respective stakeholder communities.

For example, DG ECHO mentioned the European Civil Protection Forum as **an opportunity to elaborate and delve into a detailed list of critical technologies and use cases** relevant to the field of disaster response.

Similarly, although EMSA outlined high-level requirements and service needs, they also expressed their will to **develop additional use cases in the future through R3**, beyond their current suite of value-added and fusion products, catering to four different user communities.
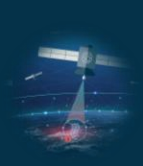
Message 5: *The community recognises the lack of a complete unified infrastructure of protocols, processes, and capabilities at the service of ESA Member States, Multilateral Organisations, and relevant NGOs*

The community acknowledged the absence of a comprehensive unified infrastructure to serve Member States, Multilateral Organisations, and relevant NGOs. This recognition underscores the **need for collaborative efforts** aimed at bridging existing gaps and **establishing a cohesive framework,** conducive to effective cooperation and mutual support among all stakeholders involved.

ESA underscored the significance of finalising framework agreements to gather support and participation. Concurrently, organisations have forged new and existing agreements, signing **specific Memoranda of Intent (MoI)** tailored to this purpose.

However, further action is still required. For this reason, several Partners such as UNICEF, advocated for **ESA partnerships with country-level institutions and UNICEF** to leverage technologies for, in this particular case, enhancing the accuracy of emergency nutrition assessments.

Similarly, the UNDRR emphasised the imperative of nurturing new partnerships in geospatial data **to maximise efficiency and benefits for all stakeholders**. In this regard, ITU also plays a crucial role in supporting countries to develop National Emergency Telecommunication Plans (NETP) and advising on the Common Alerting Protocol, and **providing technical support**.

Message 6: *The critical and proven role of space in prevention, preparedness & early warning needs to be expanded, while also developing dedicated response & recovery capabilities across technology domains and sectors*

The workshop emphasised enhancing prevention, preparedness, and early warning systems, as well as strengthening specialised response and recovery capabilities **across different sectors and technological domains**. For instance, as part of the "Mitigating Climate Change Threats to Critical Energy Infrastructure" project, OSCE highlighted the impact of **climate-induced crises on energy**, suggesting using space-based data to address it.

Moreover, the SMART CONNECT project led by Geoville exemplifies this approach by **integrating expertise in AI, advanced computing, data compression, IoT, satellite connectivity and, geospatial data**. On the same path, UNICEF highlighted the potential to enhance collective nutritional crisis intelligence by **integrating field data collection with AI**, geospatial tools, and space-based data imagery, delivering **targeted interventions more effectively**. Additionally, WMO highlighted the **integration of AI-enabled decision-support solutions** to enhance multi-hazard impact prediction as a key objective within its MedEWSa project.

The collaborative efforts highlighted during the Workshop showed the immediate requirement to strengthen prevention, preparedness, and early warning systems, while emphasising the need to improve response and recovery capabilities.

There was a clear **collective commitment to utilising a range of solutions enabled by space infrastructure within the R3 framework**, reflecting a dedication to maximising their effectiveness in addressing global challenges and enhancing resilience efforts worldwide.

Message 7: *Adopting a more inclusive and integrated approach between the public and private sectors has been recognised as an important factor in better adapting solutions to needs*

Inputs from various partners highlighted the **pivotal role of the private sector** and its potential contributions within the R3 framework. Notably, the JRC emphasised the significance of private sector collaboration, citing their rapid mapping system as a prime example. This system relies (with the trend expected to increase) on partnerships with private companies across Europe **to ensure continuous operation** and the prompt production of critical information within the 24 hours following a disaster. Furthermore, the JRC expressed their intention to **integrate additional solutions from private entities**, further enhancing their disaster response capabilities and their interest to further collaborate with the private sector.

Additionally, the ITU reaffirmed their commitment to **foster close cooperation with the private sector**, particularly within the satellite industry, to explore technological advancements and establish standards for implementing early warning systems in disaster-prone regions. A similar approach was expressed by WMO.

These collaborative endeavours resonate closely with the overarching objectives of the R3 framework. By **fostering connections between the private sector and SMEs** with international initiatives, such initiatives address critical gaps in provision, data coverage, and capacities, ultimately strengthening disaster resilience efforts on a global scale.

Message 8: *While developing European solutions, efforts should be made among partners to eventually expand solutions beyond European borders addressing global challenges*

While the focus remains on developing European solutions, it is essential for Partners to collaborate towards **extending the reach of these solutions beyond European borders**. Throughout the Workshop, numerous partners acknowledged that the most vulnerable nations often experienced the full impact of crises, lacking sufficient resources to effectively prevent, prepare, and respond to them.

As underscored by the ITU, **ensuring global coverage is paramount**, especially for communities in remote areas without connectivity, as they are particularly susceptible to being disproportionately affected by disasters and emergencies.

Adopting a multi-channel approach, promoting digital transformation, and upholding inclusivity emerged as vital strategies to enhance effectiveness and broaden outreach on a global scale. The scope of action transcends geographical boundaries, with **R3 facilitating and federating the utilisation of applications within a global context**.

Thus, it becomes essential to frame the issue as a global concern rather than solely a European one, recognising the interconnectedness of challenges and the **importance of collaborative efforts on a worldwide scale** to address them comprehensively.
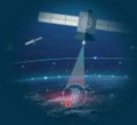
Next Steps

The R3 community is very thankful to all Partners for their active participation, and in contributing to the 2nd Workshop's success (~50 participants).

This 2nd Workshop was meant to mark a clear step forward in consolidating inputs of partners towards a purpose driven R3 ecosystem and be understood as the continuation of the ongoing efforts, especially in identifying specific needs, requirements, and potential use cases to federate global impact in the most effective, rapid, and resilient manner.

The next steps have been defined as revolving towards:

1. Co-developing a set of R3 Thematic Priorities to cover the wide array of priorities and consolidate needs & challenges

2. Building on this series of Partners' Workshops to co-develop a R3 roadmap to inform a future R3 Partners' framework

3. Co-developing high-level requirements and service needs through bilateral interaction among R3 Partners

4. Kicking-off additional seed activities towards priority interests among all R3 Partners

5. Scheduling the 3rd Partners' Workshop Meeting in view of the recognised importance of continued information sharing and exchange.

Different options are still being assessed to define, in a pragmatic way, the scope of the upcoming 3rd Workshop, and the levers to build most appropriate action plans to move from seeding to scaling solutions. In general, partners agree with the initially presented logic of the 3rd workshop addressing the development of thematic roadmaps and action plans and feed the R3 Partners' framework

Plan of Action 2024-2025