



Communities for Sciences

Towards Promoting an Inclusive Approach in Science Education

D2.2– International observatory guidelines and orientations

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1.Executive Summary

This report corresponds to Deliverable D2.2 from the C4S project and aims at conceptualising and summarising the key aspects of the International Observatory on Inclusive Science Education (IOISE) that will be launched by M36. As such this Deliverable presents a set of guidelines to follow from its conceptualisation to its final implementation. The following guidelines present not only the aims and objectives of the IOISE but also the governance structures and mechanisms as well as some key aspects of a sustainable existence after wrapping up the C4S project by M36.

Currently the IOISE is being conceptualised together by WP1, WP2 and WP5 and is closely connected to Inclusive Science Education issues which have been emphasised throughout the C4S project alongside RRI principles and an emphasis on the SDGs. The aim of this set of guidelines is to build a functional structure which could also be of reference to institutions, researchers and educators (amongst other experts) interested in promoting and disseminating science education from an inclusive standpoint. They are meant to be considered by institutions on EU, international and national level as well as policy-makers when setting policies and regulations to create science initiatives and projects focussing on inclusiveness (education plans, citizen science projects, SwafS, etc.)

2.Introduction

The International Observatory on Inclusive Science Education (IOISE) is one of the main outcomes of the “Communities for Sciences (C4S) – Towards Promoting an Inclusive Approach in Science Education” project. This project’s goal is to promote science education with an inclusive approach to children aged 0-16 years. More specifically it aims at approaching science education, from a hands-on and co-participatory perspective to children and families in situations of vulnerability or risk (specifically, in C4S we have taken into consideration children and families from Roma communities, from migrant background and also children with a disability) given the fact that not all children have the same possibilities at accessing science education of quality. Furthermore, the C4S project aims at detecting and proposing alternatives in science practices or science education initiatives that may carry biased approaches, generate accessibility barriers or may not allow certain communities or groups to be visible enough in science. Therefore, C4S promotes activities that open new possibilities for children regardless of their context or sociodemographic condition. The focus is sent on active engagement in positive hands-on and co-participatory science activities and experiences available for all with appropriate mechanisms of inclusion while also engaging in antisexist, antiracist and anti-ableist initiatives in science education.

The IOISE is conceived as an open resource by means of a website which will provide a set of tools, resources and initiatives for educators, researchers and experts on science education and inclusiveness. It will also provide reports about the current state of science education related to



inclusive or non-inclusive issues. The following section provides information on its functions, internal management mechanisms, external dissemination alignment and strategies for its sustainability in time.

2.1 Current context and scope

Before and during the development of the C4S project, important changes have occurred at national and international levels. The **2008 economic crisis** increased economic poverty, affected societies as a whole on political level, promoted the rise of new populist extreme-right discourses and also caused a severe negative impact upon communities in vulnerability risk situations. There was also an increase in the numbers of people unemployed, especially from already marginalized groups (migrants and other minorities, citizens from low socioeconomic background, and even families from middle-class social strata) exposed children to instability of the households and amplified already existing inequalities and discrimination (UNESCO, 2009; Eurydice Report, 2019; Council of Europe, 2011).

In the aftermaths of the 2008 crisis, the **increase in xenophobic, hate and sexist discourses** (Council of Europe, 2016; Council of Europe, 2017) called for a renewed awareness in the European population regarding the richness of diversity and the need for gender equity. Stressing the importance of deepening the alphabetisation in critical and analytical thinking, the quality of democratic practices and initiatives to improve convivial mechanisms, is vital not only at a general level but also at more targeted-disciplinary levels, such as in science/science education.

Yet, even though the 2008 crisis was finally overcome, the urgency of the **climate crisis** became more pressing in the following years. This confronts people faced by social and economic injustice with additional pressure arising from environmental injustice, since these phenomena are often closely linked (Barouki et al., 2021; Benach et al., 2019; Laster Pirtle, 2020). Thus, fostering an awareness and alphabetisation about the importance of ecological sustainability and the risks of climate change stands for the inclusion of minorities and communities in vulnerability risk situation as well.

In addition to this, **the COVID-19 Pandemic** generated a new wave of worldwide insecurity and economic and social backlash. Children have been affected in multiple terms, such as emotional and psychological instability, lack of movement due to the lockdowns, loss of routines, dependence upon screens (if they had appropriate access to the internet) and the effect of the digital gap in certain social groups, etc. (OECD, 2020; Vivek, 2020; de Figueiredo et al., 2021; Gupta & Jawanda, 2020; Tasnim et al., 2020; United Nations, 2020a; Inter-Agency Standing Committee (IASC), 2020; Kramer et al., 2014; Zemrani et al., 2021). Children from low socioeconomic backgrounds were even more affected due to their lack of access to green spaces and the anxiety generated within their households due to the insecure economic situation. Girls were more affected than boys by the data collected so far (Bambra et al., 2021; De Paz et al., 2020; Gupta & Jawanda, 2020; OECD, 2021; Park & Inocencio, 2020; Peterman & O'Donnell, 2020; Salasan Consulting Inc., 2020; Save the Children, 2020; UN WOMEN, 2020; United Nations, 2020b) and in coherence with what occurred in previous pandemics worldwide



(it is well documented how pandemics suppose a risk especially for girls and women, such as redress of resources for the protection or care of girls and women, higher exposure during lockdowns to violence or abuse within the households, less capacity to raise their voices and demands in public spaces, assumption of traditional roles of care leaving in a secondary place other potential professional roles,...- Lokot & Avakyan, 2020; Save the Children, 2020; The Alliance for Child Protection in Humanitarian Action, 2018; UN WOMEN, 2020; United Nations, 2020a, 2020b). It is well documented that during the COVID-19 pandemic women published less than men in scientific journals, possibly because during such period they assumed (or were imposed) as well the traditional roles of care. Likewise, people with disability suffered many problems since policies and measures often didn't account for the realities and needs of people with a disability (Gupta & Jawanda, 2020; Salasan Consulting Inc., 2020).

The **rise of Pseudo-scientific discourses** also put at risk the health of entire groups (especially those with vulnerability risk) and are used by different political platforms to promote renewed accusations against minorities or ethnic groups (e.g., of being responsible for spreading the virus using pseudo-scientific arguments to boost racist claims – Sontag, 1978; Devakumar et al., 2020 ; Hall et al., 2020; The Alliance for Child Protection in Humanitarian Action, 2018; Wang et al., 2021) . Thus, countering pseudo-scientific discourse should be considered as a priority to avoid its misuse of science (or even the use of pseudo-science disguised as science) with racist, sexist or ableist implications or ramifications. The IOISE, being set in this **multifaceted context** should account for the relevance of not only raising awareness for the importance of inclusion in and through science but also the importance that all children, regardless their economic, social or cultural context, must be able to learn from and enjoy science education. It is essential to provide **equal opportunities for all, design open co-creative learning spaces** and support activities that enable children to **raise their voice and be relevant social actors**. Following this current panorama, it seems also vital to conceive the IOISE as playing a major role in **alphabetising citizens** in the misuse of science and in **actively generating counter-discourses** against pseudo-scientific arguments (disguised with scientific terminology or *mise-en-scene*) that ultimately have a negative impact upon already vulnerabilised populations (such as migrants, Roma or other minorities).

Children targeted by the C4S project were often faced with multiple discriminations, emphasising the need for inclusive approaches that account for individual identities and realities of life. By creating, in the C4S project, Community Living Labs in different European cities, we were able to better understand how to introduce inclusive science education with educators and overcome barriers to communities, which are often excluded or marginalized. The aim was to increase the visibility of scientists with a plurality of backgrounds and realities in order to deepen the idea that science education can only benefit from diversity. Supported by a literature review process undertaken within the C4S project, the importance of the ISE approach was identified as well as useful strategies and exemplary initiatives to overcome exclusion and bias in science education. Encouraging members of vulnerabilised communities to **raise their voice and strengthening their decision-making capacities in scientific and daily contexts** will boost their visibility and enable using science for a fairer and less classist or segregationist societal development. The IOISE will foster tools that allow educators to create inclusive spaces for science education, promote visibility of/and diversity within the discourse and allow for a lively exchange of knowledge and materials.



2.2 C4S & IOISE Rationale & Mission

The IOISE will contribute to enhancing social interaction in ISE research and enable the promotion of best practices, allowing to learn from other existing initiatives and apply proven elements in other initiatives or contexts. With opening the space for presentation of ISE practices, the community will have the opportunity to detect gaps in ISE research as well as practice and overcome deficiencies by collaboration and transformational approaches.

The IOISE will be built and launched with the premise that the promotion of an inclusive approach in science education requires networking in a coordinated manner both at Bottom – Up and Top-Down levels. Thus, from a Top-Down approach the IOISE will contribute to the increase and consolidation of international and local networks that share a common analytical agenda, fruitful dialogue and interventions. The IOISE will also boost and enforce Bottom-Up co-participative and co-design processes (with community-members, researchers, educators and children) that will ensure its horizontal approaches and decision-making on ISE issues to provide solutions and responses to local needs arising at grassroots level. The promotion of Inclusive Science Education requires stable mechanisms that allow a follow-up on the scientific (and pseudo-scientific) and pedagogical practices in order to detect (old and new) biased initiatives from an inclusive and intersectional perspective. The mission is not only to detect but also find means to dismantle barriers for children and families from these communities in order to strengthen active participation.

In addition to this, the lack of visibility of women, members of minorities, migrants and people with disability as positive agents of change and particularly as main actors in science requires the IOISE to play a leading part in provision of space for these communities to raise their voices in science and reach wider number of citizens interested in science or in situations related to scientific phenomena (i.e., climate change, pandemics, environmental injustice...). Allowing children to discover new scientific referents from a more plural viewpoint (women scientists, Roma or black scientists, scientists with a disability, etc.) can enrich their own perspectives. It enables children to mirror themselves upon other referents often neglected in science books, science museums or science documentaries, and thus to counter the negative discourses and self-image that the media and certain political discourses so often apply to members of these groups.

Establishing the IOISE as permanent platform and co-participatory space allows policy makers, educators, members of communities in focus to know one another and empower themselves and other citizens in different countries to easily join and shape the discourse on inclusive science education. As moderated forum, the IOISE puts an emphasis on equal opportunities, participation and open access to knowledge, as well as hands-on materials.



2.3 IOISE Objectives

The International Observatory on Inclusive Science Education promotes an agenda of inclusiveness through science education, provides tools as well as learning opportunities, and documents; critically analyses biased practices on science education and provides a platform for the dissemination of good practices.

Promoting and supporting an agenda of inclusiveness through science education and strengthening the ISE network

- Encouraging scientific vocation in those with diverse backgrounds and making their work visible in a non-stereotyped way.
- Providing orientations, recommendations and assessment on ISE initiatives and topics to editorials, museums or other types of institutions involved in the dissemination of science to ensure the quality and inclusive potential of their products.
- Networking with other institutions, scientists, researchers, educators, communities or other citizens interested or actively engaged in ISE issues to share and disseminate ISE materials, initiatives, good practices.
- Strengthening existing social interactions in Inclusive Science Education (ISE), exchange experiences about ISE worldwide and to open co-creation spaces
- Promote snowballing ISE initiatives that benefit children and families for their own empowerment and allowing citizenship at large to be informed about the risk of a “science without soul” (i.e., technology promoting neo-colonial practices, scientific development with a negative impact upon the most vulnerable, the invisibility of women or other minorities in pedagogical textbooks, documentaries, science museums, technologies fostering environmental or social injustices or sexual/racist/ableist tropes, etc.).

Providing tools & learning opportunities

- Facilitating practical tools and resources to educators, families and policymakers to promote more inclusive initiatives or practices in inclusive science education / communication / dissemination;
- Disseminating the results of up-to-date research related to Inclusive Science Education (ISE) issues as well as producing and improving existing knowledge in ISE topics;
- Offering an agenda of scientific alphabetisation (from an ISE perspective) through periodical seminars/webinars/workshops addressed to educators, researchers, experts and policymakers to counter pseudo-scientific discourses that promote racist, sexist or ableist practices.
- Providing practical tools for successful ISE implementation
- Dissemination of research on Inclusive Science Education

Documenting new insights, unmasking biased practices and disseminating good practices

- Detecting and redressing biased practices (i.e., sexist, racist or ableist practices, amongst others) in science initiatives/products/discourses



- Documenting biased practices and disseminating good practices on Inclusive Science Education (historical documents or figures, current initiatives, ...)

2.4 IOISE Transference and Impact based on C4S values

Following the work engaged and boosted by the C4S project, the IOISE aims to work from a quintuple helix approach, networking with and engaging different types of institutions (academia, business, policy-makers, associative world and NGO's - and individual citizens at large in connection with the local environments of the researchers and pedagogical institutions involved, Community Living labs, etc.) to establish a solid net of local ISE initiatives. The IOISE is supposed to grow in an open interactive platform for making the voices heard. These are the voices of experts and scientists who tend to remain invisible at an institutional level because of their individual characteristics (lack of representation of women referents in museums, lack of historical black or Roma figures in science books, lack of scientists with disability visible in the media, etc.)

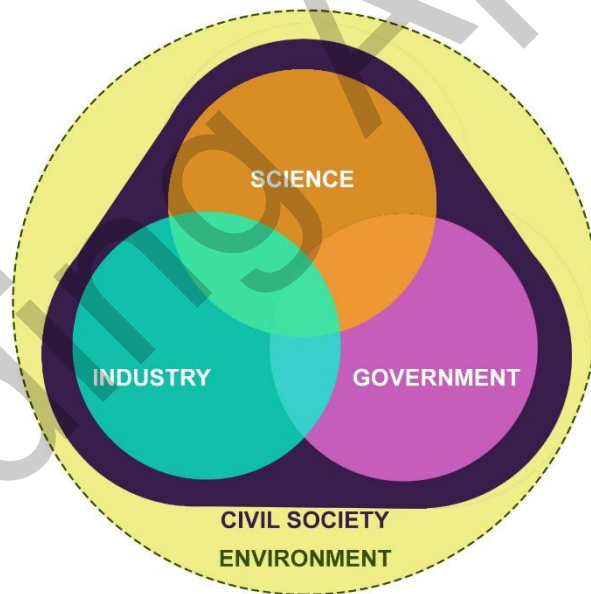


Figure 1: Quintuple helix model

The IOISE shares the values of the three O's (Open Innovation, Open Science, Open to the world) making its products and reports available to all without cost, facilitating the impact of such results through direct transference and open access philosophy.

The IOISE transference is aimed both at a Top-Down macro and Bottom-Up micro levels. Macro level presupposes reaching to policy-makers as well as political and cultural institutions sharing similar values. Micro level is seen in sharing practical ISE materials and training workshops addressed to educators, schools and pedagogical practitioners. This double-sided scope (at macro and micro levels) is conceived with the awareness that Bottom-Up initiatives have a



wider impact when decision-makers at a higher level, act in harmony with such values. The chosen approach facilitates certain initiatives at grassroots level to flourish and spread both horizontally and vertically throughout different dissemination channels, local realities and wider audiences.

Practices and local initiatives can succeed or fail depending on whether legislative initiatives and regulations open or shut doors. Hence the goal is to work closely both with pedagogical practitioners, directly working with children and families from communities in vulnerability risk situation, and with policy-makers working on legislative missions and political agendas.

2.5 Foundations for an Operational Plan

In order to be operative, the IOISE has certain preliminary requirements before its launching in M36. Given that the launching of the institution will occur by the end of the C4S project requires well-developed and structured plan for its own sustainability, ensuring functioning on its own beyond the life of this H2020 project.

Below, in bullet points, there follow the preliminary requirements for the operativity of the IOISE (before its launching)

- To integrate the IOISE as a virtual platform with the existing C4S Webpage, technical requirements to ensure intended functionality need to be identified.
- Implementation of the IOISE as virtual platform, testing functionality and reviewing user experience (with an emphasis on an inclusive and open design).
- Define content criteria accounting for the quintuple approach chosen for the IOISE and inviting stakeholders to create and contribute content detecting needs and useful services.
- Define mechanisms for content quality assurance and adequate moderation.
- Define user groups and elaborate tailored possibilities of user experience.
- Co-construct with involved communities a set of ethical guidelines to ensure the voices and demands from those communities are included within the IOISE decision-making process and to avoid a tokenistic approach.
- Co-define a stable governance structure and statutes that will allow the IOISE working after its launching in M36.
- Identifying and perusing different options to establish sufficient financial resources to sustain the IOISE beyond the C4S project period.
- Develop a communication strategy both for internal communication to keep an adequate internal channel for coordination purposes with stakeholders and for external communication as a dissemination tool to reach wider impact at local and EU level.

Below, in bullet points, there follow the requirements for the operational functioning and sustainability of the IOISE (**after its launching**)

- Raise sufficient funds to maintain the IOISE after the C4S project termination.



- Integrate the IOISE into the institutional framework of the C4S partners (FUB, UNIMIB, EhB, Galileo, IB, LU, NBU, RCE) and other relevant institutions, to strengthen the importance of ISE and the proposed approach.
- Set up / activate the governance structure and statutes and enforce mechanisms for its appropriate functioning.
- Co-define and set up a bank of resources and initiatives that will be available through open access philosophy to user.
- Build a community of users & content providers, expand the ISE network and communicate the opportunity to participate, highlight benefits of participating and user content creation to relevant stakeholder, to ensure a vivid exchange among the community.
- Activate a moderator / manager of the IOISE webpage to curate website contents and ensure the proper website functioning and appropriate user-experience. Report any potential or actual bugs in the services provided.
- Establish priority lines & teams, prioritise IOISE actions during the first period of implementation (lines of research, coordinated actions with communities in focus, assessment teams & training programmes for policy-makers, educators...) by defining a calendar of actions for the first operative period to ensure the appropriate deployment of the IOISE basic features and to ensure its impact.
- Elaborate a set of indicators and KPI's, to monitor the reliability and impact of the IOISE actions, and the correct functioning of a pre-defined ethical guidelines.

Also, to make the IOISE an effectively functioning platform tending to grow into an interactive space for those interested and somehow related to Inclusive Science Education (ISE), a brief study of likewise observatories has been conducted (see Annex 1).

3.Functions and Principles

To maintain the IOISE with high quality standards and ensure an inclusive approach, all actions concerning the IOISE will follow these principles and aim at providing an adequate functionality, that allows us to fulfil the proposed mission.

3.1 IOISE Principles & Ethics

All actions set during the elaboration, implementation and maintenance of the IOISE are carried out in accordance with the Responsible Research and Innovation (RRI) approach, the objective of Science with and for Society (SwafS) and follow these principles:



Fairness and Equality

- The IOISE as well as its governing body are co-constructed together with representatives from focus communities and by applying a Gender-Intersectional perspective, to ensure that all voices and demands are included.
- Representatives from all sides of the quintuple helix are included in the decision-making processes (if possible).
- Mechanisms to ensure an equal and fair representation of plurality, with a special emphasis on Gender equity and Intersectionality, will be enforced along all functions and contents of the IOISE.
- Diversity of representation in the governance structure in coherence with its aims and values
- Actions based in co-participation, co-creation and co-design with involved participants / actors

Transparency and Openness

- Mechanisms of transparency are implemented along all processes.
- All people involved commit to transparent communication with the IOISE community as well as the public.
- The IOISE follows the Open Access philosophy of its reports and media publishing (open and free for all).

Sustainability & Ethics

- All members involved commit to respect fundamental rights and follow the highest ethical standards.
- The Sustainable Development Goals (SDGs) will offer guidance in all actions.

Privacy Protection

- Gathering, storage, use & dissemination of data will be executed under consideration of the current EU General Data Protection Regulation (GDPR).

3.2 IOISE Main functions

To reach the IOISE objectives stated in section 2.3. the platform will provide the following main functions. Additional functions and possibility may be implemented at a later point in time, after launching and gaining experience in the operation.

Find listed below, IOISE functions aiming at the following objectives:

- **Promoting and supporting an agenda of inclusiveness through science education and strengthening the ISE network**
 - Providing opportunities to cooperate/co-create from a quintuple helix perspective with institutions of common social and political agendas for the promotion of Inclusive Science Education (ISE) initiatives.



- Enable cooperation with policy-makers and legislators for promoting and ensuring ISE initiatives.
- Plan and regularly implement outreach activities to ensure co-participation in the IOISE of members of communities to be heard and considered in their areas of expertise as part of the governance structure and/or IOISE initiatives.
- Function as platform for scientists and educator referents in ISE practices / initiatives.
- Provide assessment to science (or science-related) institutions and experts on ISE pedagogical approaches.
- Validate ISE practices.
- **Providing tools & learning opportunities**
 - Provide information on training opportunities for policy-makers, educators, experts and institution-representatives interested in incorporating ISE viewpoints and practices.
 - Provide ISE practical materials and resources for educators.
- **Documenting new insights, unmasking biased practices and disseminating good practices**
 - Elaborate Reports on ISE issues.
 - Disseminate and boost positive ISE practices.
 - Detect biased science education (or pseudo-Science) practices (i.e., related or with sexist, racist, ableist -and others- implications) and prevent their dissemination.

3.3 Engagement, Outreach and Networking

In order to ensure and enforce the coherence of the C4S inclusive discourse and practices within the IOISE governance structure, special efforts will be put in outreach and networking initiatives that aim at an active co-participation of members of the quintuple helix, including citizens members of vulnerabilised communities that can be benefited from an ISE approach.

Indicators and KPI's will also be used to periodically monitor these engagement initiatives and its impact.

4. Structure and Operational plan

In order to undertake its tasks and objectives (described above) the IOISE will require of a functional internal structure with clear decision-making paths as well as transparent governance mechanisms.

The structure, following the Ethics principles, should take into consideration having a fair representation of members of vulnerabilised communities within the decision-making mechanisms as well as a balanced representation of members of the quintuple-helix.



The structure will have experts with capacity of ensuring both a Bottom-Up close work at grassroots levels with involved communities in the dissemination and practice of ISE initiatives, and Top-Down work with policy-makers of legislative or other political initiatives that could facilitate the implementation of ISE policies or principles.

4.1 Governance structures & Management mechanism

The governance structure will be settled before the launching of the platform in M36. Initially it will be co-decided by the current C4S consortium members according to their capacity, competences and availability by means of polling. An appropriate and balanced representation of all interested parties will be enforced with a previous internal agreement specifying the tasks, commitments and duration, fair representativeness, voting procedures and calendar of actions (amongst which there will be the drafting and delivering of the permanent constitution of the IOISE).

Governance structure/main entities

The governance structure will include the following figures also with the aim to ensure an adequate balance in terms of representation of gender equity, intersectionality and diversity in accordance to its aims and values:

-
- Managing Team
 - o Managing director
 - o Expert on communication & dissemination
 - o Website technician & supporting technical team
 - o Expert/Scientist on ISE & supporting research team
- Board of advisors
 - o Expert methodologist advisor
 - o Expert scientist Advisor
 - o Expert ethics advisor

Managing mechanisms

Transparency: Management mechanisms and decisions will be based on transparency mechanisms to be defined in the IOISE constitution

Fair representation at horizontal and vertical levels: Mechanisms will be enforced to ensure a progressive representative structure (in terms of participating members of communities in focus, country and community representativeness, gender intersectional equity, quintuple helix...)

Constitution: a IOISE constitution will be voted in the initial months after the official IOISE launching (M36)



Outreach: One of the management mechanisms will consist in an Outreach team which will be dedicated to reaching communities, referents, experts, etc. in the field and to invite collaborators for the supporting IOISE networks

4.2 Organisation of the Operational Plan (Roadmap)

In order to launch the IOISE in M36 and progressively deploy its structure and functionalities from its minimal core to its latest add-ons, a Roadmap for this progressive deployment is devised as follows (Step 1 to step 4 correspond to the period before the launching in M36)

STEP 1

- Development and publication of the IOISE guidelines & orientation
 - o Defining its minimal governance structure
 - o Defining the IOISE core objectives, principles and functions

STEP 2

- Design of the IOISE webpage and initial functions
- Search for potential financial sources for its sustainability after the C4S project
- Weaving of a series of supporting networks (universities, citizen science initiatives, associations, policy-makers, institutions...) & dissemination of the IOISE aims and future functioning within and beyond those circles

STEP 3

- Establishing the IOISE Board of Advisors
- Setting up a team especially dedicated to writing an internal constitution for the IOISE and mechanisms for voting the post-deployment managing team
- Application to initial funding / financial sources for its initial deployment
- Technical implementation of the IOISE webpage

STEP 4

- Initial deployment of the IOISE basic features (uploading of initial reports, workshop programme...)
- Official launching of the IOISE website (M36)

STEP 5

- Voting of the internal constitution and of the post-initial launching management team
- Establishment of the permanent management team (involving new Consortium structure/new stakeholders present in the post-C4S period)



4.3 Handover and future development – Options and opportunities

STAGE 1: IMMEDIATE TERM

- Realization of STEP 1 to 4 of the Operational Plan (see above)
- Set up the basic IOISE functionalities with an emphasis on creating positive initiatives and co-creative opportunities
- Seek and apply for funding opportunities (including sponsors and research funding opportunities) for the IOISE sustainability in the short term

Other possible developments STAGE 1

- Disseminate and publicize its initial features and materials
- Establish initial contact and agreements with other International Observatories with similar aims and interests to reinforce their respective (or collaborative) campaigns and initiatives

STAGE 2: SHORT TERM

- Establish a sustainable programme of actions (workshops, training programmes...)
- Launch an initial communication campaign based on the IOISE objectives
- Seek and apply for more stable funding opportunities (including sponsors and research funding opportunities) for the IOISE sustainability in the medium term
- Establish and launch a IOISE research team (which may include external supporters / collaborators) to obtain, analyse and disseminate ISE data/products
- Elaborate on different development strategies and scenarios including a sound risk analysis
- Design an ambitious roadmap to sustainability, including members of the quintuple matrix in the design process and ensure addressing all dimensions of sustainability
- Set up a working team on basic core indicators for impact and monitoring of the IOISE initial deployment period (see next stage 3)

Other possible developments STAGE 2

- Launch a working group with EU policy-makers (and other supporters) with a common agenda of specific actions
- Maintain the current platform and assess / monitor / modify / increase the current features
- Elaborate and disseminate initial publications, data and recommendations on ISE issues



STAGE 3: MEDIUM TERM

- Monitor and deliver the progress and impact of the initial campaigns and initiatives of the IOISE and establish a new calendar of actions projecting the next years
- Monitor and deliver the internal and external management mechanisms and revise those aspect that require further improvement
- Monitor and deliver the implementation of the IOISE principles and ethical aspects (coherence, limitations, amendments...)
- Screening the platform in terms of accessibility in collaboration with experts and further break down barriers for users with disabilities
- Set up a basic line of communication/collaboration with EU and local policy-makers (top-down) and with scientists, educators and local communities (bottom-up) to foster ISE based on local needs
- Establish frequency of publications/initiatives and upload/disseminate with clear regularity

Other possible developments STAGE 3

- Publish the initial research results on ISE issues and disseminate them at EU level
- Publish some of the results in multiple languages

STAGE 4: LONG TERM

- Seek and apply for more stable funding opportunities (including sponsors and research funding opportunities) for the IOISE sustainability in the long term
- Consolidate common work with other networks, observatories and supporters and make a coordinated action plan to boost common initiatives with medium-long term impact at EU level
- Consolidate coordinated Top-Down actions/working tables with policy makers, experts and institution representatives and Bottom-Up with community members and citizen initiatives/representatives on ISE issues
- Monitor the progress and revise the structure, materials and functionality
- Refine and reinforce the core functionality of the IOISE platform. Assess possible new features or modifying previous ones

4.5 Content & Quality management

Active moderation and curation of content as well as principles of equal representation, as state in the principles and ethics as well as governance section, will ensure the IOISE's high quality throughout time. As elaborated in the section on future development it is planned to establish a reliable evaluation process, which will further help to fulfil and maintain high quality levels.



6. Conclusions

These guidelines will give orientation in the process of designing, implementing and successfully sustaining the International Observatory on Inclusive Science Education (IOISE). As outlined in the introduction, the IOISE will be established in a panorama of multiple societal challenges, that calls for an emphasis on inclusive science education. As a tool to foster inclusive practices (and detect biased ones), strengthen visibility, make voices of referents from communities in vulnerability risk situation be heard and give space to co-create among partners from the quintuple helix. The objectives, principles and functions outlined will guide the C4S consortium in setting next steps in accordance to the operational plan and immediate, short and mid to long-term development opportunities. Installing a functioning and well-balanced governance structure will be crucial for the sustainable operation of the IOISE. Weaving a strong network of quintuple-helix societal actors (on all levels – EU, international, national, municipal, community) but also agents from informal and non-formal contexts, initiatives (bottom-up and top-down) and interested citizens will be of great importance to establish the IOISE on solid and acknowledged ground.

The IOISE Guidelines at hand provide a solid foundation to implement the IOISE as permanent institution that promotes inclusive science education and emphasises an inclusive approach along the entire process. The C4S consortium will take orientation in this document and implement the IOISE to their best ability.



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Pending Approval



ANNEX 1. Similar Observatories

To make the IOISE an effectively functioning platform tending to grow into an interactive space for those interested and somehow related to ISE, a brief study of likewise observatories has been conducted. The similar online resources were revised under the following criteria: **navigation, content, interactivity and user-friendliness.**

The observatories revised are as follows:

- End Violence against Children (<https://www.end-violence.org/who-we-are>)
- The Spanish Observatory on Racism and Xenophobia (<https://www.inclusion.gob.es/oberaxe/en/index.htm>)
- International Observatory on the Societal Impacts of AI and Digital Technology (OBVIA) (<https://observatoire-ia.ulaval.ca/en/>)
- The Economic, Social, Cultural and Environmental Rights Observatory or Observatori DESC (<https://observatoridesc.org/en/who-we-are>)

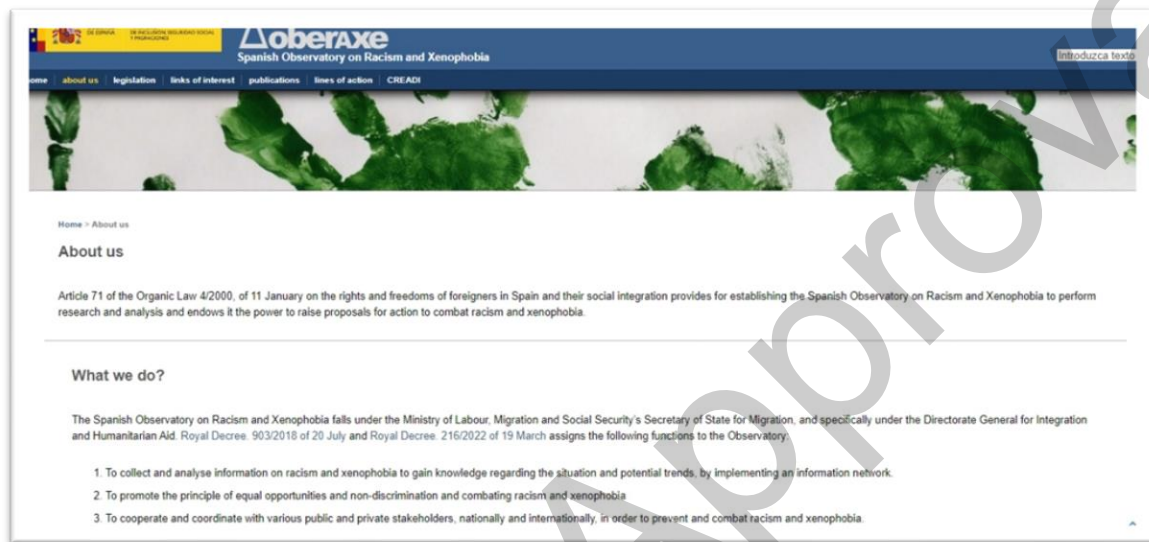
Thus, the **End of Violence Against Children Observatory** sees itself as a platform for collective, evidence-based advocacy and action. Indeed, when navigating the platform, one finds rather well-structured and organized content. The content reflects both dimensions in the mapping of observatory: strategies, plans, space for elaborating initiatives, fund-raising possibilities, grants, current news and events etc. In terms of a user the platform is quite easy to navigate and user-friendly.



The **Spanish Observatory on Racism and Xenophobia** focuses on gathering information on projects, surveys, resources, reports and research to combat racism, racial discrimination,



xenophobia and other forms of intolerance. This platform offers little space for elaborating common actions, but scores with easily accessible content, which is well structured and organized in different levels. For example, the part “legislation” provides resources divided according to the levels: international, European, national and local. Moreover, the site provides “useful links”, which easily redirect the user to the necessary data.



The **International Observatory on the Societal Impacts of AI and Digital Technology (OBVIA)** helps communities, organizations and individuals maximize the positive outcomes of artificial intelligence (AI) and digital technology and minimize the negative effects of technology. Fostering public debate, engaging in strategic monitoring, research and knowledge creation as well as providing scientific and analytical support to public decision makers are core functions of the observatory. The OBVIA presents a clear vision and elaborated governance structure. Participation is highly encouraged and a differentiated participation model offers broad opportunities.





The **DESC Observatory** is seen as an interactive space to detect problems and elaborate their further solutions. The observatory's tools are well structured, easy to navigate and user-friendly. The strength of the platform lies in providing not only resources to detect and combat bad practices, but also in possessing educational area with trainings, courses and other online activities. In addition, the platform collaboration frequently results in positive legislative changes.

The screenshot shows the website for the **OBSERVATORI DESC**. At the top left is the logo, and at the top right are social media icons for Facebook, Twitter, YouTube, and LinkedIn. Below the logo is a navigation menu with links: **QUI SOM**, **WHAT WE DO**, **WORK AREAS**, **WHAT'S NEW**, and **CONTACT**. A search icon is located to the right of the menu. Below the navigation menu is a secondary menu with links: **Catalog of services**, **Training**, **Strategic litigation**, **Publications**, **Projects**, and **Sessions**. The main content area features a section titled **What we do** with the following text: "The **Observatory DESC** combines **political advocacy with research**, through the elaboration of reports, studies and publications, with the will to denounce violations of rights and seek proposals to improve the guarantee of ESC rights. We also organise courses and conferences, promoting **training in human rights** and in those tools necessary to **develop regulations and public policies for social transformation**. In this sense, we offer **technical advice** to public administrations in the area of social rights. **Strategic litigation** is also a form of accompaniment of popular demands, which guide the action of the Observatory on ESC rights." Below this text is a grid of six orange buttons, each with an icon and a label: **CATALOG OF SERVICES** (wrench and screwdriver icon), **TRAINING** (person at a computer icon), **STRATEGIC LITIGATION** (gavel icon), **PUBLICATIONS** (book icon), **PROJECTS** (folder with pencil icon), and **SESSIONS** (calendar icon).

This short survey has enlightened the C4S consortium in terms of the IOISE content organization and provision as well as showing the path to its better governance and management.