

Doing Science with Art & Art with Science

Supporting art contamination and cross-fertilization with science

HIGHLIGHTS

- Art based on and nurtured by scientific research, i.e., the **'SciArt' field**, is a powerful transdisciplinary tool to engage people in scientific inquiry. The value of this approach is increasingly recognised in terms of its **potential for transformation and innovation**.
- When included in the scientific process, art can be a **potent tool in the science for policy methodology** by creating mutual dialogue, multiple feedback loops between stakeholders, and by engaging with critical, divisive and complex issues in creative and sensory ways that might stimulate active public debate.
- The power of SciArt is not about communicating science in innovative ways but rather about **matching solid scientific findings and evidence with creative, provocative and empathetic interpretations** thereof – thereby conveying the nature and core messages of scientific advice and setting it into context.
- **Policy should be implemented to embrace the complexity of SciArt and support existing SciArt synergies** in terms of personnel (for example promoting the structural insertion of artists and/or designers in research groups), time (organising and incentivising training on art and science), rewards (considering art and science synergies in career evaluation) and resources.



Figure 1 – Feeling Science: A Theatre Experiment (performance)

Source: The JRC SciArt project

'Science becomes nurtured by art which is in turn nurtured by science, generating a deep engagement of ordinary people with scientific research, a sense of meaning and value, and a feeling of ownership.'

SETTING THE SCENE

Art to reconnect science with emotions

Science is becoming every day more contested yet more often called upon to address wicked problems. In a context of post-normal science, nothing is accepted as granted – especially if coming from 'detached' scientists speaking an unintelligible language. Ordinary people start **appropriating science** turning it into citizen science, at times cooperating with official scientists, at times contesting them. This engagement of non-expert individuals and communities in science make us hypothesise that science has to become more empathic, close and able to **speak a language understandable by society**. Art is maybe the emblem of a language that **stimulates emotions, engages audiences and provokes reactions**. Moreover, in recent years, artists have been taking up practices and tools of scientific research, approaching science with a renewed curiosity and, often, a sound combination of scientific knowledge and skills. Joining forces with these research-based artists, scientists would do good to **embrace**

art to rediscover their communicative potential and their ability to generate an impact while speaking to society, as well as to engage a diversity of audiences and generate socially robust knowledge.



Figure 2 – SciArt fair at the Resonances IV Summer School

Source: The JRC SciArt project

On the SciArt arena, research thrives

In this brief, we introduce the promises but also perils of ‘contaminating’ science with art and vice versa. We frame art as an instrument to bring science closer to the public, not limited to science communication, but going way beyond it, as **art can link science to our humanity and thus can help different audiences embrace and understand it**. Science becomes nurtured by art, which is in turn nurtured by science, generating a deep and active engagement of ordinary people with scientific research, a sense of meaning and value, and a feeling of ownership. Art can also help scientists in engaging research participants intellectually and emotionally, by lowering the barriers between scientists, their subjects and the way these can or cannot resonate with the public.

THE PROMISES OF SCIART

Based on our ongoing analysis of the field and exchanges with professionals and researchers working at the intersection of art and science, we can flag the following takeaways:

- When we want to **break the barriers** between our science and the general public, art is a powerful instrument as it stimulates **a deep and emotional engagement** with our scientific discoveries and dilemmas; art is not just a tool to communicate science, but rather **stimulates knowledge and curiosity** and further engagement with science and scientific methods.
- **Art based on and nurtured by scientific research** (the so called ‘SciArt’ practices) is a very **powerful transdisciplinary tool** to engage people in scientific inquiry and its methods. The value of this approach is increasingly recognised in terms of its **potential for transformation and innovation**, by contributing to knowledge production (for instance via the participatory involvement of ordinary people, or the development of new materials and techniques) or by promoting changes

in socio-cultural norms and behaviours.

- Science & art synergies can also generate **empathy for difficult research topics** that are hard to communicate and generate aversion such as the climate crisis and child abuses. Creativity and the arts are a powerful tool to dynamically engage and **develop agency around given topics** that are particularly complex.
- When included in the scientific process, **art can be a potent tool in the science for policy methodology** by creating mutual dialogue, multiple feedback loops between stakeholders, and by engaging with critical issues in creative and sensory ways that might stimulate active public debate.
- The power of SciArt is not about communicating science in innovative ways but rather about **matching solid scientific findings and evidence with creative, provocative and empathic interpretations** thereof – thereby conveying the nature and core messages of scientific advice and setting it into context.
- Several scientists are already embracing art and working with artists. This proved to be a **demanding process that requires time and resources** but that can deliver high gains such as rediscovering our humanity, enhancing researchers’ communication skills, and getting a fresh new look on our research questions.

Box 1: The JRC SciArt initiative

The *JRC SciArt project* has been working with professional artists and creative professionals since its inception in 2016. In 2017, a science/art Strategy for the JRC was outlined in a dedicated technical report, also learning from success stories such as Art@CERN. The aim of the initiative is to investigate the crossbreeding of sciences, arts and policymaking. More than 100 JRC scientists and 60 artists have been involved, generating research, co-conceived artworks, articles in peer-reviewed journals, and novel areas of inquiry that have been exhibited widely and internationally in major European venues. The project supports international transdisciplinary activities as well as local or independent initiatives such as the recent theatre and science experiment Parola di [Donna@JRC - Feeling Science](#). The flagship initiative of the project, *Resonances*, gathers scientists, artists and policy-makers to explore and co-create around a priority topic for the JRC and the broader European Commission. The fourth edition of Resonances dedicated to the topic of “[NaturArchy: towards a Natural Contract](#)”, wants to reimagine our relationship with nature by investigating issues of deep ecology and sustainability through the legal lens of the rights of nature. Lastly, the [Art & Science for the New European Bauhaus](#) project exemplifies the potential that the creative dialogue between science and art and a cross-disciplinary culture can bring to tackle societal complex problems.

INSIGHTS FROM THE JRC SCIART STRATEGY

Interested policy-makers and scientists can find guidance in the technical report “**A SciArt Strategy for the JRC. Integrating art into JRC science and policy support work**” by Adriaan Eeckels, 2017. In particular, the sections “Why a SciArt Strategy for the JRC”, the Strategy itself and “Means for an art/science strategy” are key. Highlights from the conclusion are reported below, inasmuch as they can be generalised to the broader EU SciArt panorama:

- *An art/science policy should be based on firm principles (...). It should establish a mature collaboration between scientists, artists and policymakers based on an equal relationship that respects the differences in approach of disciplines.*
- *The objectives should be to create a lively climate of innovation (...), to reinforce the collaboration with local communities.*
- *A successful art/science programme will also develop innovation levers, helping with the introduction and dissemination of design thinking; it will investigate novel methods of scientific publication, experiment with innovation methodologies (...).*
- *Any art/science strategy must dispose of appropriate means, permitting artistic excellence in close collaborations with existing practitioners, as a guarantee for the quality of the programme. Remunerating and valuing the work of artists is fundamental as they are experts whose work is as important as scientists’.*

Since the outline of these principles and objectives, five years have passed. Much has been achieved, yet much still needs to be done. Independent initiatives have shown a growing participation of (JRC) scientists, indicating the successful deployment of the project while at the same time a need for recalibration of the strategy, embracing SciArt complexity.

Box 2: Science and art practices at the JRC

Some pioneers amongst JRC scientists are already experimenting with art and science fusions, finding synergies with the SciArt initiative. For example, the [Sensing for Justice](#) project (SensJus) – which explores civic monitoring as a source of scientific evidence in environmental justice litigation – has been experimenting with [graphic novels](#) to recount scientific findings, with a [theatre performance](#) to elicit reactions, with live drawing in [scientific](#) and [popular](#) events, and [illustrating consent forms](#) for research participants. JRC scientists have also used [comics to make children aware](#) of personal data rights and privacy risks on the web, or simply to reflect on our daily lives as scientists within the JRC through a “JRC Comics” saga.

Figure 3 – SensJus graphic novel exhibition at the JRC

Source: The SensJus project



CONCLUDING REMARKS

Our analysis of the field enables us to formulate the following recommendations:

- EU and Member States’ (MSs) policy-makers could support existing science and art synergies – for instance those already ongoing at the JRC – in terms of **personnel** (for example promoting the structural insertion of artists and/or designers in research groups), **time** (organising and incentivising training on art and science), **rewards** (considering successful art and science synergies in career evaluation) **and resources** (providing resources to artists that are/will be working with scientists).
- Overall, the **cultural enrichment** provoked by working with the arts and the consequent enlarging of one’s horizon **should be recognized at a policy level**, as all this in turn feeds into improved and more relevant research questions. SciArt is a meeting between disciplines in order to trigger innovation and discovery, but also uncertainty and investigation on the limits of our knowledge, of our research and of our practices.
- Scientists within EU institutions and across MSs, in particular, could **exchange experiences**, for example regarding the success (or lack thereof) of science and art collaborations. Suitable platforms for these exchanges could be the [public website](#) of the JRC SciArt project and informal communities of practice.
- Scientists should be encouraged by their institutions to **explore SciArt in its full complexity and with the critical spirit** that characterises any scientific approach. They should also be allowed to perform **advocacy work to leverage the inclusion of art in daily scientific practices**, being present in public events, civic spaces, and education forums.

QUICK GUIDE - This policy brief has been curated by the project *Sensing for Justice* (SensJus) and by the SciArt project, both hosted at the JRC. SensJus investigates the potential and applications of civic monitoring as a source of scientific evidence in environmental justice litigation and as a tool for mediation, also using art in its research inquiry. See <https://sensingforjustice.webnode.it/>. The JRC SciArt project brokers and curates transdisciplinary exchanges and encounters between art, science and policy within the JRC and wider European Commission. See <https://resonances.jrc.ec.europa.eu/about>. The reflections contained in this document were inspired by a session convened at the European Commission JRC Science Summit 2022 within the thematic stream on “Needs for Science in the Future”.

RESOURCES

Austen, The Art + Science + Policy Nexus, JRC technical report, forthcoming.

Gawlik et al, 'The scientist, the politician, the artist and the citizen: how water united them', Environ. Sci- Eur. 30, 12, 2018.

The SensJus project page <https://sensingforjustice.webnode.it/>

The CyberChronix project page <https://visitors-centre.jrc.ec.europa.eu/cyber-chronix/>

The JRC SciArt project page <https://resonances.jrc.ec.europa.eu/about>

The JRC SciArt History page https://joint-research-centre.ec.europa.eu/knowledge-research/centre-advanced-studies/jrc-sciart-project/sciart-history_en

The JRC SciArt Strategy for the JRC, 2017. Forthcoming at <https://resonances.jrc.ec.europa.eu/>

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Figure 4 – Scribbling during the JRC Science Summit

Source: The SensJus project